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Pre-Project Study on the Conservation Status of Tropical Timbers in Trade

Volume II

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CONTENTS

Entandrophragma angolense **Family Meliaceae**
(Welw.) C. DC.

Trade names: Tiama, Gedu Nohor

Local names: Mukusu (Uganda), Tiama (Côte d'Ivoire), Edinam (Ghana), Kalungi (Zaire). Muyovu, Kikura, Koupri, Lokoa Popo, Zougou Bari, Cedar, Ziziezara, Tiama, Budongo Mahogany

Conservation status: This species is distinctly threatened in some parts of West Africa; for example, severe genetic erosion is evident in Nigeria, where few large trees remain (FAO, 1986). *In situ* conservation for the species is considered a priority by FAO (In Ghana *E. angolense* has an estimated resource life of 18 years (Alder, 1989). It is still fairly common in parts of East Africa, for example in the lake-side forests in Uganda (FAO, 1986). However, Odera (1984) draws attention to the heavy exploitation of *E. angolense* in East Africa and its poor regeneration. A world conservation category for the species has not been recorded in the TTC database because its status in various countries remains uncertain.

Distribution and national conservation status:

Angola	?	Liberia	E
Cameroon	R	Nigeria	?
Côte d'Ivoire	V	Sierra Leone	?
Gabon	?	Sudan	?
Ghana	C	Uganda	?
Guinea	?	Zaire	?
Kenya	E		

The conservation status categories for Cameroon, Côte d'Ivoire and Kenya have been applied by national experts contacted during the pre-project study. The category for Liberia was already recorded by WCMC, based on previous enquiries.

Habitat: *E. angolense* occurs in rain forests, deciduous forests and transitional formations.

The tree: Deciduous, up to 56 m tall. The bole is moderately straight, cylindrical, and clear to about 27 m. The trunk reaches a diameter of 1-2 m above large buttresses, which often extend for 7 m up the stem (FAO, 1986).

Timber properties: *E. angolense* is valued for its durability rather than its appearance; it has a pale pink sapwood with a heartwood that varies in colour from dark red to pale pink. The darker wood is denser and has better working properties than the lighter wood (FAO, 1986). Moderately durable, for its weight it has good strength properties although it is slightly inferior to Sapele (*E. cylindricum*) and to *E. utile*. It works fairly easily but has a marked tendency to tear during planing or moulding owing to its interlocking grain. It glues, nails and screws well.

Uses: Furniture, interior decorations, shop and office fittings.

Production and trade: *Entandrophragma angolense* is the principal timber species exploited in Zaire. It is one of the main timber species of Congo and production figures for this country are shown below. In 1989 Congo exported 9219 m^3 of this species in log form.

Production of *E. angolense* in Congo (m^3)

1982	1983	1984	1985	1986	1987	1988	1989
9317	7481	10937	9436	15348	11107	12443	13221

Source: Ministère de l'Economie Forestière (MEF) and Direction Régionale de l'Economie Forestière (DREF) reports

In 1989 Gabon exported 7013 m^3 of Tiama logs through the ports of Libreville and Port Gentil, and 5507 m^3 were exported in the first nine months of 1990 (source: Société d'exploitation des parcs à bois du Gabon (SEPBG). Côte d'Ivoire exported 9 362 858 kg of Tiama logs in 1988 (11 months) as recorded in the country's Customs statistics. Liberia exported 64 43832 m^3 of logs and 350474 m^3 of sawn timber in 1987 according to FDA reported trade. Exports from Ghana are shown below.

Export of *E. angolense* from Ghana (Lumber) m^3

1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
600	897	116	101	443	391	923	N/A	N/A	5155

Source: Timber Industry Development Board, Ghana (N/A = not available)

According to one UK trader, West African countries would like to sell more *E. angolense*. It is currently considered a secondary species as it is more difficult to work than *E. utile*, with more interlocked grain.

Of the returned **questionnaires** from UK timber traders, one company said they currently import *E. angolense*, originating in Liberia. They stated that imports had decreased and demand for this species was down.

Silviculture: The seeds soon lose their viability if not kept under refrigeration. The species is not easily grown in monoculture (because of *Hypsipyla* attack) and enrichment line planting is not usually successful (FAO, 1986).

Conservation measures

Legislation:

Cameroon - Minimum exploitable diameter 0.8 m

Côte d'Ivoire - Included in a list of protected species given by Decree No. 66, 31 March 1966

Gabon - Minimum exploitable diameter 0.8 m

Ghana - Included in log export ban; minimum exploitable diameter 1.1 m

Liberia - Included in log export ban (FDA Regulation 17, 1 October 1990)

Presence in protected areas:

Ghana Bia National Park

Kenya Kakamega Forest

Nigeria Sapoba Forest Reserve

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Entandrophragma cylindricum **Family Meliaceae**
(Sprague) Sprague

Trade name: Sapele

Local names: Aboudikro (Côte d'Ivoire), Penkwa (Ghana), Muyovu (Uganda), Sapelli (Cameroon), Libuyu (Zaire)

Conservation status: *Entandrophragma cylindricum* has been heavily exploited for the export market in West Africa and is now considered to be threatened in Côte d'Ivoire and Cameroon. In Ghana *E. cylindricum* has been estimated to have a resource life of 25 years (Alder, 1989). Within Cameroon the species is heavily exploited and is recorded in the TTC database as 'V'. It does, however, appear to benefit from shifting cultivation within the country, regenerating more readily in abandoned swiddens than in primary forest (Wyatt-Smith, 1987). Plumptre (*in litt.*, 1990) points out that Sapele is common but widely exploited in Uganda. *In situ* conservation is considered to be a priority for this species by FAO (1990). A world conservation category for this species has not been recorded in the TTC database because its status in various countries remains uncertain.

Distribution and national conservation status:

Angola	?	Liberia	?
Cameroon	V	Nigeria	?
C.A.R.	?	Sierra Leone	?
Côte d'Ivoire	V	Togo	?
Gabon	?	Uganda	C
Ghana	C		

The national conservation categories for Cameroon and Côte d'Ivoire have been provided by experts within the countries for the pre-project study, and the category for Uganda provided by Plumptre (*in litt.*, 1990).

Habitat: In evergreen, deciduous and transitional forest formations from Côte d'Ivoire to Cameroon and east to Uganda.

The tree: Medium sized, reaching up to 40 m and 3 m girth, with an average exploitable girth of 2-3 m. It has a straight bole and small buttresses.

Timber properties: This wood is sought after because of its resemblance to true Mahogany *Swietenia macrophylla*. The heartwood is moderately durable but resistance to termite attack is variable and the sapwood is susceptible to powder-post beetle attack. It works fairly well with hand and machine tools but some tearing can occur owing to its interlocking grain. The wood saws easily and finishes well.

Uses: Sapele is used in cabinet-making and fine furniture production. It is also used for decorative veneers, plywood, joinery, flooring and panelling.

Production and trade: *E. cylindricum* is one of the most important commercial timbers of Cameroon. Together with *Triplochiton scleroxylon* and *Lophira alata* it accounts for more than 50% of the total volume logged. It is one of the few species extracted commercially from the remote eastern part of the country (Rietbergen, 1988).

Production of *E. cylindricum* in Cameroon (m^3)

Year	1984/85	1985/86	1986/87	1987/88
Volume	360200	550517	421569	393206

Source: Direction des Forêts

Sapele is the second most important timber exploited in Congo. Since 1984 Sapele and Okoumé have accounted for 60-65% of timber exported from the country. Annual production figures for Sapele are as follows:

Production of *E. cylindricum* in Congo (m^3)

1982	1983	1984	1985	1986	1987	1988	1989
115240	150049	174400	163281	227189	237150	281777	369389

Source: MEF and DREF reports

Timber exploitation is concentrated in the southern forests of Congo, but Sapele is one of the few species extracted commercially from the northern forests. In 1989 Congo exported 224 680 m^3 of Sapele in log form.

In 1987 Gabon exported 11 130 m^3 of *E. cylindricum* logs through the ports of Libreville and Port Gentil and 8365 m^3 were exported in the first nine months of 1990 (source: SEPBG). Côte d'Ivoire exported 8 082 839 kg of Sapele logs in 1988 (11 months) as recorded in the country's Customs statistics. Liberia exported 3 684 647 m^3 of logs and 297 135 m^3 of sawn timber in 1987, as reported by FDA.

Export of *E. cylindricum* from Ghana (Lumber) m^3

1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
5275	4691	3089	1388	4065	3842	3359	N/A	N/A	6749

Source: Timber Industry Development Board, Ghana (N/A = not available)

UK imports in 1989 were 5662 m^3, of which 34% are from Ghana.

Of the returned questionnaires from UK timber traders, nine companies said they currently imported *E. cylindricum*, seven from Cameroon, three from Zaire, two each from Côte d'Ivoire, Ghana and Liberia and one from C.A.R. Four companies reported that imports and demand had fallen, three that they remained steady and one that imports had increased. One company said the Zaire timber came from a renewable source. Supply was very slow. Another firm, importing from Cameroon, stated that the length of time for contracts to arrive had affected the continuity of supply. A third trader pointed out that the best quality Sapele was available from south western countries such as Central African Republic but that lack of infrastructure restricted supply.

Conservation measures

Legislation:

Cameroon - Minimum exploitable diameter 1.0 m. Low taxes on timber volume harvested have encouraged loggers to harvest Sapele below the minimum girth limit (Rietbergen, 1988).

Côte d'Ivoire - Included in list of protected species given by Decree No. 66-122, 31 March 1966

Gabon - Minimum exploitable diameter 0.8 m

Ghana - Included in log export ban; minimum exploitable diameter, 1.1 m

Liberia - Included in log export ban (FDA Regulation 17, 1 October 1990)

Presence in protected areas:

Congo Parc National d'Odzala

Ghana Bia National Park, Krokosua Forest Reserve, Sukusuku Forest Reserve

Nigeria Okomu Forest Reserve, Sapoba Forest Reserve

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Wyatt-Smith, J. (1987). *The management of tropical moist forest for the sustained production of timber: some isssues.* IUCN/IIED Tropical Forest Policy Paper No. 4.

Correspondence and personal communications

R. Plumptre, Oxford Forestry Institute. *In litt.*, August 1990.

Khaya ivorensis A. Chev. **Family Meliaceae**

Trade name: African Mahogany

Local names: Acajou d'Afrique (Côte d'Ivoire), Dubini and Dukuma fufu (Ghana), Ogwango (Nigeria)

Conservation status: *Khaya ivorensis* is a valuable source of African Mahogany and has been traditionally exploited in West Africa for the export market. In various countries it is now considered to be threatened, as listed below. In Ghana *K. ivorensis* is one of the few species suffering from over-logging (Hawthorne *in litt.*, 1989). *In situ* conservation is considered to be a priority for the species by FAO (1990). A world conservation category has not yet been assigned to the species in the TTC database.

Distribution and national conservation status:

Angola	?	Ghana	C
Cameroon	V	Liberia	E
Côte d'Ivoire	V	Nigeria	?
Gabon	?		

The national conservation categories for Cameroon and Côte d'Ivoire have been assigned by experts within these countries. The category for Liberia was already held by WCMC, based on earlier enquiries.

Habitat: Coastal rain forests of West Africa.

The tree: Reaches a height of 60-65 m and can attain a girth of 7 m. The bole is straight and clear to about 30 m. It is heavily buttressed and has an average exploitable girth of about 4 m.

Timber properties: The heartwood is a uniform pink/red brown but darkens with age to a rich mahogany brown. *K. ivorensis* is moderately durable but its logs are susceptible to infestation by powder-post beetles and pin-hole borers. Its strength compares favourably with that of Central American Mahogany (*Swietenia*) and it is more resistant to splitting. It is easy to work and has good nailing and screwing properties. It takes a high polish and a good finish.

Uses: The timber of at least five species of *Khaya* has a long history of international trade. *K. ivorensis* is well known and widely used for panelling, furniture, interior fittings and high quality joinery.

Production and trade: The various *Khaya* species are not usually marketed separately, all being traded under the general name of African Mahogany. *Khaya* was popular in Europe in the immediate post-war years before Utile became popular in trade. As Utile and Brazilian Mahogany became available in large quantities, the demand for *Khaya* declined because of its interlocked grain. Over the past two years, with price increases for Brazilian Mahogany and Utile, West African Mahogany is once again popular in the UK market. In 1989, 11 324 ft^3 were imported into the UK.

Traditionally *K. ivorensis* has been the main species exploited in Côte d'Ivoire. An export trade was developed by the British by the end of the nineteenth century and it remained the major timber

Export of *K. ivorensis* from Ghana (Lumber) m^3

1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
2575	1598	903	1303	2996	3311	5743	N/A	N/A	10463

Source: Timber Industry Development Board, Ghana (N/A = not available)

species exported until 1951. Over-exploitation has resulted in its Vulnerable status within the country and a decline in its importance as a commercial timber. Export of *Khaya* from Côte d'Ivoire in 1988 (11 months) amounted to 13 393 053 kg, as recorded in the country's Customs statistics. It is uncertain whether this relates only to *K. ivorensis*.

In 1987 Gabon exported 16 849 m^3 of timber of *Khaya* logs through the ports of Libreville and Port Gentil and 17 029 m^3 were exported in the first nine months of 1990 (source: SEPBG). The botanical species name is not given.

Of the returned questionnaires from UK timber traders, seven companies said they were currently importing *K. ivorensis*, three from Cameroon, two each from Ghana and Liberia and three from Zaire, although the latter presumably relate to another species of *Khaya*. Three companies reported that import had increased and three that it had decreased. Demand was said to have dropped (two companies) or to have remained steady or varied (three companies). Several companies reported difficulties with supply, for example one which imported veneer from Ghana and another which had changed its source from Ghana to Zaire. Several companies mentioned Zaire or Congo as a source for this species and were, in fact, presumably referring to *K. anthotheca*.

Silviculture: Plantations have been of varying success, the main reasons for failure being given as damage by *Hypsipyla* (shoot-borers) and sun scorch. Recent research has shown that *K. ivorensis* is amenable to vegetative propagation using leafy stem cuttings. It has been suggested, therefore, that the species would greatly benefit from inclusion in tree improvement programmes based on clonal selection for good form and freedom from *Hypsipyla* attack (Leakey *et al.*, 1989).

Conservation measures

Legislation:

Côte d'Ivoire - Included in a list of protected species given by Decree No. 66-122, 31 March 1966

Gabon - Minimum exploitable diameter 0.8 m

Ghana - Included in log export ban; minimum exploitable diameter 1.1 m

Liberia - Included in log export ban (FDA Regulation 17, 1 October 1990)

Presence in protected areas:

Cameroon Réserve de Gibier de Campo (logging permitted)

Gabon Sibang

Ghana Bia National Park

Nigeria Omo Strict Natural Reserve

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Leakey, R.R.B., Tchoundjeu, Z., Longman, K.A. and Blyth, J.F. (1989). Vegetative propagation of *Lovoa trichilioides* and *Khaya ivorensis*. Final Report to UK Overseas Development Administration. ODA/NERC Contract No. F3 CR26 D406.

Correspondence and personal communications

Dr W. Hawthorne, Ghana Forest Inventory Project, *in litt.*, October 1989.

Milicia excelsa **Family Moraceae**
(Welw.) C.C. Berg

synonym: *Chlorophora excelsa*

Trade names: Iroko, Mvule

Local names: Odum, Elunli, Elui, Ala, Edi (Ghana), Mururi, Minarui, Mutumba, Murumba, Olua (Kenya), Mbara, Kimrumba (Uganda), Toumbohiro Noir (Senegal and Guinea), Simme (Guinea), Semli (Sierra Leone and Liberia), Kambala, Moloundou, Bangni (Central African Republic and Zaire), Mereira (Angola), Mufula, Mvule, M'Gonde (Mozambique)

Conservation status: *Milicia excelsa* has a wide range within Africa but is nevertheless considered to be endangered by FAO because of extensive logging (FAO, 1986). *In situ* conservation is considered to be a priority for this species by FAO (1990). According to Hawthorne (1989), the species is not threatened internationally but there are problems in maintaining stocks. A world conservation category has not yet been recorded in the TTC database because the conservation status in a number of countries remains unknown. The conservation category for individual countries, as recorded in the Tropical Timber Conservation database, is given in the country list below. It is estimated that in Ghana, where the species has never been common, *M. excelsa* has a resource life of ten years (Alder, 1989). Regeneration is, however, good within the country's disturbed forests. According to Odera (1984), *M. excelsa* enjoys great importance in the East African timber trade. It has been exterminated in most of the Kenyan coastal forests and considerably reduced in western Kenya. Cutting has been uncontrolled and exploitation heavy. It is widely exploited but not considered to be in danger in Uganda (Plumptre *in litt.*, 1990).

Distribution and national conservation status:

Angola	?	Kenya	V
Benin	E	Mozambique	?
Bioko	?	Nigeria	?
Cameroon	V	Sao Tome	?
Congo	? *	Sierra Leone	?
Côte d'Ivoire	V	Sudan	?
Gabon	?	Togo	?
Ghana	V	Uganda	nt
Guinea	?	Zimbabwe	V

* *M. excelsa* was previously listed in the Threatened Plants database as Endangered but recent enquiries for the ITTO study suggest that this is not accurate. Several botanists contacted consider it to be 'not threatened' within the country.

The national categories recorded for Cameroon, Côte d'Ivoire, Ghana and Kenya have been provided by experts within the countries contacted during the present study. The category for Uganda was supplied by Plumptre (*in litt.*, 1990). Categories for Benin and Mozambique were already recorded by WCMC, based on earlier enquiries.

Habitat: *Milicia excelsa* occurs in transitional vegetation between closed forest and savanna. Within Ghana *M. excelsa* is most abundant in the dry semi-deciduous vegetation zone.

The tree: Trees may reach heights of 50 m; they have straight boles which are cylindrical and often clear to about 25 m. Small buttresses are sometimes present.

Timber properties: The wood is hard and of medium weight. Its colour varies from yellow to dark brown and the wood resembles Teak, although it has a coarser texture. The species has excellent strength, comparing well with Teak. It works fairly easily and has good nailing and gluing characteristics.

Uses: The timber is used as a Teak substitute. It is probably the most generally useful tropical African hardwood and is widely used for all kinds of construction work and carpentry, including domestic flooring, veneer, and cabinetwork.

Production and trade:

Production of *Milicia excelsa* in Congo (m^3)

1982	1983	1984	1985	1986	1987	1988	1989
6528	16840	18460	14576	18034	15031	9868	13950

Source: MEF and DREF reports

In 1989 Congo exported 6132 m^3 of this species in log form. In 1987 Gabon exported 14 732 m^3 of Iroko logs through the ports of Libreville and Port Gentil and 16 287 m^3 were exported in the first nine months of 1990 (source: SEPBG). In 1988 (11 months) Côte d'Ivoire exported 6 535 975 kg of Iroko as sawn timber, as recorded in the country's Customs statistics. In Ghana, timber export statistics are aggregated for this species and *M. regia*, and therefore it is not possible to separate trade details. *Milicia excelsa* is considered a lesser-known species in Liberia which exported 5193 m^3 in log form in 1986/87, as reported by FDA.

According to one UK trader, huge stocks are available from West Africa, with Ghana and Côte d'Ivoire still offering plenty of the timber. The species is considered to be under-priced because there is too much competition from different countries. Iroko prices were thought to have reached their peak in June 1990. Before the Suez Canal was closed, large quantities of Iroko were supplied to Europe from Tanzania and Uganda. This trade never fully picked up again but one UK trade source reports that Iroko is frequently offered by contacts in East Africa.

The UK imported 22 648 m^3 in 1989. Côte d'Ivoire supplies 60% of the Iroko imported to the UK.

Of the returned questionnaires from UK timber traders, ten companies stated they currently imported *M. excelsa*, all from Côte d'Ivoire, but four also from Ghana and one from Liberia. Two companies reported that imports and demand had increased, three that it had decreased, and four that it was steady. One company reported that smaller quantities were now being bought.

Silviculture: This species is not easy to replant, its seed losing viability very quickly. It strikes readily from stem cuttings but this produces trees of bad form and is an expensive propagation method. It also regenerates naturally from seed, coppice, and root suckers (FAO, 1986).

Conservation measures

Legislation:

Cameroon - Minimum exploitable diameter 1.0 m

Côte d'Ivoire - Included in the list of protected species given by Decree No. 66-122, 31 March 1966

Gabon - Minimum exploitable diameter 0.7 m

Ghana - Included in log export ban

Liberia - Minimum exploitable diameter 0.8 m

Nigeria - Oyo State has a ten-year moratorium on exploitation.

Presence in protected areas:

Congo Réserve de Faune du Mont Fouari, Réserve de Faune de la Nyanga-Nord, Réserve de Faune de la Tsoulou, Réserve de Faune de Loudima (trial plantation), Domaine de Chasse du Mont Mavoumbou, Domaine de Chasse de la Nyanga-Sud.

Côte d'Ivoire Comoe National Park, Marahoue National Park, Mont Peko National Park, Mont Sangbe National Park

Gabon Wonga-Wongue National Park

Guinea Réserve de la Biosphere du Massif du Ziama

Kenya Ras Tenewi Coastal Zone National Park

Tanzania Usambara Mountains (East and West)

Zaire Garamba National Park, Vallée de la Lufira

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Correspondence and personal communications

R. Plumptre, Oxford Forestry Institute, *In litt.,* August 1990.

Pericopsis elata **Family Leguminosae**
(Harms) van Meeuwen

synonym: *Afrormosia elata* Harms

Trade name: Afrormosia

Local names: Kokrodua, Awawai (Ghana), Assamela (Côte d'Ivoire)

Conservation status: This species is considered by the National Academy of Sciences (1979) to be facing economic and biological extinction. According to FAO (1986), *Pericopsis elata* is endangered in parts of its geographical range. Logging, slow growth rate and poor natural regeneration are the reasons for its declining abundance. *In situ* conservation is considered to be a priority for this species by FAO (1990). A world conservation category has not been recorded for the species in the TTC database because the conservation status in several countries has not been confirmed. It would seem particularly important to ascertain the status of the species in Zaire, where relatively large stocks are assumed to remain. The status of *P. elata* at a national level is recorded in the country list below. It is considered to be Vulnerable in Ghana, where it has a limited natural distribution and has been overcut. Alder (1989) gives the estimated resource life of the species (i.e. the number of years that it can continue to be commercially utilised at the present rate of extraction) as 0 years in Ghana. The need for conservation of *P. elata* in Nigeria was noted by Ola-Adams (1977). He suggested that *ex situ* conservation would be appropriate because of heavy exploitation.

Distribution and national conservation status:

Cameroon	R	Ghana	V
Congo	V/nt	Nigeria	?
Côte D'Ivoire	R	Zaire	?

The conservation categories for Cameroon, Congo, Côte d'Ivoire and Ghana have been provided by national experts for the pre-project study. Experts have also been contacted in Nigeria and Zaire but no new assessments of the status of the species within these countries have been received.

Habitat: *P. elata* grows in drier parts of moist semi-deciduous forests, in the 1000-1500 mm rainfall zone.

The tree: Reaches a height of about 50 m and a girth of about 5 m at breast height, with an average exploitable girth of 3.5 m. The bole is straight and cylindrical, and fluted at the base rather than buttressed.

Timber properties: The heartwood is yellow-brown, darkening on exposure to sunlight. It resembles Teak (*Tectona grandis*) but is superior in most of its mechanical properties. It works well with hand and machine tools and can be glued and polished satisfactorily but tends to split when nailed. The wood is very durable, being resistant to both decay and insect attack.

Uses: Used as a substitute for Teak in ship decking and rails. Other uses include cabinet making, furniture panelling, joinery, and decorative veneers.

Production and trade: Afrormosia was little known to the trade before the Second World War and the earliest exports from Ghana were made in 1948. Ghana and Côte d'Ivoire became the major suppliers and Afrormosia is still exported as lumber from Ghana. It is the country's most valuable indigenous wood.

Export of *Pericopsis elata* from Ghana (Lumber) m^3

1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
4301	2885	2736	3238	2569	3145	4917	N/A	N/A	2204

Source: Timber Industry Development Board, Ghana (N/A = not available)

Congo and Zaire are now major suppliers of this species, and the trade appears to perceive no problems in supply. Stocks of *P. elata* in Congo are mainly concentrated in the relatively unexploited northern forests.

Production of *Pericopsis elata* in Congo (m^3)

1985	1986	1987	1988	1989
95	-	-	8617	9809

Source: MEF and DREF reports

According to DREF reports, in 1989 Congo exported 23 325 m^3 of Afrormosia in log form. It is uncertain why there is such a major discrepancy in reported production and export of the timber. This could possibly indicate re-exports or may reflect mistakes in recorded statistics. In the 1985/86 period Cameroon's production of Afrormosia amounted to 32 350 m^3. No production was reported for the following two years in Direction des Forêts reports.

Of the returned **questionnaires** from UK timber traders, four companies stated that they currently import *P. elata*, three from Cameroon, one from Ghana and one from Zaire. Two countries reported that imports and demand had decreased and two that they had remained steady.

Silviculture: Can be easily propagated from seed and from rooted stem cuttings, but natural regeneration is poor, since seedlings need open sunlight, and therefore fail to grow and nodulate under the forest canopy (National Academy of Sciences, 1979). Regeneration is sporadic, with mast years occurring about every nine years in Ghana (Hawthorne, 1989). The seeds cannot be stored for more than three months without losing viability. In plantations already established in Ghana, the trees branch at an early age and develop poor stem form (FAO, 1986), and it appears that the species may be unsuitable for pure plantations (National Academy of Sciences, 1979). Seedlings and saplings are seriously attacked by the caterpillar of *Lamprosema lateritialis,* the effects of which can seriously hinder height and girth development of young trees.

P. elata has been successfully established on a small scale in both enrichment plantings (line and group methods) in Zaire and Ghana, and in taungya and direct plantations in Ghana (Howland, 1979).

Conservation measures

Legislation:

Cameroon - Minimum exploitable diameter 1.0 m

Côte d'Ivoire - Included in a list of protected species given by Decree No. 66-122, 31 March 1966

Ghana - Included in log export ban. Special permission is required to fell *P. elata.*

Presence in protected areas:

Ghana Bia National Park

Additional conservation needs: It has been recommended that Ghana, Cameroon and Zaire should each set aside 2-3 km^2 of Afrormosia forest as reserves protected from exploitation but where germplasm collection could take place, and that a concerted effort be made to develop Afrormosia silviculture (National Academy of Sciences, 1979).

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Terminalia superba **Family Combretaceae**

Trade name: Limba, Afara, Fraké

Local names: The wider range of local names includes Kojagei (Liberia, Sierra Leone), Kobaté, Fra, Fraké, Fram (Côte d'Ivoire), Ofram (Ghana), Afara, Akom and Mulimba.

Conservation status: *Terminalia superba* has a broad distribution in West and Central Africa. It is widely used as a plantation species both within and outside its natural range. Supplies in the southern parts of its range have dwindled so that forest management and restocking are now needed in those areas where the best quality wood occurs (Groulez and Wood, 1985). The world conservation category recorded in the TTC database for *T. superba* is 'nt'. This reflects the fact that it is considered to be 'not threatened' in various countries within its natural range. Although the species is common and not generally threatened, it is becoming progressively impoverished by heavy exploitation, as pointed out by FAO (1984). *In situ* conservation is considered to be a priority for the species by FAO (1990). Heavy exploitation is threatening natural populations in West African countries such as Ghana and Nigeria. N'Sosso (1990) notes that Limba is declining in Congo following 60 years of exploitation, and would benefit from trade controls.

Distribution and national conservation status:

Angola		Gabon	
Benin		Ghana	
Cameroon	V	Guinea	nt
Central African Republic		Liberia	
Côte d'Ivoire		Nigeria	
Congo	nt	Sierra Leone	
Equatorial Guinea		Zaire	

Terminalia superba is currently recorded in the TTC database as Vulnerable in Cameroon, based on assessments by local experts. It is recorded as 'nt' in Congo, based on assessments provided by national experts for the present study and 'nt' in Guinea, based on earlier enquiries by WCMC.

Habitat: Limba grows in deciduous moist forest and evergreen rain forest, where it colonises abandoned agricultural land. It prefers a climate with an annual rainfall of 1400-2000 mm, a dry season and a mean annual temperature of 23-26°C. It favours fertile soils of alluvial origin but will grow on a variety of other soil types. The detailed ecological requirements of *T. superba* are discussed by Groulez and Wood (1985).

The tree: Limba is a large-sized deciduous tree which normally grows to around 30 m but may grow to over 50 m. It is characterised by large buttresses, light-coloured smooth bark, leaves with long petioles and oblong, winged fruits.

Timber properties: Depending on where it is grown, Limba is yellowish to brownish-black and of varying hardness and weight. The wood is not durable. It can be easily worked but has a tendency to split when nailed or screwed (Lamprecht, 1989)

Uses: The timber is used for plywood, furniture, interior joinery and decorative veneers.

Production and trade: The market is mainly interested in Limba from the south of its range, especially from the Mayombe of Congo and Zaire. Until 1955 Zaire was the principal producer, followed by Angola and Congo. After 1955 exports from the first two countries declined as the forests became exhausted; whereas those from Congo rose annually (Groulez and Wood, 1985). Limba remains one of the most important commercial timbers of Zaire and for the period 1983-1986 ranked eighth in terms of species production. Limba was one of the first species commercially exploited in Congo. It declined in importance from the 1950s to the early 1970s. In the 1960s Limba still represented more than 50% of Congo's log production but this had fallen to 4.55% in 1989. In 1989 the volume of log production for Limba in Congo was 45 525 m^3 and log exports 22 910 m^3, according to MEF and DREF statistics.

In 1989 Gabon exported 221 m^3 of Limba logs through the ports of Libreville and Port Gentil and 1753 m^3 were exported in the first nine months of 1990 (source: SEPBG). Côte d'Ivoire exported 17 072 235 kg of *T. superba* logs in 1988 (11 months).

Production of *Terminalia superba* in Cameroon (m^3)

Year	1984/85	1985/86	1986/87	1987/88
Volume	158415	87513	86678	103782

Source: Direction des Forêts reports as recorded in the country's Customs statistics

Export of *Terminalia superba* from Ghana (m^3)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Logs	2893	648	0	68	2405	4663	12000	N/A	N/A	0
Lumber	1075	1484	1	0	0	0	395	N/A	N/A	32

Source: Timber Industry Development Board, Ghana (N/A = information not available)

Of the returned questionnaires from UK timber traders, none stated they currently imported this species.

The wood of *Terminalia superba* is used particularly in Belgium, Germany and Switzerland (Groulez and Wood, 1985).

Silviculture: Groulez and Wood (1985) point out that successful natural regeneration of *T. superba* requires gaps in the forest canopy, sufficiently clean conditions for seed to reach the forest floor, lack of peasant cultivation and the absence of competition for several years. These conditions are seldom found and natural regeneration as a silvicultural system in forest management is possible, but expensive, and not without risk.

Plantations of *T. superba* have been developed mainly in Congo, Côte d'Ivoire and Zaire. The rotation age of this species in plantation varies from 30 to 40 years (Anon., 1987).

Conservation measures

Legislation:

Congo - Minimum exploitable diameter 0.6 m

Gabon - Minimum exploitable diameter 0.6 m

Ghana - Minimum exploitable diameter 0.7 m

Liberia - Minimum exploitable diameter 0.7 m

Presence in protected areas:

Congo Odzala National Park, Conkouati Faunal Reserve, Lekoli-Pandaka Faunal Reserve, Mont Fouari Faunal Reserve, Nyanga Nord Faunal Reserve, Tsoulou Faunal Reserve, M'boko Hunting Reserve, Mont Maroumbou Hunting Reserve, Nyanga Sud Hunting Reserve

Gabon Sibang

Zaire Réserve de la Biosphere de Luki

Provenance collections: Seeds of provenances have been collected in various countries such as Cameroon, Congo, and Côte d'Ivoire for national and international provenance trials and for establishment of conservation stands in the countries of origin. Seed trees have been selected in the southern Congo provenances and seed orchards of grafted select clones have been established (FAO, 1984). Seventeen provenances are being tested in Côte d'Ivoire and are subject to regular measurements of 12 characteristics, including growth rate and wood characteristics (Anon., 1990). International provenance trials are being coordinated by CTFT and FAO's Forestry Department (Anon., 1987).

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Triplochiton scleroxylon **Family Sterculiaceae**
K. Schum.

Trade name: Obeche

Local names: Arere, Obeche (Nigeria), Samba (Côte d'Ivoire), Ayous (Cameroon), Wawa (Ghana)

Conservation status: *Triplochiton scleroxylon* has been subject to heavy exploitation in West African countries and is now of conservation concern in some parts of its range. It does, however, regenerate well in disturbed forest and the species as a whole is not under threat. Hall and Bada (1979) draw attention to the need for conservation of populations at the limits of the species's range in Sierra Leone and Zaire. They consider the threat of serious loss of potentially valuable genetic material between these limits to be of less concern. FAO (1984) points out that massive exploitation in Ghana and Nigeria is leading to threat of extinction in some areas and that the species is being rapidly impoverished in Côte d'Ivoire. *In situ* conservation for *T. scleroxylon* is considered to be a priority by FAO (1990). A world conservation category has not yet been assigned for this species in the TTC database as its status in various countries is uncertain. It would, however, seem appropriate to record the species as 'nt' globally on the basis of current information.

Distribution and national conservation status:

Benin	V	Ghana	?
Cameroon	V*	Guinea	?
C.A.R.	?	Liberia	?
Congo	nt	Nigeria	C
Côte d'Ivoire	?	Sierra Leone	?
Eq. Guinea	?	Zaire	?

In Nigeria, intensive exploitation of *T. scleroxylon* for match production is leading to local population depletions near the match factories (Hall and Bada, 1979). Obeche used to dominate timber exports from Nigeria but over-exploitation led to an export ban in 1975. The species is currently recorded in the TTC database as C in Nigeria and V in Benin, based on earlier enquiries carried out by WCMC.

* In Cameroon, *T. scleroxylon* has been recorded in the TTC database as Vulnerable, based on information from national sources but the conservation status is subject to review, as several correspondents consider that it should be annotated as not threatened.

The assessment for Congo has been provided by local experts.

Habitat: *Triplochiton* is a lowland tree, growing at altitudes below 500 m. It is regarded as an active coloniser of newly-created open sites in forest areas, but is able to maintain its importance later into succession. Where concentrations are greatest it accounts for up to 13% of individual trees present over 61 cm GBH. Of individuals over 183 cm GBH, it commonly accounts for over 20%.

In Ghana *T. scleroxylon* occurs throughout different vegetation zones but is more abundant in moist semi-deciduous north-west forest vegetation.

The tree: Reaches a height of approximately 50 m and a diameter of 2 m (DBH). The bole is strongly buttressed at the base but straight up to about 30 m. The timber quality of the species varies greatly, even within a short area (Hall and Bada, 1979).

Timber properties: The timber is not durable. Quick extraction and conversion is necessary since logs are very susceptible to attack by pin-hole borers. The timber has good strength properties, whilst at the same time it works very easily owing to its comparative softness. An excellent finish can be obtained, it takes nails and screws well and has good gluing properties.

Uses: Interior joinery, furniture, boxes, crates and fibreboard.

Production and trade: This species accounts for more of the timber volume extracted annually from the West African forests than any other single species. In Ghana *T. scleroxylon* accounts for 32% of all forest extraction. It is, however, considered to be extracted on a sustainable basis and has an estimated resource life of over 100 years (Alder, 1989).

Export of *Triplochiton scleroxylon* from Ghana (m^3)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Logs	76390	46466	48034	55774	42118	88412	110700			113473
Lumber	11884	13066	17656	21990	23698	32329	31390			64818

Source: Timber Industry Development Board, Ghana

In Liberia *T. scleroxylon* is considered a lesser known species. Log exports recorded by FDA for 1986/87 amounted to 5476 m^3. Côte d'Ivoire exported 5 526 528 kg of *T. scleroxylon* logs in 1988 (11 months), as recorded in the country's Customs statistics. In 1988 log production for *T. scleroxylon* in Congo amounted to 13 153 m^3, of which 523 m^3 were exported.

Production of *Triplochiton scleroxylon* in Cameroon (m^3)

Year	1984/85	1985/86	1986/87	1987/88
Volume	541065	611077	580798	598216

Source: Direction des Forêts reports

Of the returned questionnaires from UK timber traders, seven companies stated they currently import *T. scleroxylon*, four from Ghana, two from Côte d'Ivoire and one each from Liberia, Cameroon and Nigeria. Three companies reported that imports and demand had decreased and three that they had remained steady. One company stated that it now used Yellow Poplar from USA as a replacement for Obeche.

According to Sheridan (in litt. 1989) very little Obeche is imported to the USA, with sawn timber imported from Ghana for use in mouldings and rotary cut veneer from Côte d'Ivoire.

Silviculture: Because of its fast growth rate under plantation conditions, *T. scleroxylon* is one of the most favoured indigenous West African timber species for artificial regeneration in the forest zone. The species produces seeds very infrequently and they are only viable for three weeks. This had been a serious constraint to plantation establishment of *Triplochiton* but developments in cloning techniques are helping to overcome these problems. The productivity of plantations should in the future be much greater than either unselected natural populations or stands of selected seed origins.

Research began in Nigeria in the early 1970s to develop vegetative propagation techniques for *T. scleroxylon* and clonal trials are now being carried out in the country. In Côte d'Ivoire studies are also being carried out to develop techniques for commercial plantation of the species. These include identification of superior phenotypes, establishment of clonal trials and management of coppiced stumps (Leakey, 1987). The results of research on *T. scleroxylon* are now being used by the Tree Improvement Unit of ONADEF, with technical support from the UK Institute of Terrestrial Ecology.

Conservation measures

Legislation:

Congo - Minimum exploitable diameter 0.7 m

Côte d'Ivoire - Included in a list of protected species given by Decree No. 66-122, 31 March 1966

Ghana - Minimum exploitable diameter 1.1 m

Liberia - Minimum exploitable diameter 0.9 m. Included in log export ban (FDA Regulation 17, 1 October 1990).

Presence in protected areas:

Cameroon Dja Faunal Reserve

Congo Parc National d'Odzala, Réserve de Faune de la Lekoli-Pandaka, Domaine de Chasse de M'Boko

Côte d'Ivoire Marahoue National Park, Mont Peko National Park, Mont Sangbe National Park

Ghana Digya National Park, Bia National Park, Krokosua Forest Reserve, Sukusuku Forest Reserve

Guinea Mount Nimba Strict Nature Reserve, Réserve de la Biosphere du Massif du Ziama

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Agathis borneensis Warb. **Family Araucariaceae**

synonym: *A. dammara* (Lamb.) Richard

Trade name: Kauri, Damar Minyak (Malaysia)

Conservation status: All species of *Agathis* are prized for their finely-grained, pale, uniform timbers. In Kalimantan there were formerly huge stands of *A. borneensis*, covering about 30 000 ha (with 100-400 m^3 of timber/ha). These forests were discovered in the 1930s and extraction was completed by the mid-1960s. *A. borneensis* is still exploited in Indonesia, particularly in Central Kalimantan. It is considered that the number of seedlings and poles in residual stands are not sufficient to maintain *Agathis* stands for the future (Nainggolan, 1981). *A. borneensis* is currently considered to be Indeterminate in Indonesia. It is recorded as Vulnerable in Peninsular Malaysia by Ng *et al.* (1984).

Distribution and national conservation status:

Brunei		Sabah
Indonesia	I	Sarawak
Peninsular Malaysia	V	

Habitat: *Agathis borneensis* grows scattered in upland rain forest from low elevations up to 1200 m, throughout its range, and in dense stands on low-lying sandy peat soil in Borneo and one area of Peninsular Malaysia.

The tree: A large coniferous tree growing to 55 m tall.

Timber properties: *Agathis borneensis* produces a softwood which is buff or cream in colour, darkening to light golden brown. The sapwood is not differentiated from the heartwood. The timber is easy to work and has good nailing properties; it is not durable but is easy to treat with preservative.

Uses: The timber is highly prized as an interior finishing timber. It is used for panelling, joinery veneer and plywood production, furniture, drawing boards and pattern making.

Production and trade: In 1989 Peninsular Malaysia exported 6583 m^3 of Damar Minyak in the form of sawn timber as recorded in MTIB statistics. For Sabah and Sarawak, trade statistics are given for *Agathis* spp. by the Forestry Departments. In 1987 Sarawak exported 21 909 m^3 of *Agathis* in log form and 108 m^3 as sawn timber. In the same year Sabah exported 129 551.73 m^3 in log form. The methods of production for *Agathis* in the swamp forests of Kalimantan are described by Laurent (1986). *Agathis* accounted for 2.3% of the exports of forest products from Indonesia in the early 1980s. In 1986 Indonesia exported 18 000 m^3 of *Agathis* (source: Forestry Department).

In the survey of UK timber traders, no firm reported importing this species.

Conservation measures

Legislation: The export of Damar Minyak in log form is banned by Peninsular Malaysia.

Presence in protected areas:

Brunei The Badas Forest Reserve (76 ha) includes some of the finest remaining stands of *A. borneensis* in Brunei (Wong Khoon Meng *in litt.*, 1989)

Kalimantan Gunung Palung Nature Reserve, Gunung Penrisen/Gunung Nyiut Game Reserve

Sumatra Barisan Selatan National Park, Kerinci Seblat National Park, Bukit Tapan Nature Reserve, Indrapura Nature Reserve, Isau-Isau Pasemah Game Reserve

Peninsular Malaysia Taman Negara National Park, Krau Game Reserve, Gunung Jerai State Park, Anon. (1985) notes that within Peninsular Malaysia the greater part of *A. borneensis* distribution is included within Forest Reserves and that there are substantial areas in the National Park and Wildlife Reserves.

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Diospyros celebica **Bakh** **Family Ebenaceae**

Trade name: Sulawesi Ebony, Indonesian Ebony, Macassar

Conservation status: Haeruman (1985) refers to the heavy depletion of *D. celebica* in Indonesia. The species is recorded in the TTC database as Rare in Sulawesi.

Distribution: *D. celebica* is endemic to Sulawesi found mainly in the central and northern regions, very few trees remaining in the south.

Habitat: Lowland forest

Timber properties: *D. celebica* produces an attractive black ebony streaked with fine brown stripes running along the grain. It machines and polishes well.

Uses: The ebony of this species is used for turnery, carving, inlaying and parts of musical instruments. It is also used in furniture and high-quality work

Production and trade: *D. celebica* is a valuable timber for the export market. Fifty years ago about 1000 tons of Ebony were exported annually from North Sulawesi, with most of the wood sent to Japan (Whitten *et al.*, 1987). The timber is still highly sought after. Japan remains the primary market and the timber is also available in European and US trade. One company contacted in the questionnaire survey of UK timber traders reported importing very small and occasional shipments. Another trader reported that very little had been imported into the UK over the past three or four years and he assumed that the Japanese were buying all available wood. Several UK specialist wood suppliers list *D. celebica* in their 1989/90 catalogues.

D. celebica is cut on a quota basis set by the Indonesian Government. Smuggling of the valuable wood is known to occur. During 1990 the Indonesian Attorney-General ordered an investigation into smuggling from Sulawesi to Malaysia of Ebony, together with Rattan. Smuggling is said to take place through East Kalimantan into Sabah (Anon., 1990).

Silviculture: *D. celebica* grows well from propagated material. There is considerable interest in developing techniques for commercial plantation of *D. celebica*. Regeneration in the wild has been studied, for example by Sidayasa (1988) who also suggested criteria for the selection of plantation sites. Techniques for enhancing seed germination in the nursery are described by Hendromono (1989).

Conservation measures

Legislation: A quota system for exploitation is operated by the Indonesian Government. Unfortunately no details have been made available for the study. Specialist wood workers in the UK have requested details of the export regulations as there is some concern about the legality of imported stocks.

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Eusideroxylon zwageri
Teysm. & Binnend

Family Lauraceae

Trade names: Belian, Borneo Ironwood

Local names: Tambulian (Philippines), Onglen, Ulin (Indonesia)

Conservation status: Belian is one of the most renowned timbers of Borneo. It has been favoured both for local use and the export trade. Over-exploitation together with forest clearance have led to the decline of this slow-growing timber species. The increased availability of forest roads opened by concessionaires is leading to greater problems of uncontrollable exploitation in Kalimantan (Partomihardjo, 1987). A world conservation category for the species is not yet recorded in the TTC database because of lack of status information for Sabah and Sarawak.

Distribution and national conservation status:

Indonesia	I
Philippines	I
Sabah	
Sarawak	

E. zwageri is considered to be Vulnerable in Indonesia by Tantra (1983) and was in a shortlist of Endangered species of the country (Anon., 1978). It is included in a list of vanishing timber species of the Philippines (de Guzman, 1975). The national conservation categories recorded in the TTC database reflect information provided by experts in Indonesia and the Philippines for the present study.

Over 30 years ago, the scarcity of *E. zwageri* in Sarawak was noted by Browne (1955), who pointed out that, "Our surviving supplies of Belian are by no means very large and are undoubtably dwindling." The main causes given for this are shifting cultivation and wasteful use.

Habitat: *E. zwageri* is widespread in Borneo and Sumatra as a scattered component of the Dipterocarp forest and in some localities forms a single dominant variant. It is generally found in lowland areas of 5-400 m, in flat or sloping terrain, and also occurs in old secondary forest (Suselo, 1987).

The tree: This species may reach a height of 32 m, with trunk diameters of exploitable trees up to 11 m.

Timber properties: The heartwood is initially light brown but darkens on exposure. It is quite a dense wood but nevertheless works easily. The heartwood is very durable and is immune to termite attack.

Uses: Belian is used locally in house construction and for water butts. Its commercial uses are for heavy construction, marine work, boat building, printing blocks, industrial flooring, roofing and furniture. Belian has been esteemed by the Chinese as a coffin wood.

Production and trade: In southern Kalimantan this timber is felled by the owners of concession rights and also by local people coordinated by Ulin traders (Partomihardjo, 1987). Kartawinata *et al.* (1981) note that transmigrant settlers in East Kalimantan cut this species for sale to supplement their income from cultivation. In 1987 Sabah exported 3 836 070 m^3 of Belian (source: Forestry Department).

Of the returned **questionnaires** from UK timber traders, no companies stated they currently imported *E. zwageri.*

Forest management and silviculture: Browne (1955) noted that the patchy distribution, limited extent and inaccessibility of many Belian forests in Sarawak made assessment of remaining stands and sustained yield management very difficult. Poor seedling regeneration in logged forests has been noted (Kartawinata, 1978). Some plantation was carried out in secondary forest in Sumatra (Browne,

1955) and plantation continues on a trial basis both in Sumatra and West Kalimantan. Inadequacies of seed and seedling supply limit more extensive plantation and the need for tissue culture has been suggested by Suselo (1987).

Conservation measures

Legislation:

Indonesia - Thought to be totally protected by law (Anon., 1978). No details of this legislation have been made available for this study. The need for control of exploitation and better cutting criteria are pointed out by Partomihardjo (1987).

Sarawak - Under the Forest Rules of Sarawak, export of *E. zwageri* in log, sawn or hewn form is not allowed without special permission. Export controls have been in force since 1950.

Presence in protected areas:

Indonesia Kutai National Park, East Kalimantan - has pure stands of *Eusideroxylon zwageri,* Tanjung Puting National Park, Kalimantan, Gunung Penrisen/Gunung Nyiut Game Reserve, Kalimantan, Lempakai Botanical Park, East Kalimantan

Sabah Tabin Wildlife Reserve

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Gonystylus bancanus
(Miq.) Kurz

Family Thymelaeaceae

Trade name: Ramin

Local names: Melawis (Malaya), Garu Buaja (Indonesia), Lanutan-Bagio (Philippines)

Conservation status: *G. bancanus* has been heavily depleted in Indonesia (Haeruman, 1985). It is Vulnerable in Peninsular Malaysia because of heavy exploitation, habitat loss, poor natural regeneration and lack of silvicultural knowledge about the species (Anon., 1985). According to Repetto and Gillis (1988), the swamp forests of Sarawak were largely depleted of Ramin by 1981. The recent ITTO mission to Sarawak reported that Ramin is being heavily overcut.

A world conservation category for *G. bancanus* has not been recorded in the TTC database because the status remains uncertain in various countries.

The scarcity of supply of Ramin timber has been noted both in countries of export and import. The ITTO 1989 Country Market Statement for Malaysia, for example, refers to the shortage of Ramin and the difficulty in supplying market demand.

Distribution and national conservation status:

Brunei	?	Philippines	V
Indonesia	?	Sabah	
Peninsular Malaysia	V	Sarawak	

The conservation category for the Philippines recorded in the TTC database has been provided by national experts for the present study. The category for Peninsular Malaysia is as recorded in Anon., 1985.

Habitat: *G. bancanus* occurs in peat swamp forests. In Peninsular Malaysia this vegetation type occurs in low-lying plains just behind the coast, mainly in the central and southern parts of the peninsula. On the west coast the peat forests occur on heavy alluvial clay, whereas on the east coast they occur on coarse sand and white clay. Large areas of peat swamp forest have been cleared for agriculture, with extensive development of oil palm and pineapple plantations (Appanah *et al.*, 1989).

Peat swamp forests are widespread in Sarawak, accounting for 14 736 km^2 or 11.9% of the land area. Some conversion to rice and pineapple fields, and coconut and sago plantations has taken place but so far on a relatively small scale. Timber production has been the main use of the forests.

The only extensive area of peat swamp with *Gonystylus* in Sabah is located in the south-west region (Fox, 1978).

G. bancanus occurs in Indonesian peat swamp forests of Sumatra, Kalimantan and Irian Jaya. Estimates of the total peat area in Sumatra and Kalimantan vary between 16.5 and 27 million ha. The species is also a component of freshwater swamp forests in the lowlands of Sumatra, Kalimantan and Irian Jaya (Silvius *et al.*, 1987).

Total areas of swamp forest of Indonesia

Extent (1000 ha)	Peat swamp	Freshwater
Original area	2069511	560
Remaining area	169755	185
Area in reserves	1670	670

Source: Silvius *et al.*, 1987.

The tree: This tall tree is usually free of branches to about 15 m. The straight, cylindrical bole is sometimes fluted at the base and it has a girth of about 0.75 m.

Timber properties: The heartwood and sapwood are creamy white to pale straw in colour. The wood has a tendency to split on nailing but otherwise it is easy to work and glues and finishes satisfactorily. This species is not durable, being highly susceptible to attack by decay fungi and not resistant to termite attack.

Uses: Ramin is used for furniture, joinery, mouldings, flooring, plywood.

Forest management and timber production: Ramin is the most valuable timber of the peat swamp forests of Sarawak. At present it is not being cut on a sustainable basis and this is causing concern about the future of timber production from this forest type as a whole. The extent of illegal logging is not known but it has been a problem: there was a report, for example, of 1378 m^3 of Ramin logs seized in Sarikei Division, Sarawak (Anon., 1988).

The methods of harvesting and transport of Ramin in Kalimantan are described in detail by Laurent (1986). Production is entirely by hand. The only limited mechanised operations are the use of chain-saws for felling and cross-cutting and micro-engines for pulling small trucks from log processing/loading yards to the floating wood yard.

Production and trade: Ramin is exported by Sarawak as sawn timber. In 1987 Ramin accounted for 87% of total sawn timber exports from the State. Sawn timber is mainly exported to EC countries such as Italy (?37%), UK (13%), Netherlands (10%), FRG (9%), Belgium (6%) and Spain (5%). The quantity of Ramin exported in 1987 was 153 879 m^3 and in 1988, 175 000 m^3. The volume exported during the period January-March 1989 was 40 000 m^3, an increase of around 33% over exports during the same period of the previous year (source: Forestry Department). In 1989, Peninsular Malaysia exported 16 187 m^3 of Ramin sawn timber, as recorded by MTIB.

In the early 1980s Ramin was Indonesia's first species for sawn wood exports, accounting for 37.7% in volume, 45.8% in value. The average annual amount exported was 598 000 m^3, with a value of US$119 million (Laurent, 1986). In 1986 Indonesia exported 377 000 m^3 of Ramin (source: Forestry Department).

In 1989 the UK imported 19 817 m^3 (as recorded in Customs statistics).

Of the returned **questionnaires** from UK timber traders, six companies stated they currently import *G. bancanus,* three from Indonesia and seven from Malaysia. Four companies reported that imports were down and two steady. Only two felt that demand had decreased. One company stated that demand was highly price-dependent.

Conservation measures

Legislation:

Indonesia - The export of Ramin in the form of logs or sawn timber is banned.

Presence in protected areas:

Indonesia Gunung Palung Nature Reserve, Kalimantan, Mandor Nature Reserve, Kalimantan, Gunung Penrisen/Gunung Nyiut Game Reserve, Kalimantan, Berbak Game Reserve, Sumatra

Peninsular Malaysia The presence of Ramin in the Kuala Langat Selatan Forest Reserve, Selangor VJR No 10 is noted by Putz (1978). It has been noted (Anon., 1985) that the great majority of the disjunct lowland populations of *G. bancanus* lack all protection, being outside National Parks, Virgin Jungle Reserves and commercial Forest Reserves

Other conservation needs:

Appanah *et al.* (1989) call for the conservation of peat swamp forests in Peninsular Malaysia as a source of timber, for genetic resource conservation and to maintain the hydrological balance. They call for the conversion of forested land for agricultural purposes to be discouraged.

According to Wong Khoon Meng (*in litt.*), conservation of *Gonystylus* habitats is important in Brunei.

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Intsia bijuga (Colebr.) O. Kuntze

Family Leguminosae

Trade name: Merbau

Local names: Merbau (Malaysia), Ipil (Philippines), Moluccan Ironwood, Borneo Teak (UK), Kwila (Papua New Guinea), Lumpaw (Thailand), Ifil (Guam), Ifi-lele (Samoa), Vesi (Fiji), U'ula (Solomon Islands), Go Nuoc (Vietnam)

Conservation status: *Intsia bijuga* produces one of the most valuable timbers of South East Asia. The species has been exploited so intensively for timber that in most countries few trees are left in natural stands. There have been few attempts to cultivate the species in plantations and the species was said to face imminent disappearance as an economic plant (National Academy of Sciences, 1979). Good stands still exist in parts of Indonesia and Papua New Guinea where it is found mainly in Sepik and Madang Provinces. *Intsia bijuga* is never abundant in Peninsular Malaysia and rarely achieves timber size (Ser, 1982). A world conservation category for this species has not yet been recorded in the TTC database because of the lack of national conservation categories for a number of countries.

Distribution and national conservation status:

American Samoa		Myanmar	
Australia		Pacific Islands	
Cambodia		Papua New Guinea	
India		Philippines	V
Indonesia	I	Thailand	
Madagascar		Vietnam	
Malaysia			

The national conservation categories for Indonesia and the Philippines have been provided by national experts for the present study.

Habitat: Tropical rain forest. It is a tree of lowland areas and is often found in coastal areas bordering mangrove swamps, rivers, or floodplains.

The tree: This is a large, broad-crowned tree sometimes exceeding 40 m in height and with a bole of about 1.5 m diameter. The bole is often short but can reach 25 m; it is extensively buttressed.

Timber properties: This very attractive wood has a dark red brown colour and is one of the most valued timbers throughout South East Asia. It is durable but rather hard to saw because of gumming of the saw teeth. It tends to split on nailing but holds screws well. The wood can be stained and polished. The timber bleeds a red dye and therefore needs to be very well sealed to prevent discoloration of paintwork. It is stronger than Teak and is one of the most decay-resistant timbers known: in the Philippines it is used as a standard against which the durability of other timbers is assessed (National Academy of Sciences, 1979).

Uses: Used for all high-class general construction, flooring (it produces the famous 'merbau floors'), posts, beams, joints etc. and also for musical instruments and cabinet making. In addition the wood is a dye source.

Production and trade: No statistical data on production and trade for this species have been located during the present study. The main importing country within Europe is the Netherlands.

Of the returned **questionnaires** from the UK timber traders, no companies stated they currently imported *I. bijuga.*

Silviculture: Trials in the Solomon Islands have shown that it is easily established either from seed or as forest wildings potted in the nursery. The potential of the species in these trials was shown by the fact that the quickest growing individuals added 2 m height each year, but little general information is available about the full plantation potential of the species. Further research on silviculture is urgently needed (National Academy of Sciences, 1979).

Conservation measures

Legislation:

Philippines - Classified as a premium hardwood under the DENR Administrative Order No. 78 Series of 1987, Interim Guidelines on the cutting/gathering of Narra and other premium hardwood species. Under this Order special permission from the Secretary of the Department of Environment and Natural Resources is required to fell *Intsia bijuga*, and various conditions are specified.

Presence in protected areas:

Indonesia Ujung Kulon National Park, Java, Manusela Wai Nua/Wai Mual National Park, Moluccas

Philippines St Paul Subterranean River National Park, Quezon National Park, Calauit Island National Park

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Neobalanocarpus heimii (King) (P. Ashton) **Family Dipterocarpaceae**

Trade name: Chengal

Conservation status: Chengal has been one of the most popular hardwoods of Peninsular Malaysia and has been heavily logged throughout the state. The species is the best known and most highly valued timber in the country. By the 1950s Chengal had been exterminated from some accessible areas, particularly in the western regions of Malaya (Thomas, 1953). The species is listed as Vulnerable in Anon. (1985) but is currently recorded in the TTC database as 'nt' in Peninsular Malaysia, based on the assessment of Professor P. Ashton. FAO (1990) notes that the species has been over-exploited, has poor regeneration and is need of *in situ* conservation. A world conservation category has not yet been assigned to this species in the TTC database. Assuming the species is not threatened in Malaysia, then the species as a whole could be considered to be not threatened with extinction.

Distribution and national conservation status:

Indonesia	E
Peninsular Malaysia	nt
Thailand	Ex/E

The national categories have been provided for the present study by Professor Ashton and the category verified for Thailand by national experts.

Inventory data have been used to indicate the depletion of Chengal in Peninsular Malaysia in the period between the First (1971-72) and Second (1981-82) National Forest Inventories. There was a measured decrease in volume/ha and number/ha for trees over 45 cm in diameter in both virgin and logged over forests.

In Thailand Chengal is restricted to the south of Pattani.

Habitat: *N. heimii* grows under a wide range of ecological conditions but appears to grow best on undulating land with a light sandy soil (Thomas, 1953). In Thailand it occurs in Hill Dipterocarp forest along slopes and in valleys, often growing with *Shorea curtisii* (Smitinand *et al.*, 1980).

The tree: *N. heimii* is a large tree, often exceeding 3 m in girth, with prominent buttresses, dark-coloured bole and large, heavy crown.

Timber properties: The wood of Chengal has pale yellow sapwood and light-brown heartwood which darkens on exposure. It is a heavy, dense resistant wood which is easy to work.

Uses: Chengal is used for heavy construction, in bridge-making and for sleepers and telegraph poles. It is also used for boat building and in sea defences.

Production and trade:

Peninsular Malaysia is the main source of Chengal on the world market. In 1989, 39 707 m^3 of sawn timber was exported, as recorded by MTIB. Chengal is not currently thought to be imported or used in the UK.

Of the returned **questionnaires** from UK timber traders no companies stated that they currently imported *N. heimii*.

Conservation measures

Legislation:

Peninsular Malaysia - The export of Chengal in log form is banned by Peninsular Malaysia.

Thailand - Conserved as a valuable source of Dammar. Prior to the general logging ban, exploitation of Chengal timber could only be carried out by special permission granted by the Ministry of Agriculture.

Presence in protected areas:

Peninsular Malaysia Occurs in a number of Virgin Jungle Reserves including those in Ulu Sedili Forest Reserve, Johore, Panti Forest Reserve, Johore, Balah Forest Reserve, Pahang, Lesong Forest Reserve, Pahang, Gunung Besut Forest Reserve, Perak, Sungai Lalang Forest Reserve, Selangor, Angsi Forest Reserve, Negeri Sembilan; it also occurs in Taman Negara National Park.

Thailand *Neobalanocarpus heimii* does not occur in any protected areas within Thailand (Phengklai pers. comm., 1989)

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Correspondence and personal communications

C. Phengklai, Royal Forest Department, Bangkok, pers comm., November 1989.

Pericopsis mooniana Thwaites

Family Leguminosae

Trade name: Nedun

Local names: Kayu Laut (Indonesia), Nedun (Sri Lanka)

Conservation status: This highly prized wood is disappearing fast owing to lumbering and land clearing for rubber and oil palm plantations (National Academy of Sciences, 1979). National conservation categories, where known, are listed below. A world conservation category for the species is not yet recorded in the TTC database because national categories are unknown for certain countries.

Distribution and national conservation status:

Caroline Is	?	Papua New Guinea	?
Indonesia (Java,		Philippines	?
Kalimantan, Sulawesi)	I	Sri Lanka	I
Malaysia			
Peninsular Malaysia	R		
Sabah	R		

P. mooniana is considered to be Vulnerable in Indonesia according to Tantra (1983). It is included in a shortlist of Endangered species of the country (Anon., 1978) and this reference noted that it had become exceedingly rare in Kalimantan. Over-exploitation in Sulawesi has resulted in only a few stands of this species remaining there, for example in Lamedae Reserve, south of Kolaka in south-east Sulawesi. (Whitten *et al.*, 1987).

In Sri Lanka, demand for the timber has led to *Pericopsis mooniana* becoming very rare (de S. Wijesinghe *et al.*, 1990).

The conservation category for Indonesia was provided by local experts and for Peninsular Malaysia and Sabah by Dr T. Whitmore and P. Burgess. The category for Sri Lanka is based on literature accounts.

Habitat: Rain forest

Timber properties: The warm brown, deep red or orange wood has attractive dark streaking and is hard, heavy and strong. It is a durable wood.

Uses: It is eagerly sought after for furniture, cabinet making, panelling, and sliced veneers.

Production and trade: No statistical information on international trade has been located for this speciality timber. *Pericopsis mooniana* from Indonesia is traded mainly to Japan (Anon., 1978)

Of the returned **questionnaires** from UK timber traders, no companies stated they currently imported *P. mooniana.*

Conservation measures

Legislation:

Sri Lanka - Included in a list of threatened plant species which will replace the schedule of protected plants in the Fauna and Flora Protection Ordinance 1937.

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Shorea curtisii
Dyer ex King

Family Dipterocarpaceae

Trade name: Seraya, Dark Red Meranti

Local names: Saya daeng, Saraya daeng (Thailand), Seraya (Malaysia)

Conservation status: *Shorea curtisii* is abundant and currently considered to be 'nt' in Peninsular Malaysia. The species is, however, included in a list of species requiring conservation action in Peninsular Malaysia (Ng *et al.*, 1984) and the quality of available timber has suffered a decline (Wyatt-Smith, *in litt.*). In other areas *Shorea curtisii* is considered to be threatened as listed below. A world conservation category has not yet been recorded in the TTC database. Assuming that the species is 'nt' in Peninsular Malaysia, however, the species would be considered 'nt' at a global level.

Distribution and national conservation status:

Borneo	V
Peninsular Malaysia	nt
Sumatra	V
Thailand	E

The national conservation categories have been provided by Professor P. Ashton for the present study and the category for Thailand confirmed by local experts.

Habitat: In Peninsular Malaysia *S. curtisii* is an important species of Hill Dipterocarp forests. It has a restricted occurrence, growing gregariously almost exclusively on ridge tops. It has been suggested that *S. curtisii* is ecologically adapted to such sites through its ability to resist moisture stress (Awang *et al.*, 1981).

The tree: A large tree exceeding 1 m in diameter, with short buttresses, grey or reddish-brown bark and a wide-spreading crown.

Timber properties: *S. curtisii* produces a light hardwood with fine grain which has medium/deep red heartwood. It is easy to work and planes well. The timber is of medium strength and is not durable in contact with the ground. The wood is subject to pinhole borer attack.

Uses: *S. curtisii* produces a general utility timber suitable for furniture manufacture, interior finishing, flooring, panelling, doors and veneers. It is also used in plywood production.

Production and trade: *S. curtisii* is one of the best commercial timber species and is greatly in demand on the world market as sawn timber. It is unfortunately impossible to distinguish this species in reported trade statistics. In 1989 Peninsular Malaysia exported 643 541 m^3 of Dark Red Meranti sawn timber and 143 428 m^3 of Dark Red Meranti 'pinhole no defect' sawn timber.

S. curtisii was included in the questionnaire survey of UK traders. Eleven companies reported importing this species (eight from Peninsular Malaysia) but it is thought that some traders may have been referring to the broader timber group of Seraya. Problems in the supply of Seraya and an increased demand because of the ban on Lauan exports (from the Philippines) were noted.

Silviculture: *Shorea curtisii* is one of the major commercial timbers derived from Hill Dipterocarp forests in Peninsular Malaysia. These are the most important source of the State's timber as most of the lowland forests are being converted to other forms of land use. The hill forests of Peninsular Malaysia are managed under the Selective Management System (SMS). Natural regeneration of desired species in the hill forests has generally been poor. It has been noted that economic considerations carry greater weight in logging operations involving *S. curtisii* than the need for sustained yield management, with excessive logging damage and undue selection of logs extracted (Wyatt-Smith, 1988).

In Peninsular Malaysia there has been considerable research on the regeneration of *S. curtisii* within natural forests. Indications show that the species flowers less frequently than other Red Meranti

species and its seedlings show poor viability (Nin, 1978). There is some evidence that *S. curtisii* seeds germinate more readily under canopy shade, but seedling growth is favoured in gap conditions of 20-40% full sun (Turner, 1990).

Conservation measures

Legislation: The Government of Malaysia has been urged to ban the export of Red Meranti by the wood moulding and furniture industries (Anon., 1989).

Presence in protected areas:

Peninsular Malaysia Taman Negara National Park, Kerau Game Reserve, Endau Rompin Proposed Reserve

According to Anon. (1985) the species is conserved in several Virgin Jungle Reserves.

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Tectona grandis L. **Family Verbenaceae**

Trade name: Teak

Local names: Kyun, Lyiu (Myanmar), Teck (French), Teca (Spanish), Sagun, Tegu, Tegina, Thekku (India), Mai Sak (Thailand), Djati (Indonesia), Fati (Malay).

Conservation status: According to Hedegart (1976), in spite of centuries of heavy and usually dysgenic exploitation, natural Teak forests still offer valuable gene resources; but clearing, illegal exploitation, deliberate burning and grazing continue at an increasing rate to put pressure on natural populations. According to FAO (1990), Teak is considered a priority species for *in situ* conservation. The world conservation status for *Tectona grandis* recorded in the TTC database is 'nt'.

Distribution and national conservation status:

Cambodia	Myanmar
India	Thailand
Laos	Vietnam

Teak occurs naturally in Cambodia, India, north-west Laos, Myanmar, north Thailand and Vietnam but it has been widely planted outside its natural range since the fourteenth century. Within its area of natural distribution some varieties are Endangered in India (FAO, 1990). In that country there is a huge shortfall in general in the requirement and availability of timber (Chadha, 1988) but *Tectona grandis*, which occurs gregariously, is not under any threat (Lal *in litt.*, 1990). In Thailand Teak has been exploited for centuries. By the end of the nineteenth century extraction of Teak at an excessive rate was leading to forest deterioration. Protective legislation for the species and control over its exploitation were introduced. Teak is not considered to be a rare species within the country but it has disappeared from much of the otherwise undisturbed Thai forest. Logging bans in Thailand and Laos have increased the international demand for Teak from Myanmar, leading to concern about the rate of felling within the country. Illegal felling in the Myanmar/Thai border area to supply Thai sawmills has been widely publicised. The protection of areas of undisturbed natural Teak forests to ensure future supplies of selected seed for commercial plantations is considered one of the highest forest conservation priorities in Myanmar (Blower, 1985).

It is uncertain whether the 'natural' Teak stands in Indonesia are indigenous or were originally planted by Hindu settlers. According to Lande (1987) the Teak forests in Java are rapidly decreasing because of increasing demands for agricultural land. In the other islands such as Celebes and Nusa Tenggara, the 'natural' Teak forests are decreasing rapidly, without sufficient management and planting.

Habitat: Teak naturally occurs in areas of monsoon climate under a wide range of site conditions.

The tree: This large deciduous tree can attain heights of 30-40 m. On good sites, clear boles of 15-20 m in length can usually be obtained. Fluting and buttresses are found at the bases of older trees (Keiding, 1985).

Timber Properties: The heartwood is dark golden yellow and turns a dark brown with exposure and the wood has an oily feel. It is easily worked with hand and machine tools and glues well despite its oily nature. The wood is durable against decay fungi and termites but is not immune to marine borers.

Uses: Teak is one of the world's most versatile and outstanding timbers, with many valuable properties. It has a wide range of uses, including both heavy and light construction work, house building, carpentry, furniture and wood carvings.

Production and trade:

In India, the State Forest Departments and Forest Development Corporations extract timber on the basis of approved Management Plans and supply wood to consumers through open auctions. The rates for sawn Teak are Rs.18 000-20 000 per m^3 (Chadha, 1988). No Teak is exported from India.

Annual exports of Teak from Thailand prior to the logging ban were as follows:

Export of sawn timber of *Tectona grandis* from Thailand (m^3)

1984	1985	1986	1987	1988
168	8171	16059	14970	24117

Source: Forestry statistics of Thailand 1987-88

In Myanmar, Teak is one of the country's main foreign exchange earners and its exploitation is a monopoly of the State Timber Corporation (Blower, 1985). Unfortunately, no recently published information on exports appears to be available for the country. The Statistics Division of the UN Economic and Social Commission for Asia and the Pacific (ESCAP) in Bangkok collects information on the Myanmar timber trade by questionnaire. It would be useful to monitor exports of Teak from Myanmar, as this is the major source of the species extracted from natural forests for international trade.

In Java, Teak is the main product of Perum Perhutani, the state-owned timber company. About 500 000 m^3 of timber are produced annually (Lande, 1987). In 1986 Indonesia exported 40 000 m^3 of Teak.

Various importing countries do have a separate tariff heading for Teak in Customs statistics. Japan, Korea and Thailand, for example, have a tariff heading for Teak logs and Australia, UK and USA for sawn timber. It is therefore possible to determine the volumes of Teak imported by major importing countries and to infer export volumes from the currently available Customs statistics. UK imports 7000-8000 m^3 of Teak annually, with Indonesia supplying 65% of the trade.

Of the returned **questionnaires** from UK timber traders, three companies stated they currently import *T. grandis,* two from Indonesia, and one each from Myanmar and Thailand. One company reported that import and demand had fallen, whilst one said imports were up and one stated that demand was steady. One company stated they only imported small amounts.

Concern about the source of tropical hardwoods is likely to have an impact on the patterns of international trade in Teak. Martin (1989), for example, points out that suppliers and manufacturers (of garden furniture) are now moving away from Myanmar and Thailand because of serious questions about the forestry practices of these countries, with some companies now buying Teak only from Java. The Rainforest Action Network has urged its members to boycott 'Burmese and so-called Thai teak', pointing out that most of the Teak imported to USA is from Myanmar (Rainforest Action Network, 1989).

Silviculture: The exploitation of Teak formed the basis for early forest management in India, Myanmar and Thailand. In India, for example, a commission was appointed in 1800 to investigate the availability of Teak in Kerala and minimum girth limits were introduced (Shyamsunder and Parameshwarappa, 1988). Regeneration of the species in natural forests is poor. Both within and outside its natural range, Teak is primarily cultivated in artificially established pure stands. It has been demonstrated, however, that Teak should be grown mixed with soil-enriching tree species (Lamprecht, 1989).

Since the price of Teak is relatively high and its sources of supply limited, it has been introduced to countries throughout the tropics, including Trinidad, Togo, Nigeria, Honduras, Cameroon, Zaire and Benin, where plantations have been established. For the production of good quality timber *T. grandis* needs a periodic marked dry period of 3-5 months and grows best where mean monthly maximum temperatures are 40° C and monthly minimum 13° C, with rainfall of 1 270-3 800 mm (Kaosa-ard, 1981).

Growth and growth habits show great variation according to site conditions (Bedell, 1989) but only one variety (Teli from India) has been recognised. There is thus a good basis for improvement by provenance/individual tree selection, and breeding work is being carried out in many countries (Keiding, 1985).

Seed dormancy is an important characteristic of Teak. This results in uneven germination and, because the plants are sensitive to shade, later germinating plants are suppressed. Several factors are responsible for the big difference between potential and realised germination recorded in plantation trials but it is largely due to the inhibition of germination by dormancy.

Its seed stores well and may keep their viability for several years. However, they require pretreatment before sowing but this varies considerably depending on the source of the seeds and no methods are applicable for all types of Teak seed. Research is needed into this problem since it will be increasingly evident as more Teak seed is planted and transferred. Seed is now available from registered sources, selected seed stands and clonal seed orchards (Keiding, 1985).

Conservation measures

Legislation:

India - The export of all timber from India is banned.

Myanmar - Teak is protected under the Burma Forest Act 1902, as amended.

Thailand - Early legislation introduced to control Teak exploitation in Thailand included:

1) the Royal Proclamation of 1884 concerning the sale of Teakwood;
2) the Royal Proclamation of 1887 concerning the transportation of Teakwood;
3) the Royal Proclamation of 1887 concerning possession of Teak logs;
4) the Teak Trees Protection Act of 1897;
5) the 1899 Act prohibiting the extraction of Teak timber without the payment of royalties or duties (Arbhabhirama *et al.*, 1987).

The Forest Act of 1941, as revised, gives specific protection to Teak. Since 1989 all logging has been banned in Thailand.

Presence in protected areas:

India **Tamil Nadu**: Anaimallai Wildlife Sanctuary; Kalakad Wildlife Sanctuary; Mudumalai Wildlife Sanctuary (teak plantations). **Karnataka**: Bandipur national Park (dominant species); Bhadra Wildlife Sanctuary (dominant species); Dandeli Wildlife Sanctuary (dominant species); Nagarhole National Park (dominant species). **Madhya Pradesh**: Barnawapara Wildlife Sanctary; Bori Wildlife Sanctuary (dominant species); Indravati National Park; Kheoni Wildlife Sanctuary; Narsingah Wildlife Sanctuary (Teak plantations); Noradehi Wildlife Sanctuary (dominant species); Ratapani Wildlife Sanctuary. **Maharashtra**: Borivilli National Park (dominant species); Melghat (Dhaknakolkas) Tiger Reserve (30-40% planted with Teak); Nagzira Wildlife Sanctary; Panch National Park (Teak covers 40% of the area); Tadoba National Park. **Uttar Pradesh**: Dudhwa National Park. **Andhra Pradesh**: Eturnagaram Wildlife Sanctuary; Kawal Wildlife Sanctuary; Kinnersani Wildlife Sanctuary; Lanjamadugu (Siwaram) Sanctuary. **Gujarat** Gir Wildlife Sanctuary and National Park; Velavadar Blackbuck National Park (poorly grown Teak). **Kerala**: Parambikulam Wildlife Sanctuary (extensive Teak plantations -8,780 ha of semi mature Teak in 1988, natural Teak now rare); Peechi-Vazhani Wildlife Santuary (extensive plantations); Periyar Wildlife Sanctuary; Wynad Wildlife Sanctuary (> half Teak and eucalyptus plantation); Thattekkad Bird Sanctuary (Teak plantations).

Rodgers and Panwar (1988), in a report of proposed protected areas name the following as having Teak present.
Gujarat: Purna Wildlife Sanctuary. **Madyha Pradesh**: Saimura Wildlife Sanctuary; Gollapalli Wildlife Sanctuary. **Rajasthan**: Boroswar Wildlife Sanctuary (Teak biome).

Myanmar Alaungdaw Kathapa National Park (classed as reserved forest since 1893; selectively logged for Teak in the past)

Thailand Huai Kha Khaeng Sanctuary, Lum Nam Pai Sanctuary, Mae Tun Sanctuary, Doi Chiang Dao Sanctuary, Doi Pha Muang, Omkoi Sanctuary, Doi Suthep-Poi National Park, Khao Sam Lan National Park, Mae Ping National Park, Huai Tak Teak Reserve

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PART 5

MONITORING TROPICAL TIMBER TRADE BY SPECIES

Introduction

Statistical information on the tropical timber trade is currently available from a variety of sources, primarily as compiled by national Customs Services in producer and consumer countries. Producer countries also compile export statistics with varying levels of detail within organisations such as forestry departments, timber trade organisations and port authorities. It is generally accepted that the improved collection and flow of trade data will be beneficial to the international timber trade and allow for better planning of tropical timber production to supply the needs of the international market. One of the main functions of ITTO is to strengthen the provision of statistical information in order to monitor the tropical timber trade. The data required for such monitoring were specified in an Annex to the ITTA agreed in 1983.

Increasing rates of deforestation in tropical countries are inevitably leading to concern regarding the future supply of tropical timber to meet national and international needs. There is also a major concern that current volumes of trade in particular species may already be excessive, leading both to problems of supply and to the loss of populations in natural forest ecosystems. As a result, ITTO's role in promoting tropical forest conservation is seen as an urgent imperative. ITTO is committed to developing a sustainable basis for the international tropical timber trade. In order to do so, there is a need for the provision of statistical information on levels of production, consumption and trade, both in gross terms and at a species level.

One of the main aims of the pre-project carried out by WCMC has been to examine the mechanisms for monitoring international trade in timber species of conservation concern, once these species have been identified. In order to do so, the existing statistical data have been reviewed, primarily to determine the extent to which the timbers described can be identified to species or genus level, and whether statistical information is available for those species which are considered to be threatened in the wild. A major consideration has been the consistency in the nomenclature relating to timbers in trade statistics, and the extent to which data from different sources are comparable.

In the following account, the current sources of tropical timber trade information are described and analysed. The export and import procedures relating to the monitoring of tropical timber trade are briefly discussed, together with existing mechanisms which could be more fully developed to harmonise international monitoring. The conservation benefits of monitoring the trade to a more detailed level are set out and recommendations based on the review are offered for consideration by ITTO in Part 6.

Sources of information

The most useful source of quantitative trade information currently available is that derived from Customs statistics. Two trade classifications are widely used: the Customs Cooperation Council Harmonized Commodity Description and Coding System (HS) and the Standard International Trade Classification (SITC). The former system has numerical codes for commodities, composed of nine digits. Use of the first six digits is mandatory within the system but the final three are available for individual variable use by participating countries. This means that the most detailed information, including that on most individual tropical species, may be coded in slightly different ways by different countries.

Harmonized System

The most important categories for tropical timber trade are those involving logs, sawnwood, veneer and plywood. Data for these categories are analysed in the FAO *Monthly Bulletin - tropical forest products in world timber trade.* The HS codes relevant to tropical timbers in these categories are shown in Table 67. The common names of timbers used may refer to an individual species or, in

some cases, to a group of species. The botanical species to which these names may relate are shown in Table 68.

Table 67

Harmonized System codes and tariff heading descriptions

44.03			**Wood in the rough, whether or not stripped of bark or sapwood, or roughly squared**
	4403.10	-	Treated with paint, stains, creosote or other preservatives
			- Other, of the following tropical woods:
	4403.31	-	Dark Red Meranti, Light Red Meranti and Meranti Bakau
	4403.32	-	White Lauan, White Meranti, White Seraya, Yellow Meranti and Alan
	4403.33	-	Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas
	4403.34	-	Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré and Iroko
	4403.35	-	Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé
			- Other:
	4403.99	-	Other
44.06			**Railway or tramway sleepers (cross-ties) of wood**
	4406.10	-	Not impregnated
	4406.90	-	Other
44.07			**Wood sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or finger-jointed, of a thickness exceeding 6 mm**
			- Of the following tropical woods:
	4407.21	-	Dark Red Meranti, Light Red Meranti, Meranti Bakau, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas
	4407.22	-	Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé
	4407.23	-	Baboen, Mahogany (*Swietenia* spp.), Imbuia and Balsa
			- Other:
	4407.99	-	Other
44.08			**Veneer sheets and sheets for plywood (whether or not spliced) and other wood sawn lengthwise, sliced or peeled, whether or not planed, sanded or finger-jointed, of a thickness not exceeding 6 mm**
	4408.20	-	Of the following tropical woods: Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany (*Swietenia* spp.), Palissandre du Brésil and Bois de Rose femelle
	4408.90	-	Other
44.09			**Wood (including strips and friezes for parquet flooring, not assembled) continuously shaped (tongued, grooved, rebated, chamfered, V-jointed, beaded, moulded, rounded or the like) along any of its edges or faces, whether or not planed, sanded or finger-jointed**
	4409.20	-	Non-coniferous
44.12			**Plywood, veneered panels and similar laminated wood**
			- Plywood consisting solely of sheets of wood, each ply not exceeding 6 mm thickness:

4412.11	-	With at least one outer ply of the following tropical woods: Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany (*Swietenia* spp.), Palissandre du Brésil or Bois de Rose femelle
4412.12	-	Other, with at least one outer ply of non-coniferous wood
4412.19	-	Other
		- Other, with at least one outer ply of non-coniferous wood:
4412.21	-	Containing at least one layer of particle board
4412.29	-	Other
		- Other:
4412.91	-	Containing at least one layer of particle board
4412.99	-	Other

Table 68

Common and scientific names of timbers listed in the Harmonized System

Asian:	
Dark Red Meranti	*Shorea singkawang* (1), *S. curtisii* (1,4,7,10), *S. ovata* (1,4), *S. pauciflora*, *S. platyclados*,(1,4, 7), *S. acuminata p.p.*, *S. agsaboensis*, *S. argentifolia*, *S. bullata*, *S. coriacea*, *S. cristata*, *S. elliptica*, *S. flaviflora*, *S. monticola*, *S. pachyphylla*, *S. rubra*, *S. rugosa*, *S. slooteni*, *S. venulosa* (4)
Light Red Meranti	*Shorea macroptera* (1), *S. acuminata p.p.*, *S. leprosula*, *S. ovalis*, *S. palembanica*, *S. parvifolia* (1,4,7), *S. andulensis*, *S. beccariana*, *S. fallax*, *S. lepidota*, *S. johorensis*, *S. myrionerva*, *S. nebulosa*, *S. oleosa*, *S. parvistipulata*, *S. platycarpa p.p.*, *S. praestans*, *S. quadrinervis*, *S. retusa*, *S. revoluta*, *S. rotundifolia*, *S. rubella*, *S. sagittata*, *S. scabrida*, *S. squamata*, *S. stenoptera*, *S. teysmanniana*, *S. vetonii* (4), *S. dasyphylla*, *S. smithiana* (4,7), *S. albida*, *S. almon*, *S. macrophylla* (10)
Meranti Bakau	*Shorea uliginosa* (syn. *S. rugosa* var. *uliginosa*) (4,7,8,10)
White Lauan	*Shorea* (= *Pentacme*) *contorta* (2,5,11,12), *Parashorea malaanonan*, *P. macrophylla*, *P. tomentella*, *Shorea almon*, *S. ovalis*, *S. palosapis*, *S. parvifolia* (10)
White Meranti	*Shorea bracteolata* (1,4,7,11), *S. hypochra* (1,4,11), *S. agami*, *S. bentongensis*, *S. dealbata*, *S. gratissima*, *S. lamellata*, *S. ochracea*, *S. resinosa*, *S. sericeiflora*, *S. symingtonii* (4), *S. assamica* (inc. *S. philippinensis*) *S. talura* (4,7), *S. cochinchinensis*, *S. plagata* (7), *S. polita*, *S. arsonianoi*, *S. balanocarpoides*, *S. henryana*, *S. roxburghii*, *Parashorea lucida* (10)
White Seraya	*Parashorea malaanonan* (1,4,5,10) *P. conferta*, *P. parvifolia*, *P. smythiesii*, *P. tomentella* (4), *P. macrophylla* (10)
Yellow Meranti	*Shorea faguetiana*, *S. resina-nigra* (1,4,7), *S. multiflora* (1,4,10), *S. acuminatissima*, *S. angustifolia*, *S. balanocarpoides*, *S. collaris*, *S. dolichocarpa*, *S. faguetioides*, *S. gibbosa*, *S. iliasii*, *S. kalunti*, *S. kudatensis*, *S. laxa*, *S. maxima*, *S. patoiensis*, *S. polyandra*, *S. xanthophylla* (4), *S. hopeifolia* (4,7,10), *S. virescens*, *S. blumutensis*, *S. longisperma*, *S. macrobalanos*, *S. peltata* (10)
Alan	*Shorea albida* (1,4,5,10)
Keruing	*Dipterocarpus baudii*, *D. cornutus*, *D. costulatus*, *D. kerrii*, *D. verrucosus* (1,4), *D. acutangulus*, *D. appendiculatus*, *D. applanatus*, *D. apterus*, *D. basilanicus*, *D. borneensis*, *D. caudatus*, *D. caudiferus*, *D. chartaceus*, *D. concavus*, *D. confertus*, *D. conformis*, *D. coriaceus*, *D. crinitus*, *D. dyeri*, *D. eurynchus*, *D. exalatus*, *D. fagineus*, *D. geniculatus*, *D. globosus*, *D. hasseltii*, *D. humeratus*, *D. kutaianus*, *D. kunstleri*, *D. lamellatus*, *D. lowii*, *D. mundus*, *D. oblongifolius*, *D. obtusifolius*, *D. ochraceus*, *D. orbicularis*, *D. pachyfolius*, *D. pachyphyllus*, *D. palembanicus*, *D. penangianus*, *D. philippinensis*, *D. pseudo-fagineus*, *D. retusus*, *D. rigidus*, *D. rotundifolius*, *D. sarawakensis*, *D. semivestitus*, *D. speciosus*, *D. stellatus*, *D. subalpinus*, *D. sublamellatus*, *D. tempehes*, *D. warburgii* (4)

Ramin	*Gonystylus bancanus* (= *macrophyllum*) (1,4,5), *G. acuminatus, G. affinis, G. auguscens, G. borneensis, G. brunnescens, G. confusus, G. consanguineus, G. forbesii, G. keithii, G. maingayi, G. micranthus, G. stenosepalus* (4)
Kapur	*Dryobalanops aromatica* (1,4), *D. fusca* (1), *D. lanceolata* (1), *D. oblongifolia* (1,4), *D. oiocarpa* (1)
Teak	*Tectona grandis* (1,2)
Jongkong	*Dactylocladus stenostachys* (1,2,5)
Merbau	*Intsia bijuga* (PH) (1,2,4,5,7), *I. palembanica* (1,2, 4,7), *I. acuminata, I. bakeri, I. retusa* (4)
Jelutong	*Dyera costulata* (1,2,4,5,6), *D. lowii* (1,4,6), *D. polyphylla* (4)
Kempas	*Koompassia malaccensis* (1,2,5)
African	
Okoumé	*Aucoumea klaineana* (1,2,5)
Obeche	*Triplochiton scleroxylon* (1,2,3,5)
Sapelli	*Entandrophragma cylindricum* (1,5)
Sipo	*Entandrophragma utile* (1,2,5)
Acajou d'Afrique	*Khaya ivorensis* (1,5)
Makoré	*Tieghemella heckelii* (1,2,3,5)
Iroko	*Milicia* (= *Chlorophora*) *excelsa M.* (= *C.*) *regia* (1,2,3,5)
Tiama	*Entandrophragma angolense* (1,2,5)
Mansonia	*Mansonia altissima* (1,2,3,5)
Ilomba	*Pycnanthus angolensis* (1,2,3,5)
Dibétou	*Lovoa trichilioides* (1,3,5)
Limba	*Terminalia superba* (1,2,5)
Azobé	*Lophira alata* (1,2,5)
American:	
Baboen	*Virola koschnyi, V. sebifera* (1), *V. surinamensis* (1,5)
Mahogany	*Swietenia humilis* (?), *S. macrophylla* (1), *S. mahagoni* (1)
Imbuia	*Ocotea* (= *Phoebe*) *porosa* (1,2,5)
Balsa	*Ochroma lagopus* (= *pyramidale*) (1,2,5)
Palissandre du Brésil	*Dalbergia nigra* (1)
Bois de Rose femelle	*Dalbergia frutescens* var. *tomentosa* (1,5)

Sources of information on nomenclature:

1: Anon. (1977), 2: Chudnoff (1984), 3: Anon. (n.d.[1]), 4: Anon. (n.d.[2]), 5: British Standards Institution (1974), 6: Anon. (1990), 7: Boutelje (?), 8: Anon. (1989), 9: FMB DENR (1988), 10: Durand (1985)

Table 69

Timbers listed in various Asian, North American and Australian Customs statistics which are not named in the Harmonized System

Dao (PH)	*Dracontomelum dao* (1,5,6,9)
Paldao	= Dao (1,5)
Red Lauan (PH, US)	*Shorea negrosensis* (1,5,9), *S. absaboensis, S. acuminata, S. pauciflora* (10)
Mersawa (MY)	*Anisoptera laevis, A. marginata* (1,4,7), *A. curtisii* (1,4), *A. aurea, A. costata, A. grossivenia, A. megistocarpa, A. oblonga, A. reticulata, A. scaphula* (4)
Krabak (TH)	*Anisoptera curtisii, A. laevis, A. marginata* (1)
Yakal (PH)	*Shorea gisok, S. malibato (9), S. astylosa, S. falciferoides, S. seminis, S. balangeran* (10), *Hopea basilanica, H. brachyptera, H. cagayanensis, H. malibato, H. mindanensis, H. plagata*
Tangile (PH)	*Shorea polysperma* (1,5,9,10)
Palosapis (PH)	*Anisoptera thurifera* (1,9), *A. aurea, A. costata, A. mindanensis*
Bagtican (PH)	= White seraya (5,8), *Parashorea plicata* (9)
Tualang (PH)	*Koompassia excelsa* (4)
Mayapis (PH)	*Shorea palosapis* (1,12), *S. squamata* (5)
Ebony (AU, KR)	*Diospyros* spp. (1,3,5)
Kalantas (PH)	*Toona calantas* (?)
Lignum Vitae (JP, KR)	*Guaiacum officinale, G. sanctum* (1)
Balau (MY, SG)	*Shorea atrinervosa, S. foxworthyi, S. glauca, S. maxwelliana* (1,4), *S. asahi, S. astylosa, S. biawak, S. brunnescens, S. ciliata, S. crassa, S. domatiosa, S. exelliptica, S. falciferoides, S. flava, S. glaucescens, S. havilandii, S. hypoleuca, S. inappendiculata, S. isoptera, S. laevifolia, S. laevis, S. leptoderma, S. lumutensis, S. lunduensis, S. materialis, S. meadina, S. obscura, S. seminis, S. submontana, S. sumatrana, S. superba, Hopea celebica, Parashorea aptera, P. densiflora, P. lucida* (4), *S. scrobiculata* (10)
Red Balau (MY)	*Shorea guiso, S. kunstleri* (1,4,10), *S. balangeran, S. collina, S. inaequilateralis* (10), *S. ochrophloia, S. plagata*
Chengal (MY, SG)	*Neobalanocarpus* (= *Balanocarpus*) *heimii* (1)
Mengkulang (MY, SG)	*Heritiera simplicifolia* (1,4), *H. albiflora, H. aurea, H. borneensis, H. cochinchinensis, H. elata, H. globosa, H. impressinervia, H. javanica, H. sumatrana* (4)
Rengas (MY)	*Melanorrhoea aptera, M. beccarii, M. curtisii, M. macrocarpa, M. maingayi, M. malayana, M. pubescens, M. torquata* (4), *M. wallichii* (1,4,6), *M. inappendiculata, M. tricolor, M. woodsiana* (4,6), *M. oba* (6), *Gluta renghas* (1,4,6), *G. elegans, G. wrayi* (4), *G. laxiflora* (4,6), *G. velutina* (6), *Melanochyla auriculata, M. beccariana, M. bracteolata, M. elmeri, M. kunstleri, M. rugosa* (4), *Bouea oppositifolia, Swintonia acuta, S. spicifera* (6)
Sepetir (MY)	*Copaifera* (= *Pseudosindora*) *palustris* (1,2), *Sindora affinis, S. beccariana, S. bruggemanii, S. coriacea, S. echinocalyx, S. inermis, S. irpicinea, S. leiocarpa, S. siamensis, S. supa, S. velutina, S. wallichii* (4)
Nyatoh (AU, MY)	*Palaquium beccarianum, P. burkii, P. calophyllum, P. clarkeanum, P. cochlearifolium, P. cryptocariifolium, P. dasyphyllum, P. ferox, P. gutta, P. harveyi, P. hexandrum, P. hispidum, P. javanense, P. kinabaluense, P. lanceolatum, P. leiocarpum, P. luzoniense, P. maingayi, P. microphyllum, P. obovatum, P. obtusifolium, P. philippense, P. pseudocuneatum, P. pseudorostratum, P. quercifolium, P. rioense, P. ridleyi, P. rostratum, P. semaram, P. walsurifolium, P. xanthochymum* (4), *Payena acuminata, P. dasyphylla, P. endertii, P. lanceolata, P. leeri, P. lucida, P. maingayi, P. obscura* (4), *Ganua coriacea, G. curtisii, G. kingiana, G. monticola, G. motleyana, G. obovatifolia, G. pierrei, G. sarawakensis* (4)

Padauk (PH)	*Pterocarpus indicus* (1)
Narra	= Padauk (1,2,5)
Pulai group (ID)	*Alstonia scholaris, A. pneumatophora* (6), *Anthocephalus cadamba* (?)
Matoa (ID)	*Pometia acuminata* (1)
Almon(d) (PH)	*Shorea almon, S. ovalis* (10)
Apitong (PH)	*Dipterocarpus gracilis, D. grandiflorus* (1), *D. caudatus, D. eurynchus, D. hasseltii, D. kerrii, D. kunstleri, D. orbicularis, D. philippinensis, D. warburgii*
Malacca Albizia (TW)	*Albizia* spp.
Gurjan, Gurjun (IN)	*Dipterocarpus alatus, D. grandiflorus, D. kerrii, D. tuberculatus, D. turbinatus* (1)
Rosewood (KR)	*Dalbergia* spp. (1,2,5)
Pradu (TH)	*Pterocarpus indicus* (4), *P. macrocarpus* (2,5)
Takien (TH)	*Hopea odorata* (1,5)
Teng (TH)	= Balau
Rang (TH)	*Shorea siamensis*
Para-rubber (TH)	*Hevea brasiliensis*
Ching-chan (TH)	*Dalbergia* spp.
Ma-ka (TH)	= Sepetir

AU = Australia; ID = Indonesia; JP = Japan; KR = Republic of Korea; MY = Peninsular Malaysia; PH = Philippines; SG = Singapore; TH = Thailand

Sources of information on nomenclature:
1: Anon. (1977), 2: Chudnoff (1984), 3: Anon. (n.d.[1]), 4: Anon. (n.d.[2]), 5: British Standards Institution (1974), 6: Anon. (1990), 7: Boutelje (?), 8: Anon. (1989), 9: FMB DENR (1988), 10: Durand (1985)

Many countries have now adopted the Harmonized System, and most have gone further than the basic six-digit codes for the treatment of timbers, several listing individual species or species groups in their Customs statistics (see Tables 69-71). Recent Customs statistics covering the timber trade were obtained for 47 countries for the purposes of this study (Table 70). Thirty-six use the Harmonized System and, of these, all except eight provide more detailed information (using the final three digits of the codes) than the basic system. Twenty-one have codes referring to single species, ranging from two (Hong Kong, Morocco) to 37 (Côte d'Ivoire).

Côte d'Ivoire Customs statistics (Table 71) are broken down into 47 categories, of which 37 refer to individual species and the remainder refer to small species groups.

Of the recorded log exports in 1988 (only 11 months available currently) only 32% falls within the two relevant categories of the Harmonized System. The most important timbers not named specifically in the HS are *Ceiba pentandra* (20% of total log exports), *Hallea* spp. (7.9%), *Antiaris toxicaria* (6.3%), *Chrysophyllum* spp. (5.7%), *Terminalia ivorensis* (4.9%), *Erythrophleum* spp. (4%) and *Nesogordonia papaverifera* (3.8%).

Gabon Customs statistics are broken down into 51 categories for logs, including at least 28 that refer to separate species. The timbers exported in 1986 (the most recent year obtained) are shown in Table 72. More detailed statistics are provided by the Société d'Exploitation des Parcs à Bois du Gabon (SEPBG), and the additional timbers are also shown in the table.

Table 70

Customs tariff systems used by various countries

Country	Tariff headings devoted to single species	System used
Algeria		SITC
Austria	6	HS+
Belgium and Luxembourg	7	HS+
Brunei		SITC
Cameroon		
Canada		HS
China		SITC
Côte d'Ivoire	37	HS+
Cyprus		HS+
Denmark	6	HS
EEC	5	HS+
Finland		HS
France	3	HS+
Gabon	31	HS+
FRG	7	HS+
Greece		HS
Hong Kong	2	SITC
India	3	HS+
Indonesia		HS+ (and SITC)
Ireland		SITC
Israel		HS
Italy	5	HS+
Japan	3	HS+
Kenya		SITC
Republic of Korea	21	HS+ (and SITC)
Macau		HS
Peninsular Malaysia	4 (Customs stats) 36 (MTIB stats)	HS+ (and SITC)
Sabah		SITC
Sarawak		SITC
Morocco	2	HS+
Netherlands	5	HS+
New Zealand		HS+
Norway		HS+

Country	Tariff headings devoted to single species	System used
Pakistan		SITC
Philippines	12	SITC
Portugal	6+	HS+
Saudi Arabia		HS
Singapore	10	HS+ (and SITC)
South Africa		HS+
Spain		HS+
Sri Lanka		HS-
Sweden		HS+
Switzerland		HS+
Taiwan		HS+
Thailand	3	HS+
Turkey	6	HS+
United Arab Emirates		SITC
UK	8	HS+
USA	6	HS+

HS = Harmonized System
HS+ = more detailed than recommended HS, using >6 digits
HS- = less detailed than recommended HS
SITC = Standard International Trade Classification

Table 71

Timbers listed in Côte d'Ivoire Customs statistics

Aboudikrou	*Entandrophragma cylindricum*
Acajou	*Khaya* spp.
Aiélé	*Canarium schweinfurthii*
Ako	*Antiaris toxicaria* (syn. *A. africana*, *A. welwitschii*)
Akossika	*Scottellia klaineana* (= *coriacea*)
Amazakoué	*Guibourtia ehie*
Aninguéri	*Chrysophyllum delevoyi* (= *Gambeya africana*), *C.* (= *G.*) *lacourtianum*, *C.* (= *G.*) *subnudum*
As(s)amela	*Pericopsis elata*
Avodiré	*Turraeanthus africanus*
Azobé	*Lophira alata*
Ba	*Celtis gomphophylla*, *C. soyauxii*
Badi	*Nauclea diderrichii*
Bahia	*Hallea* (= *Mitragyna*) *ledermannii* (= *H. ciliata* auct.), *H.* (= *M.*) *stipulosa*
Bété	*Mansonia altissima*
Bi	*Sterculia oblonga*
Bossé	*Guarea cedrata*, *G. laurentii*
Dabéma	*Piptadeniastrum africanum*
Dibétou	*Lovoa trichilioides*
Difou	*Morus lactea*, *M. mesozygia*
Emien	*Alstonia boonei*
Essessang	*Ricinodendron heudelotii*
Faro	*Daniellia ogea*, *D. oliveri*, *D. thurifera*
Fraké	*Terminalia superba*
Framiré	*Terminalia ivorensis*
Fromager	*Ceiba pentandra*
Ilomba	*Pycnanthus angolensis*
Iroko	*Milicia excelsa*, *M. regia*
Kekelé	*Holoptelea grandis*
Kondroti	*Rhodognaphalon brevicuspe*
Kos(s)ipo	*Entandrophragma candollei*
Kotibé	*Nesogordonia papaverifera*
Koto	*Pterygota macrocarpa*, *P. bequaertii*
Latandza	*Albizia ferruginea*
Lenguè	*Afzelia africana*, *A. bella*
Lotofa	*Sterculia rhinopetala*

Makoré	*Tieghemella heckelii*
Melegba	*Berlinia* spp.
Movingui	*Distemonanthus benthamianus*
Niangon	*Heritiera* (= *Tarrietia*) *utilis*
Pocouli	*Berlinia confusa, B. grandiflora, B. occidentalis*
Podo	*Podocarpus* spp.
Samba	*Triplochiton scleroxylon*
Sipo	*Entandrophragma utile*
Tali	*Erythrophleum ivorense, E. suaveolens* (= *guineense*), *E. africanum*
Tiama	*Entandrophragma angolense*
Vaa	*Gilbertiodendron preussii*

Table 72

Timbers listed in Gabon Customs statistics and by the Société d'Exploitation des Parcs à Bois du Gabon

		Cust	SEPBG
Abeum			*
Abura (Bahia)	*Hallea ledermannii, H. stipulosa*	*	*
Acajou d'Afrique (Khaya)	*Khaya ivorensis, K. anthotheca*	*	*
Acuminata	*Entandrophragma angolense*		*
Afo (Ako?)	*Antiaris toxicaria*		*
Agba (Tola)	*Gossweilerodendron balsamiferum*		*
Aiélé	*Canarium schweinfurthii*	*	*
Alen (Alep?)	*Desbordesia glaucescens*		*
Alone	*Rhodognaphalon brevicuspe, R. heudelotii*		*
Amazakoue (Ovangkol)	*Guibourtia ehie*		*
Andoung	*Didelotia brevipaniculata, Monopetalanthus durandii, M. letestui, M. microphyllus, M. pellegrinii*	*	*
Anguek	*Ongokea gore*		*
Anzem	*Copaifera religiosa*		*
Aongongui			*
Azobé	*Lophira alata*	*	*
Beli (Awoura)	*Julbernardia pellegriniana*		*
Bilinga	*Nauclea diderrichii, N. gilletii*	*	*
Bomanga	*Brachystegia laurentii, B. mildbraedii*		*
Bossé	*Guarea* spp.	*	*
Bubinga (Kezavingo)	*Guibortia demeusei, G. pellegriniana*	*	*
Dabéma	*Piptadeniastrum africanum*	*	
Dibétou	*Lovoa trichilioides*	*	*
Douka	*Tieghemella africana*	*	*
Doussie	*Afzelia bipindensis, A. pachyloba*	*	*

Ebana	*Guibourtia demeusei*		*
Ebene	*Diospyros* spp.	*	*
Ebiara	*Berlinia bracteosa*		*
Enouk	*Alstonia boonei, A. congensis, A. gillettii*		*
Eyong	*Sterculia oblonga*	*	*
Faro	*Daniellia ogea*		*
Framiré	*Terminalia ivorensis*	*	
Fromager	*Ceiba pentandra*	*	*
Gombe	*Didelotia letouzeyi*		*
Gheombi	*Sindoropsis letestui*		*
Iatandza	*Dacryodes edulis*		*
Idewas			*
Igaganga	*Dacryodes igaganga*	*	*
Ilomba	*Pycnanthus angolensis*	*	*
Iroko	*Milicia excelsa, M. regia*	*	*
Izombe	*Testulea gabonensis*	*	*
Kosipo	*Entandrophragma candollei*	*	*
Kotibé	*Nesogordonia papaverifera*	*	*
Limba	*Terminalia superba*	*	*
Longui Rouge	*Chrysophyllum delevoyi*		*
Makoré	*Tieghemella heckelii*	*	
Moabi	*Baillonella toxisperma*	*	*
Movingui	*Distemonanthus benthamianus*	*	*
Mukulungu	*Autranc̈ia congolensis*		*
Mutenye	*Guibortia arnoldiana*	*	
Naga	*Brachystegia laurentii, B. mildbraedii*		*
Niangon (Ogouve)	*Heritiera densiflora*	*	*
Niove (=Novie)	*Staudtia kamerunensis, S. stipitata*	*	*
Oboto	*Mammea africana*		*
Okan	*Cylicodiscus gabunensis*		*
Okoumé	*Aucoumea klaineana*	*	*
Olon	*Zanthoxylum heitzii, Z. inaequalis, Z. macrophyllum, Z. tessmanii*	*	*
Ozigo	*Dacryodes buettneri, D. letestui*	*	*
Pachyloba	*Afzelia pachyloba*		*
Padouk	*Pterocarpus soyauxii*	*	*
Pau Rosa	*Swartzia fistuloides*	*	*
Safoukala	*Dacryodes heterotricha, D. pubescens*		*
Sapelli	*Entandrophragma cylindricum*	*	*
Sipo	*Entandrophragma utile*	*	*
Tali	*Erythrophleum ivorense*		*
Tchitola	*Oxystigma oxyphyllum*	*	*
Tiama	*Entandrophragma angolense*	*	*
Wenge	*Millettia laurentii*		*
Zingana	*Microberlinia brazzavillensis*	*	*

Standard International Trade Classification

The Standard International Trade Classification (SITC) is much less detailed than the HS. Twelve of the 48 countries for which Customs statistics were obtained use the SITC system and only two of these, Hong Kong and the Philippines, provide any information on individual timbers. The headings relevant to the tropical hardwood trade are shown in Table 73.

No species are mentioned by name and the only tropical hardwoods mentioned in an explanation of the term 'non-coniferous' are Ebony, Kruing (= Keruing), Lauan, Mahogany, Mersawa and Teak.

Table 73

Timber tariff headings and descriptions in the Standard International Trade Classification

247.21	Sawlogs and veneer logs, of non-coniferous species, in the rough, whether or not stripped of their bark or merely roughed down
247.22	Sawlogs and veneer logs, of non-coniferous species, roughly squared or half-squared, but not further manufactured
247.9	Pitprops, poles, piling, posts and other wood in the rough, n.e.s.
248.1	Railway or tramway sleepers (ties) of wood
248.31	Wood of non-coniferous species, sawn lengthwise, sliced or peeled, but not further prepared, of a thickness exceeding 5 mm
248.32	Wood of non-coniferous species (including blocks,strips and friezes for parquet or wood block flooring, not assembled), planed, tongued, grooved, rebated, chamfered, V-jointed, centre V-jointed, beaded, centre-beaded or the like, but not further manufactured

Other sources of statistics

In some countries, statistics that are more detailed than Customs statistics are produced by other organisations, for example forestry departments and timber industry organisations. For the present study, attempts were made to collect such information. A standard letter was, for example, sent to ITTO representatives in African and South East Asian producer countries asking about the collection and availability of timber trade statistics to species level. Peninsular Malaysia was the only country to respond to this request, and supplied statistics published by MTIB for 1989. Trade statistics for other countries were gathered during visits conducted for the study, for example to Ghana, Indonesia, the Philippines and Thailand. These visits provided the opportunity to discuss the collection of statistics with the organisations concerned. It was also possible to review the availability of regional data held by FAO in Bangkok. Other organisations which have provided trade data for the study include IIED and the TRAFFIC Network. Trade information collected locally has also been provided for Congo (N'Sosso, 1990) and Gabon. Where possible, the most recent timber trade information to species level is included in the country sections. The main purpose of incorporating this information is to illustrate the detail of information collected and the extent to which species considered to be threatened are entering international trade. Examples are from Malaysia, Gabon and Ghana.

Asia: Peninsular Malaysia

Statistics produced by the Malaysian Timber Industry Board in Peninsular Malaysia are divided up into 119 different categories which refer to species or species groups. These categories are coded using the Harmonized Commodity Description and Coding System (HCDCS). The timber is divided up into three major products: large scantlings and squares (baulks), logs and sawntimber; these have standard codes which are suffixed by species codes. The categories (excluding softwoods) and the

scientific taxa that they comprise are shown in Table 74. Thirty-five of the trade names relate to individual botanical species.

Table 74

Timbers listed in Malaysian Timber Industry Board statistics

Standard Malaysian name	Species to which standard name could apply (not all are known to be in trade)
Dark Red Meranti	*Shorea acuminata* p.p., *S. argentifolia, S. curtisii, S. ovata, S. pauciflora, S. platyclados, S. singkawang*
Light Red Meranti	*Shorea acuminata* p.p., *S. dasyphylla, S. hemsleyana, S. johorensis, S. lepidota, S. leprosula, S. macroptera, S. ovalis, S. palembanica, S. parvifolia, S. lepidota, S. platycarpa p.p., S. teysmanniana*
Meranti Bakau	*Shorea uliginosa*
White Lauan	*Shorea* (syn. *Pentacme*) spp.
White Meranti	*Shorea agami, S. assamica, S. bentongensis, S. bracteolata, S. dealbata, S. gratissima, S. henryana, S. hypochra, S. lamellata, S. resinosa, S. roxburghii, S. talura*
White Seraya	*Parashorea densiflora, P. globosa, P. stellata*
Yellow Meranti	*Shorea balanocarpoides, S. dolichocarpa, S. faguetiana, S. gibbosa, S. hopeifolia, S. longisperma, S. maxima, S. multiflora*
Alan Batu	*Shorea albida*
Alan Bunga	*Shorea albida*
Keruing	*Dipterocarpus apterus, D. baudii, D. caudatus, D. chartaceus, D. concavus, D. coriaceus, D. cornutus, D. costatus, D. costulatus, D. crinitus, D. dyeri, D. eurynchus, D. fagineus, D. gracilis, D. grandiflorus, D. hasseltii, D. kerrii, D. kunstleri, D. lowii, D. oblongifolius, D. obtusifolius, D. palembanicus,D. perakensis, D. pseudofagineus, D. retusus, D. rigidus, D. rotundifolius, D. semivestitus, D. sublamellatus, D. verrucosus*
Ramin	*Gonystylus affinis, G. bancanus, G. brunnescens, G. confusus, G. maingayi* (TFM 2)
Kapur	*Dryobalanops aromatica, D. oblongifolia* (TFM 3)
Teak	*Tectona grandis*
Jongkong	*Dactylocladus stenostachys*
Merbau	*Intsia bijuga, I. palembanica* (TFM 1)
Jelutong	*Dyera costulata* (TFM 2)
Kempas	*Koompassia malaccensis* (TFM 1)
	Heavy hardwoods:
Balau (Selangan Batu)	*Shorea astylosa, S. atrinervosa, S. ciliata, S. collina, S. exelliptica, S. falcifera, S. foxworthyi, S. glauca, S. laevis, S. lumutensis, S. materialis, S. maxwelliana, S. ochrophloia, S. scrobiculata, S. submontana, S. sumatrana, Parashorea densiflora*
Red Balau (Selangan Batu Merah)	*Shorea guiso, S. inaequilateralis, S. kunstleri*
Belian	*Eusideroxylon zwageri*
Bitis	*Madhuca utilis, Palaquium ridleyi, P. stellatum* (TFM 1)
Chengal	*Neobalanocarpus heimii*
Giam	*Hopea coriacea, H. ferrea, H. helferi, H. nutans, H. pachycarpa, H. pentanervia, H. pierrei, H. polyalthioides, H. semicuneata, H. subalata*
Kekatong	*Cynometra malaccensis* (TFM 1)

Keranji	*Dialium cochinchinense, D. indum, D. kingii, D. kunstleri, D. laurinum, D. maingayi, D. patens, D. platysepalum, D. procerum, D. wallichii* (TFM 1)
Malagangai	*Eusideroxylon malagangai*
Penaga	*Mesua ferrea, M. kochummeniana, M. nuda* (TFM 2)
Penyau	*Upuna borneensis*
Resak	*Vatica bella, V. cinerea, V. cuspidata, V. flavida, V. havilandii, V. heteroptera, V. hulletii, V. lobata, V. lowii, V. maingayi, V. mangachapoi, V. nitens, V. odorata, V. pallida, V. pauciflora, V. perakensis, V. scortechinii, V. stapfiana, V. umbonata, V. venulosa, Cotylelobium lanceolatum, C. malayanum, C. melanoxylon*
Tembusu	*Fagraea elliptica, F. fragrans, F. gigantea* (TFM 2)
Mixed heavy hardwoods	Balau to Tembusu (except Merbau, Chengal and Red Balau)
Other heavy hardwoods	
Medium hardwoods:	
Bekak	*Aglaia lanceolata, A. maingayi, A. malaccensis, A. ridleyi, A. rubescens, A. rubiginosa* (TFM 4)
Derum	*Cratoxylum cochinchinense, C. formosum, C. maingayi* (TFM 2)
Entapuloh	*Teijsmanniodendron coriaceum* (TFM 3)
Geriting (Teruntum)	*Lumnitzera littorea, L. racemosa* (TFM 1)
Kandis	*Garcinia atroviridis, G. bancana, G. cowa, G. forbesii, G. griffithii, G. hombronianum, G. malaccensis, G. merguensis, G. nigrolineata, G. parvifolia* (TFM 2)
Kasai	*Pometia pinnata, P. ridleyi* (TFM 4)
Kayu Malam	*Diospyros areolata, D. clavigera, D. kurzii, D. maingayi, D. malabarica, D. penangiana, D. pilosanthera, D. ridleyi, D. siamang, D. singaporensis* (TFM 3)
Kelat	*Eugenia anisosepala, E. claviflora, E. conglomerata, E. duthieana, E. fastigiata, E. filiformis, E. flosculifera, E. garcinifolia, E. glauca, E. grandis, E. griffithii, E. helferi, E. kiahii, E. koordersiana, E. napiformis, E. nigricans, E. oblongifolia, E. operculata, E. polyantha, E. prainiana, E. pseudosubtilis, E. ridleyi, E. rugosa, E. syzygioides, E. virens* (TFM 3)
Keledang	*Artocarpus anisophyllus, A. lanceifolius* (TFM 3)
Keruntum	*Combretocarpus rotundatus* (TFM 4)
Kulim	*Scorodocarpus borneensis* (TFM 2)
Mata Ulat	*Bhesa paniculata, B. robusta, Kokoona littoralis, K. ochracea, K. reflexa, Lophopetalum floribundum, L. javanicum, L. multinervium, L. pachyphyllum, L. pallidum, L. rigidum, L. subovatum, L. wightianum* (TFM 1)
Mempening	*Lithocarpus* spp.(38), *Quercus* spp. (8) (TFM 1)
Mengkulang (Kembang)	*Heritiera borneensis, H. elata, H. javanica, H. simplicifolia, H. sumatrana* (TFM 2)
Meransi	*Carallia brachiata* (TFM 4)
Merawan (Gagil)	*Hopea auriculata, H. beccariana, H. bilitonensis, H. bracteata, H. dryobalanoides, H. dyeri, H. ferruginea, H. glaucescens, H. griffithii, H. johorensis, H. latifolia, H. mengerawan, H. montana, H. myrtifolia, H. nervosa, H. odorata, H. pedicellata, H. pierrei, H. pubescens, H. sangal, H. sublanceolata, H. sulcata*
Merbatu	*Atuna elata, A. excelsa, Maranthes corymbosa, Parinari costata, P. elmeri, P. oblongifolia, P. polyneura, P. rigida, P. rubiginosa* (TFM 2)
Merpauh	*Swintonia floribunda, S. schwenkii, S. spicifera* (TFM 4)
Mertas	*Ctenolophon parvifolius* (TFM 1)

Nyalin	*Xanthophyllum affine, X. amoenum, X. ellipticum, X. griffithii, X. kunstleri, X. maingayi, X. obscurum, X. rufum, X. scortechinii, X. stipitatum, X. sulphureum* (TFM 1)
Pauh Kijang	*Irvingia malayana* (TFM 2)
Perah	*Elateriospermum tapos* (TFM 2)
Petaling	*Ochanostachys amentacea* (TFM 2)
Punah	*Tetramerista glabra* (TFM 4)
Ranggu	*Koordersiodendron pinnatum*
Rengas	*Gluta aptera, G. curtisii, G. elegans, G. macrocarpa, G. malayana, G.pubescens, G. renghas, G. torquata, G. wallichii, G. wrayi, Melanochyla angustifolia, M. auriculata, M. bracteata, M. caesia, M. fulvinervis, M. tomentosa* (TFM 4)
Semayur	*Shorea inaequilateralis*
Senumpul	*Hydnocarpus castanea, H. curtisii, H. filipes, H. kunstleri, H. woodii* (TFM 2)
Simpoh	*Dillenia albiflos, D. excelsa, D. grandifolia, D. indica, D. obovata, D. ovata, D. pulchella, D. reticulata, D. suffruticosa* (TFM 1)
Tampoi	*Baccaurea griffithii, B. reticulata* (TFM 2)
Tualang	*Koompassia excelsa* (TFM 1)
Tulang Daing (Kedang Belum)	*Millettia atropurpurea* (TFM 1)
Mixed medium hardwoods	Bekak to Tulang Daing
Other medium hardwoods	
Light hardwoods:	
Acacia Mangium	?
Ara	*Ficus benjamina, F. callosa, F. caulocarpa, F. crassiramea, F. delosyce, F. drupacea, F. dubia, F. elastica, F. kerkhovenii, F. magnoleaefolia, F. microcarpa, F. microsyce, F. pellucido-punctata, F. pubilimba, F. racemosa, F. stricta, F. sundaica, F. superba, F. tinctoria, F. variegata, F. vasculosa, F. viridicarpa* (TFM 3)
Babai	*Saraca declinata, S. indica, S. thaipingensis* (TFM 1)
Batai	*Albizia falcata* (TFM 1)
Bayur	*Pterospermum acerifolium, P. diversifolium, P. javanicum, P. pectiniforme* (TFM 2)
Berangan	*Castanopsis* spp. (17) (TFM 1)
Bintangor	*Calophyllum canum, C. coriaceum, C. cuneatum, C. curtisii, C. depressinervosum, C. enervosum, C. flavo-ramulum, C. floribundum, C. fraseri, C. incrassatum, C. inophylloide, C. inophyllum, C. javanicum, C. macrocarpum, C. pulcherrimum, C. retusum, C. rubiginosum, C. sclerophyllum, C. scriblitifolium, C. soulattri, C. symingtonianum, C. wallichianum* (TFM 2)
Binuang	*Octomeles sumatrana*
Dedali	*Strombosia javanica* (TFM 2)
Durian	Bombacaceae spp. [excluding *Ceiba* spp. and *Bombax* (= *Salmalia*) spp.] i.e. *Coelostegia borneensis, C. griffithii, Durio carinatus, D. graveolens, D. griffithii, D. lowianus, D. macrophyllus, D. malaccensis, D. oxleyanus, D. singaporensis, D. wyatt-smithii, Kostermansia malayana, Neesia altissima, N. kostermansiana, N. malayana, N. pilulifera, N. synandra* (TFM 1)
Eucalyptus	*Eucalyptus* spp.
Geronggang (Serungan)	*Cratoxylum arborescens* (TFM 2)
Gerutu	*Parashorea densiflora, P. globosa, P. stellata*

Table 75

Timbers listed in Ghana Timber Export Development Board statistics

Afena	*Strombosia glaucescens*
Afrormosia	*Pericopsis elata*
Agobeam	*Borassus aethiopum*
Akasaa	*Chrysophyllum albidum/giganteum/subnudum*
Akonkodie	*Bombax buonopozense*
Ananta	*Cynometra ananta*
Anokye-hyedua	*Guibortia ehie*
Apapaye	*Turraeanthus africanus*
Aprokuma	*Antrocaryon micraster*
Asoma	*Parkia bicolor*
Awiemfosamina	*Albizia ferruginea*
Baku	*Tieghemella heckelii*
Bediwonua	*Canarium schweinfurthii*
Bompagya	*Mammea africana*
Bonsamdua	*Distemonanthus benthamianus*
Cedrela	*Cedrela odorata*
Dahoma	*Piptadeniastrum africanum*
Danta	*Nesogordonia papaverifera*
Denyao	*Cylicodiscus gabunensis*
Duabankye	*Dialium aubrevillei*
Dubini	*Khaya ivorensis*
Dubinibiri	*Lovoa trichilioides*
Edinam	*Entandrophragma angolense*
Efoobrodedwo	*Entandrophragma utile*
Ehyedua	*Daniellia ogea/thurifera*
Emire	*Terminalia ivorensis*
Entedua	*Copaifera salikounda*
Esa	*Celtis mildbraedii/zenkeri*
Esia	*Petersianthus macrocarpus*
Kaku	*Lophira alata*
Kokote	*Anopyxis klaineana*
Kroma	*Klainedoxa gabonensis*
Krumben	*Khaya anthotheca/grandifoliola*
Kusia	*Nauclea diderrichii*
Kwabohoro	*Guarea cedrata*
Kwadwuma	*Guarea thompsonii*
Kwatafompaboa	*Berlinia* spp.
Kyen-kyen	*Antiaris toxicaria*
Kyereye	*Pterygota macrocarpa*
Nyankom	*Heritiera utilis*
Odum	*Milicia excelsa/regia*
Ofram	*Terminalia superba*
Okoro	*Albizia zygia*
Onyina	*Ceiba pentandra*
Onyinakoben	*Rhodognaphalon brevicuspe*

Rubberwood	*Hevea brasiliensis*
Sengkuang	*Dracontomelum dao* (TFM 4)
Sentang	*Azadirachta excelsa* (TFM 4)
Sepetir	*Sindora coriacea, S. echinocalyx, S. velutina, S. wallichii* (TFM 1)
Sesendok	*Endospermum malaccense* (TFM 2)
Terap	*Artocarpus elasticus, A. scortechinii, Parartocarpus bracteatus, P. venenosus, Antiaris toxicaria* (TFM 3)
Terentang	*Campnosperma auriculatum, C. coriaceum, C. squamatum* (TFM 4)
Mixed light hardwoods	Acacia Mangium to Terentang (except Nyatoh, Red Meranti, Dark Red Meranti, Light Red Meranti, Sepetir, Ramin and Kembang Semangkok)
Other light hardwoods	
Mixed hardwoods	Any hardwood except Merbau, Chengal, Red Balau, Red Meranti, Dark Red Meranti, Light Red Meranti, Nyatoh, Sepetir, Ramin and Kembang Semangkok
Red woods	Any hardwood red or red-brown in colour except Merbau, Chengal, Red Balau, Red Meranti, Dark Red Meranti, Light Red Meranti, Nyatoh, Sepetir and Kembang Semangkok
Swamp species	
Hill species	

The species names have been abstracted from Anon. (1989), supplemented by Whitmore (1972) = TFM 1, Whitmore (1973) = TFM 2, Ng (1978) = TFM 3, Ng (1989) = TFM 4, Ng *et al.* (1990) and Wong (1982).

The Harmonized System has three categories for logs which together cover the first 17 timbers in Table 74 and one category for sawnwood in which all these timbers are named. The 17 timbers together accounted for 49.5% of exports of sawnwood from Peninsular Malaysia in 1989. A further 14.3% of the total was classified under general categories but the remaining 36.2% consisted of 47 of the 87 timbers named in Table 74 that are not specified anywhere in the Harmonized System; very small quantities of most of these were involved - larger quantities were reported only for Rubberwood (5.1%), Mersawa (1.6%), Tualang (1.5%), Sepetir (1.1%) and Mengkulang (1%).

The 119 categories involve about 700 different species. It might be possible to subdivide a few of the categories into identifiable species or species groups but it is most unlikely that monospecific categories with identifiable timbers could be developed. The same applies for most Asian countries that export tropical hardwoods because of the great diversity of closely related species that occur in the forests.

Africa: Ghana

In contrast, the diversity of species is lower in Africa and only a small number of species is regularly used in international trade.

In Ghana during the period 1972-1989, a total of 60 categories of timber were recorded in international trade by the Timber Export Development Board (see country report) and, of these, 50 refer to individual species as shown in Table 75.

Table 75

Timbers listed in Ghana Timber Export Development Board statistics

Afena	*Strombosia glaucescens*
Afrormosia	*Pericopsis elata*
Agobeam	*Borassus aethiopum*
Akasaa	*Chrysophyllum albidum/giganteum/subnudum*
Akonkodie	*Bombax buonopozense*
Ananta	*Cynometra ananta*
Anokye-hyedua	*Guibortia ehie*
Apapaye	*Turraeanthus africanus*
Aprokuma	*Antrocaryon micraster*
Asoma	*Parkia bicolor*
Awiemfosamina	*Albizia ferruginea*
Baku	*Tieghemella heckelii*
Bediwonua	*Canarium schweinfurthii*
Bompagya	*Mammea africana*
Bonsamdua	*Distemonanthus benthamianus*
Cedrela	*Cedrela odorata*
Dahoma	*Piptadeniastrum africanum*
Danta	*Nesogordonia papaverifera*
Denyao	*Cylicodiscus gabunensis*
Duabankye	*Dialium aubrevillei*
Dubini	*Khaya ivorensis*
Dubinibiri	*Lovoa trichilioides*
Edinam	*Entandrophragma angolense*
Efoobrodedwo	*Entandrophragma utile*
Ehyedua	*Daniellia ogea/thurifera*
Emire	*Terminalia ivorensis*
Entedua	*Copaifera salikounda*
Esa	*Celtis mildbraedii/zenkeri*
Esia	*Petersianthus macrocarpus*
Kaku	*Lophira alata*
Kokote	*Anopyxis klaineana*
Kroma	*Klainedoxa gabonensis*
Krumben	*Khaya anthotheca/grandifoliola*
Kusia	*Nauclea diderrichii*
Kwabohoro	*Guarea cedrata*
Kwadwuma	*Guarea thompsonii*
Kwatafompaboa	*Berlinia* spp.
Kyen-kyen	*Antiaris toxicaria*
Kyereye	*Pterygota macrocarpa*
Nyankom	*Heritiera utilis*
Odum	*Milicia excelsa/regia*
Ofram	*Terminalia superba*
Okoro	*Albizia zygia*
Onyina	*Ceiba pentandra*
Onyinakoben	*Rhodognaphalon brevicuspe*

Oprono	*Mansonia altissima*
Otie	*Pycnanthus angolensis*
Papao	*Afzelia africana/bella*
Penkwa	*Entandrophragma cylindricum*
Penkwa-akoa	*Entandrophragma candollei*
Potrodom	*Erythrophleum ivorense/suaveolens*
Samfena	*Aningeria altissima/robusta*
Sanza-mulika	*Diospyros sanza-minika*
Sinuro	*Alstonia boonei*
Subaha	*Hallea ledermannii/stipulosa*
Teak	*Tectona grandis*
Tweneboa	*Cordia millenii/platythyrsa*
Wawa	*Triplochiton scleroxylon*
Wawabima	*Sterculia rhinopetala*
Yaya	*Amphimas pterocarpoides*

The scientific names have been abstracted from Hawthorne (1990).

One or two of the categories comprising more than one species are broken down into individual species categories by the timber trade and could therefore presumably be distinguished in the statistics: *Celtis mildbraedii* is known as Esa-fufuo, whereas *C. zenkeri* is called Esa-kokoo; *Khaya anthotheca* is known as White Mahogany (Acajou blanc) or Ahafo, whereas *K. grandifoliola* is called Benin Mahogany or Odupon.

The Harmonized System has two categories referring specifically to logs of African timbers: one (4403.34) covers seven timbers (comprising eight species), and the other (4403.35) covers six timbers (all individual species). The total recorded log exports from Ghana during the period 1972-1989 amounted to 4682261 m^3. Of this total, 75.3% falls within category 4403.34 but over half of this refers to one species: *Triplochiton scleroxylon* (47.1% of the total). Only 10% falls within the other category (4403.35) of which about two-thirds refers to one species: *Entandrophragma angolense* (6.3% of the total). Many importing countries have separate categories for these 13 timbers and it would facilitate analysis of recorded trade if the Harmonized System introduced separate standardised codes for each of them. Sawnwood is represented by one category covering all of these timbers.

In Gabon, the Société Nationale des Bois du Gabon (SNBG) had responsibility for collecting statistics on timber exports from 1976 until 1986. Since then, all port operations have been contracted out to the Société d'Exploitation des Parcs à Bois du Gabon (SEPBG), which now collects and compiles statistics on at least 68 timbers, most of which are identifiable as single species. They are thus more detailed than the Customs statistics (Table 72).

Inferred export statistics

Several African countries that export large amounts of tropical hardwoods do not produce Customs statistics that contain information relating to individual species. In order to overcome this deficiency, the Customs import statistics of relevant importing countries have been analysed to produce figures for inferred exports (Tables 76-83). The countries dealt with on this basis were Cameroon, Central African Republic, Congo*, Equatorial Guinea, Gabon*, Liberia and Zaire. The African Timber Organisation does collect information relating to the Central African Republic, Congo and Equatorial Guinea in response to a regular quarterly questionnaire and it is intended to incorporate the statistics in the revised *FAO Monthly Bulletin - Tropical forest products in world timber trade*. When this takes place the information on inferred exports will still be useful for comparison with official export data. The total export figures [mainly from ITTC (1990)] are reasonably comparable with the inferred export data (Table 76). The fact that the EEC is the only important importer of tropical timber from the above countries means that coverage of the trade is likely to be close to 100%. The proportions

of different timbers in the inferred exports of different countries (Tables 77-83) are therefore likely to be representative of the actual exports. (*Note that export statistics for Congo and Gabon were received subsequent to this analysis).

Tables 76-83 provide an indication of the relative importance of the seven countries in relation to the export of hardwood logs in 1989. The EEC import statistics are expressed in kilos whereas the ITTC figure is in cubic metres. Fortunately some EEC countries give figures for both units in their own trade statistics and so conversion factors (albeit very rough ones) have been derived. Published density values (e.g. Anon., 1977) were also used to derive alternative conversion factors but these led to an estimated total export figure that is 53.2% higher than the ITTC figure, compared with an estimated figure that is only 20.5% higher using the other conversion factors. The reasons for these differences are unknown, although it is likely to be as a result of different moisture content of the traded timber. Using an average density value of 870 kg/m^3 as a conversion factor, compensating for some missing 1989 data by using 1988 figures, and rounding up the totals, the inferred total exports are summarised in Table 76. Although the figure for Cameroon is not too dissimilar to the ITTC figure, that for Liberia is 27% lower than the ITTC figure, suggesting that these data should only be used to provide a general indication of the relative importance of the countries to the African timber trade and an idea of the likely proportions of the species involved.

Table 76

Total log exports from selected African countries inferred from import statistics

Country	Inferred total	ITTC (1990)
Gabon	738000 m^3	
Liberia	600000 m^3	821000 m^3
Congo	585000 m^3	443072 m^3 (N'Sosso 1989)
Cameroon	557000 m^3	500000 m^3
Zaire	95000 m^3	
Equatorial Guinea	60000 m^3	
Central African Republic	15000 m^3	

The entry in Tables 80 and 81 for the White Lauan group - a purely Asian group of species - as apparently imported from Equatorial Guinea and Gabon illustrates a problem that occurs frequently in the import statistics of consuming countries. It seems likely that these are misclassified shipments, rather than re-exports, and this may arise because importers are not familiar with the trade names of timbers listed under the Harmonized System. Usually it is the responsibility of the importer to fill in the relevant information on Customs declaration forms and, if the trade name used for the timber concerned is not one of those listed specifically in the Harmonized System, an uninformed importer could easily file a misdeclaration.

Table 77

Log exports from Cameroon in 1989 inferred from import statistics

HS code	Timber trade name	Weight (t)	Volume (m^3)	% of total
4403.34	Okoumé, Obeche, Sapelli, Sipo, Acajou, Makoré, Iroko		3760	
4403.341	Okoumé	2947		0.61
4403.343	Obeche	51976		10.83
4403.345	Sipo	13646		2.84
4403.347	Makoré	340		0.07
4403.349	Sappelli/Acajou/Iroko	103982		21.66
4403.351	Limba	14042		2.92
4403.352	Mansonia	30		0.01
4403.359	Tiama, Mansonia, Ilomba, Dibétou, Azobé	125610	305	26.16
4403.999	Other	111379		23.20
4403.99901	Other tropical wood	37879		7.89
4403.99909	Other	18312		3.81
Total		480143	4065	100.00

Table 78

Log exports from Central African Republic in 1989 inferred from import statistics

HS code	Timber trade name	Weight (t)	% of total
4403.341	Okoumé	800	6.33
4403.343	Obeche	137	1.08
4403.345	Sipo	132	1.04
4403.349	Sappelli/Acajou/Iroko	6620	52.36
4403.34901	Acajou	4890	38.68
4403.359	Tiama, Mansonia, Ilomba, Dibétou, Azobé	19	0.15
4403.99901	Other tropical wood	45	0.36
Total		12643	100.00

Table 79

Log exports from Congo in 1989 inferred from import statistics

HS code	Timber trade name	Weight (t)	Volume (m^3)	% of total
4403.1000101	Rubberwood	81		0.02
4403.34	Okoumé, Obeche, Sapelli, Sipo, Acajou, Makoré, Iroko	0	142	0.00
4403.3400005	Okoumé, Obeche, Sapelli, Sipo, Acajou, Makoré, Iroko	117		0.02
4403.341	Okoumé	27011		5.31
4403.343	Obeche	947		0.19
4403.343	Sappelli	167		0.03
4403.345	Sipo	20231		3.98
4403.347	Makoré	2574		0.51
4403.349	Sappelli/Acajou/Iroko	132012		25.94
4403.351	Limba	11634		2.29
4403.359	Tiama, Mansonia, Ilomba, Dibétou, Azobé	15150		2.98
4403.99319	Kwarin, Tsuga	0	69	0.00
4403.999	Other	141328		27.77
4403.99901	Other tropical wood	60358		11.86
4403.99909	Other	96394		18.94
4403.9990909	Other	859		0.17
Total		508863	211	100.01

Table 80

Log exports from Equatorial Guinea in 1989 inferred from import statistics

HS code	Timber trade name	Weight (t)	Volume (m^3)	% of total
4403.32	White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan	0	132	0.0
4403.3400005	Okoumé, Obeche, Sapelli, Sipo, Acajou, Makoré, Iroko	0	307	0.0
4403.341	Okoumé	23687		30.3
4403.343	Obeche	828		1.1
4403.345	Sipo	528		0.7
4403.347	Makoré	171		0.2
4403.349	Sappelli/Acajou/Iroko	7314		9.3

4403.351	Limba	5148		6.6
4403.352	Mansonia	0	15	0.0
4403.359	Tiama, Mansonia, Ilomba, Dibétou, Azobé	12676		16.2
4403.999	Other	320		0.4
4403.99901	Other tropical wood	26108		33.3
4403.99909	Other	1510		1.9
Total		78290	454	100.0

Table 81

Log exports from Gabon in 1989 inferred from import statistics

HS codes	Timber trade name	Weight (t)	Volume (m^3)	% of total
4403.32	White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan	29		0.01
4403.34	Okoumé, Obeche, Sapelli, Sipo, Acajou, Makoré, Iroko	0	127100	0.00
4403.3400005	Okoumé, Obeche, Sapelli, Sipo, Acajou, Makoré, Iroko.	916		0.20
4403.341	Okoumé	234739		51.14
4403.343	Obeche	386		0.08
4403.345	Sipo	4377		0.95
4403.347	Makoré	0		0.00
4403.349	Sappelli/Acajou/Iroko	34040		7.42
4403.351	Limba	835		0.18
4403.359	Tiama, Mansonia, Ilomba, Dibétou, Azobé	13536		2.95
4403.99319	Kwarin, Tsuga	0	169	0.00
4403.99399	Other	0	55745	0.00
4403.999	Other	119537		26.04
4403.99901	Other tropical wood	16883		3.68
4403.99909	Other	32383		7.06
4403.9990909	Other	1338		0.29
Total		458999	183014	100.0

Table 82

Log exports from Liberia in 1989 inferred from import statistics

HS codes	Timber trade name	Weight (t)	Volume (m^3)	% of total
4403.31	Meranti	22		0.00
4403.34	Okoumé, Obeche, Sapelli, Sipo, Acajou, Makoré, Iroko	0	92	0.00
4403.341	Okoumé	29		0.01
4403.343	Obeche	8562		1.64
4403.345	Sipo	10963		2.10
4403.347	Makoré	5902		1.13
4403.349	Sappelli/Acajou/Iroko	36821		7.05
4403.351	Limba	1289		0.25
4403.359	Tiama, Mansonia, Ilomba, Dibétou, Azobé	72597		13.90
4403.999	Other	260417		49.88
4403.99901	Other tropical wood	29789		5.71
4403.99909	Other	96151		18.42
Total		522542	92	100.00

Table 83

Log exports from Zaire in 1989 inferred from import statistics

HS code	Timber trade name	Weight (t)	Volume (m^3)	% of total
4403.34	Okoumé, Obeche, Sapelli, Sipo, Acajou, Makoré, Iroko	0	158	0.00
4403.343	Obeche	672		0.83
4403.345	Sipo	14597		17.98
4403.347	Makoré	8		0.01
4403.349	Sappelli/Acajou/Iroko	17708		21.82
4403.351	Limba	1891		2.33
4403.359	Tiama, Mansonia, Ilomba, Dibétou, Azobé	12820		15.80
4403.99009	Nesoi	0	63	0.00
4403.991	Other	0	159	0.00
4403.99399	Other	0	3893	0.00
4403.999	Other	22548		27.78
4403.99901	Other tropical wood	853		1.05
4403.99909	Other	10067		12.40
Total		81164	4273	100.00

Table 84

Comparison of exports of logs reported by Gabon with imports reported by EEC countries, 1988 and 1989

Commodity	Export	Quantity	Import	Quantity
Okoumé (1988)	Gabon	2495 m^3	Belgium	2566 m^3
		15705 m^3	FRG	9827 m^3
		1394 m^3	Denmark*	624 m^3
		39255 m^3	Spain*	37436 m^3
		292191 m^3	France*	252144 m^3
		70673 m^3	Greece*	45633 m^3
		8979 m^3	Italy*	6276 m^3
		12402 m^3	Netherlands	16442 m^3
		10265 m^3	Portugal*	11463 m^3
Okoumé (1989)	Gabon	3566 m^3	Belgium	1767 m^3
		763 m^3	Denmark	854 m^3
		311058 m^3	France	294775 m^3
		18123 m^3	Portugal	12075 m^3
		17681 m^3	FRG*	9194 m^3
		36063 m^3	Spain*	37119 m^3
		13599 m^3	Italy*	10167 m^3
		6207 m^3	Netherlands*	17671 m^3

* These volumes were converted from weights assuming a density of 616.5 kg/m^3.

Table 85

Comparison of timber exports reported by Peninsular Malaysia and Sarawak with imports reported by consuming countries, 1987

Type of wood and Peninsular Malaysia/Sarawak code no.	Reported imports of timber from Peninsular Malaysia & Sarawak		Exports of timber reported by Peninsular Malaysia & Sarawak	
	Importer	m^3	Destination	m^3
Other saw logs and veneer logs, non-coniferous in the rough 24721000	Pakistan	7881	Pakistan	8112
	Japan	767659	Japan	13036304
Railway or tramway sleepers of wood; Keruing 24811100 Kempas 24811200 Kapor 24811300	Japan	20751	Japan	17778

Table 86

Comparison of log exports reported by Côte d'Ivoire with imports reported by EEC 1988

Commodity	EEC imports (kg)		Côte d'Ivoire exports (kg) (11 months)	
Okoumé in rough 44033410	Greece France Netherlands	8175 10 408	Greece France Netherlands	0 0 0
Sapelli, Acajou d'Afrique, Iroko, in rough 44033490	Belgium Denmark FRG Greece Spain France Ireland Italy Netherlands Portugal UK	835000 55000 1845000 1711000 414000 3655000 140000 25175000 35000 216000 8614000	Belgium Denmark FRG (Sapelli & Acajou) Greece Spain France Ireland Italy Netherland Portugal UK (Acajou)	40839 0 1439863 286863 146673 310430 0 287459 0 220438 4206564
Limba (Frake) 44033510	FRG Greece France Italy Portugal UK	69000 70000 46000 3443000 3721000 7000	FRG Greece France Italy Portugal UK	35092 1007963 1746584 10134663 0 0
Tiama, Mansonia, Ilomba, Dibétou, Azobé in the rough 44033590	Belgium Denmark FRG Greece Spain France Italy Netherlands Portugal UK	1697000 21000 922000 957000 32621000 2384000 14998000 136000 20585000 184000	Belgium Denmark FRG Greece Spain France Italy Netherland Portugal UK	41141 0 1013326 2399240 26759539 2623089 3534236 0 0 56894

Table 87

Comparison of exports of logs reported by the Philippines with imports reported by Japan, 1988

Type of wood and country code	Imports reported (m^3)		Exports reported (m^3)	
Apitong	Japan	19843	Philippines	4606
Other sawlogs and veneer logs, non-coniferous, in the rough Philippines 247.21-19 Japan 4403.339	Japan	41613	Philippines	6500

Comparison of import and export statistics

One method of assessing the accuracy of trade figures is to compare the exports reported by exporting countries with the corresponding imports reported by consuming countries. Unfortunately, because of the use of different commodity classifications and units it is very difficult to find examples of imports with code classifications that match those from the exporting countries, despite the large volume of statistics collected from 48 different countries. The few comparable transactions (Tables 84-87) indicate that there are major problems with some of the recorded statistics: for example, exports from Côte d'Ivoire to the EEC countries correlate very poorly, particularly the imports of Limba reported by France which amount to only 2.6% of the exports reported by Côte d'Ivoire. Okoumé is a timber species that does not occur in Côte d'Ivoire and there are no reported exports from that country. However, in 1988 three EEC countries reported imports of this species. Japan's reported imports of Apitong from the Philippines were more than four times greater than the Philippines reported exports. However, there was relatively good agreement for the export of Okoumé from Gabon to the EEC. There were no other comparable transactions in all of the remaining statistics collected. Durst *et al.* (1985) examined the trade more generally, using data from United Nations *Commodity Trade Statistics*. They found that, for trade in hardwood logs and lumber, reports of exporting countries and importing countries were frequently in serious disagreement; also that apparent under-reporting of exports was more pronounced in the case of developing countries than for the industrialised ones. They listed a number of factors which might be the cause of the discrepancies:

(i) Simple counting and recording errors may result from carelessness and incompetence by reporting officials.
(ii) There are time-lags between the recording of shipments and importation, including those that extend from one calendar (or reporting) year into the next.
(iii) The origins and destinations of the shipments can be incorrectly designated, especially when trade is routed through market centres.
(iv) Commodities may be measured differently or inconsistently categorised by trading partners. It is frequently possible to assign a particular commodity to several alternative tariff headings.
(v) Smuggling obviously affects comparison of export and import data and it also may result in understating of the total trade if goods are unreported in both partner countries.

Durst *et al.* also urged caution in the use of one-sided trade statistics. They recommended that comparisons of export and import data should be carried out and that when these uncovered large discrepancies, these should be investigated. They suggest that the search for explanations should help reduce the number of faulty conclusions that otherwise result when accepting one-sided trade statistics at face value.

Analysis of statistics by ITTO

ITTO currently collects detailed quantitative data on imports and exports of hardwood logs, sawn hardwood and plywood, relating to the main producing and consuming countries. Sources of information include the Economic Commission for Europe Timber Committee, AGROSTAT (Food and Agriculture Organisation of the United Nations), the United Nations Conference on Trade and Development trade controls databases, and questionnaires sent to producer countries by ITTO. Some other sources of information relating only to the monetary value of traded timbers also provide data, e.g the recently initiated Market News Service (MNS) for tropical timber and timber products. A summary of the figures on trade available to ITTO for the years 1988 and 1989 is included in ITTC (1990): Tropical timber market forecasts. Details are given of exports from African countries: Cameroon, Côte d'Ivoire, Ghana, Liberia; four Asian countries: Indonesia, Malaysia, Philippines and Thailand; also five Latin American countries. Details are also given of imports into Australia, China, Japan, Republic of Korea, 17 European countries (of which 12 are members of the EEC), USSR, Canada and the USA. It is stated that the figures provided represent about 94% of total net exports of member nations and about 91% of total world exports.

ITO receives information on trade broken down by species that is, to a limited extent, collected by various organisations, e.g. the African Timber Organization and various timber marketing boards. The African Timber Organization collects information on species export volumes by means of quarterly questionnaires but, up to at least 1987 (ITTO, 1987a), the only countries responding in detail were the Central African Republic, Congo, Ghana and Equatorial Guinea, with Gabon providing information on Okoumé and Ozigo only. Information on trends in trade in African species, e.g. Graph 15 in ITTO (1987b), is derived from import statistics of the consuming countries, presumably because export figures from the producer countries are incomplete. The detailed information on trade in species given in the Customs statistics produced by Côte d'Ivoire and Gabon have not been incorporated in published ITTO statistics, possibly because it only becomes available some considerable time after the end of the year to which it refers. Information on trade in Asian species is even more limited than that for Africa, mainly because so few species are individually identified in trade. Table 1 in ITTO (1987b), based on statistics from consuming countries, gives details of trends in trade volumes for six 'major Asian species'. These are Kapur *Dryobalanops* spp., Keruing *Dipterocarpus* spp., Kiri, Kwarin, Meranti Lauan *Shorea* spp. and Teak *Tectona grandis*.

If all of FAO's proposed revisions to the *Monthly Bulletin: tropical forest products in world timber trade* (ITTO, 1987a) were implemented, the information on trade in individual timbers would be more comprehensive. Although figures are given in the *Monthly Bulletin* for imports of some timbers by consuming countries, there are currently no details of exports of individual timbers from producing countries, only tables of the main tropical wood products from major exporting countries. The proposed revisions (Tables 7.1-7.12.1 in ITTO, 1987a) would provide information on individual timbers exported from Cameroon, Central African Republic, Congo, Côte d'Ivoire, Equatorial Guinea, Ghana, Malaysia, Philippines and Singapore.

Other organisations collecting trade data

Food and Agriculture Organization of The United Nations (FAO)

FAO provides the main tropical timber trade monitoring service, primarily through the production of the *Monthly Bulletin on Tropical Forest Products in World Timber Trade*. Monitoring activities were initiated by FAO after the 1974 world recession when the trade experienced major problems. The *Monthly Bulletin* provides coverage of the most recent available information on exports and imports. The data relate to Customs tariff headings many of which currently refer to groups of timber species rather than single botanical species. There are proposals in hand to revise the format of the *Monthly Bulletin* (ITTO, 1987a) which, when implemented, will provide more information on specific timbers.

International Trade Centre, UNCTAD/GATT (ITC)

The Trade Information Service of ITC (United Nations Conference on Trade and Development/General Agreement on Tariffs and Trade) is a major source of international data on the marketing of manufactured products. The trade information is organised according to Customs commodity headings and includes data on the volume and value of products in trade. The Market News Service (MNS) of ITC has, on behalf of ITTO, recently initiated a regular newsletter providing data on the value of tropical timber products in trade.

Timber Committee of the Economic Commission for Europe (ECE)

The ECE Timber Committee is a major source of information on forest products markets and provides an authoritative and objective assessment of what takes place in the market and short-term prospects. As back-up to the Committee's market discussions, its secretariat (the timber section of the FAO/ECE Agriculture and Timber Division) has responsibility for the collection and analysis of statistics and other market information. The UN *Timber Bulletin for Europe* provides the following information for forest products: monthly prices for selected items (published every four months), trade flows (one issue a year) and production, trade and prices (two issues a year). Their trade data are currently not sufficiently detailed to provide for species monitoring.

African Timber Organization (ATO)

As mentioned elsewhere, the ATO co-ordinates the provision of data relating to African countries for the FAO *Monthly Bulletin*.

Association of South East Asian Nations (ASEAN)

ASEAN has considered the establishment of a permanent ASEAN Timber Bureau which would have as one of its main objectives the collection, monitoring, exchange and dissemination of detailed timber market information. A meeting in 1986 to discuss this recommended that in the establishment of ATB: national timber market data management centres should be set up or strengthened; a system for collection of national and international timber market information should be created; arrangements for an ASEAN timber market data management system should be made.

Center for International Trade in Forest Products (CINTRAFOR)

CINTRAFOR, at the University of Washington's College of Forest Resources, maintains a data management service for international trade statistics known as INTRADATA. One of the main objectives of INTRADATA is to gather together the various statistical series on forest products throughout the world and organise them into a single system which is easy to use and allows cross-referencing and comparison. The database incorporates FAO forest product data, including the information in the *Monthly Bulletin* and data from a variety of other sources. INTRADATA does not currently maintain information on the tropical timber trade by species.

United Nations - Economic and Social Commission for Asia and the Pacific (ESCAP)

ESCAP, a regional commission of the UN based in Thailand, maintains a statistical database on timber trade within the region. The majority of the data are derived from Customs statistics obtained from the UN COMTRADE database in New York. Additional material is obtained by direct contact with the governments in the region either in the form of published Customs reports or from questionnaires. The data are maintained on the database in a standard format using the HS codes truncated to five digits. These are therefore useless for monitoring trade in individual timbers. There is also a substantial time delay before all of the statistics are transferred to the database.

TRAFFIC

Various organisations are starting to look in more detail at the levels of international trade in tropical timber species for conservation purposes. TRAFFIC is one such organisation. TRAFFIC is an international network of offices, managed by WWF and IUCN, whose task is to monitor trade in wild species. The increased activities of the TRAFFIC network relating to tropical timber is described below.

TRAFFIC International coordinates the Network's work in this field, particularly with regard to the development and implementation of a tropical timber trade strategy, and liaison with WCMC and the WWF Tropical Forests Working Group.

TRAFFIC Europe plans to assess appropriate mechanisms for the monitoring and control of European trade in tropical timber. This will initially involve compilation of European tropical timber trade statistics, documentation of the nature and extent of usage in Europe of threatened tropical species, and assessing potential measures to improve control of the European tropical timber trade.

TRAFFIC Japan has collected Customs timber import statistics for Japan, Korea and Taiwan for the years 1969 onwards and plans to computerise these data.

TRAFFIC Oceania is completing a study of the tropical timber trade in Papua New Guinea. This will document the legislative and administrative controls over forestry operations; quantify the scale and value of the trade, export destinations, and forms in which the timber is exported; identify the timber species involved; and assess the level of domestic consumption of native timbers.

TRAFFIC USA is completing an overview analysis of the global timber trade, based on FAO data. It also intends to examine levels of reported trade in timber species currently listed on the CITES Appendices.

Export procedures for timber in producing countries

Ghana

In Ghana, the procedure for overseas exports is extremely complex, with many different documents required at various stages in the process. Just after the trees are felled they are inspected, identified and marked by the Forest Products Inspection Bureau (FPIB) prior to removal to the port of export. At the port the FPIBs conduct a pre-shipment examination of logs and timber products to ensure correct grading and valuation and to eliminate fraud. At this stage, much of the timber is in the form of sawnwood, plywood or veneers but it is still possible for the FPIB experts to identify (at species or species group level) the timber involved for all these major wood products. A valid contract between the buyer and the registered exporter is required; this is only validated after approval of the species concerned (in view of the ban on export in log form of 18 species), and the grade, volume and price of the timber. The timber inspectors measure and grade all products for export against approved contracts, although the grading process acts as an independent check against the grade specified in the contract. The inspection report is presented along with the contract and various technical and financial documents in order to acquire an export permit. When the timber is *en route* to the harbour there are additional check points, manned by qualified grading staff, to ensure that all vehicles carrying timber have the necessary grading and measurement certificates and that the products bear the necessary marks. Logs must bear individual log numbers and the name of the species; lumber parcels must be marked with the number of pieces in the bundle, the volume, the species name, the grade, the country of origin, the contract number and the destination.

Peninsular Malaysia

In Malaysia, timber is a controlled item under the Customs Act. The Malaysian Timber Industry Board (MTIB) is named as the Authority for licensing timber exports under the Act. MTIB is a statutory body established to control the timber industry in Malaysia. It has been in operation since 1973 and its jurisdiction covers Peninsular Malaysia only. The Board is accredited to the Ministry of Primary Industries.

Export controls cover logs, sawn timber, plywood and veneer in Peninsular Malaysia. All the timber exported from Peninsular Malaysia is from natural forests, with the exception of Rubberwood. There are certain restrictions on the export of sawn timber according to quality based on the Malaysian Grading Rules (MGR) which are outlined.

Details of the log export ban are given in the MTIB Timber Export Bulletin No. 1/77 (Revised 0383) issued on 24 March 1983. For species which are not banned, logs with diameters of 30 cm and below can be exported subject to the approval of the Ministry of Primary Industries. The export of small logs is permitted to allow the trade in timber from forests cleared for development. There are certain restrictions on the export of small logs: for example, traders can only export logs from their own concessions. Domestic technology can now peel logs of small size and these are now used locally for plywood production. In order to inhibit the export of popular species the implementation of an export levy on 21 'species' of sawn timber and all types of veneer came into effect on 1 September 1990. Rubberwood sawn timber has been subject to a levy and export quota since 1 June 1990. The export levy has been imposed because of the declining availability of certain timbers and to ensure adequate supplies for local processing. Rubberwood sawn timber is the only type of sawn timber subject to an export quota at present.

The export of processed and semi-finished timber products from Peninsular Malaysia is not subject to licensing but exports are registered and Customs declarations are mandatory.

All traders and other individuals and firms involved in the timber industry in Peninsular Malaysia must be registered with MTIB. Registration is subject to renewal on an annual basis. Only companies with a Timber Exporters Licence can receive orders from overseas. There are three types

of exporters: those which act as trading companies alone; those which act as timber exporters and operate sawmills; and those companies which act as suppliers and exporters but do not have their own sawmills.

When a registered timber trader receives an overseas order, the exporter is legally obliged to sign a contract with the supplier. A copy of the contract must be submitted to MTIB within two weeks after signing. When the supplier is ready with the timber, the exporter can apply for an export licence. Export licence applications must be accompanied by five copies of a Customs declaration form and, for graded timber, grading summaries provided by a registered timber grader.

MTIB is responsible for the enforcement of regulations relating to the timber industry in Peninsular Malaysia. Quality control is the primary aspect of enforcement. The enforcement Unit of MTIB, led by the Deputy Director General, has 51 enforcement officers with 47 quality control inspectors at various branch offices and exit points. Enforcement officers are responsible for checking that timber consignments tally with Customs declarations, that no banned species are in trade and that grading requirements for sawn timber are met. The enforcement officers are trained for about two years and are well-qualified in timber identification and grading regulations.

Every timber consignment leaving Peninsular Malaysia by road is subject to checking. Spot checks are carried out at the ports and suspicious cases are investigated.

Collection of timber trade statistics for Peninsular Malaysia is the responsibility of MTIB. The relevant data are extracted from copies of Customs declaration forms which are submitted to the Board. The compilation of statistics has been computerised since 1985. Six clerical officers work on data entry and key in about 200 declaration forms each day. The forms are retained for two years and then archived. The computerisation system is currently being improved and an online system will be available in 1991. Information to 'species' level is based on the standard Malaysian names supplied in the Malaysian Grading Rules. Timber exporters are obliged to follow these names.

In addition to the 100 named timbers there are also mixed groups such as 'mixed light hardwoods' (see Table 74). These groups allow for the heterogenous nature of timbers within the natural forests and the trade in a variety of true species which are not individually available in commercial quantities. The mixed woods are not sold on technical specification but by quantity. Consignments of redwoods are, for example, sold for construction purposes to Thailand and the Middle East. The MTIB Timber Export Bulletin 5/87 (Revised 0787), issued on 29 July 1987, gives details of the export of sawn timber in groups.

As already noted, 35 Malaysian timber names relate to individual botanical species. It should therefore be possible to monitor the export of those species and relate the trade to their status in the wild. For other timber groups, it is not currently possible to do this. Information on the actual species is usually lost at the sawmill stage in the timber trade chain. Some sawmillers do know the individual species because they have records from the logging concessions but this information is not retained in the documentation once the timber is sawn to make up a trade order.

MTIB is mainly concerned with the collection of statistics for Peninsular Malaysia, but also monitors the situation in Sabah and Sarawak. For these states, statistics are compiled by the Statistics Department. Information on the timber trade is published by MTIB in its bulletin *Maskayu*, on a monthly basis. Export statistics for Sabah and Sarawak are also included in *Maskayu*. As part of its marketing service, MTIB also looks at the availability of species to the trade. The main sources of such information are the Forestry Department and the Forest Research Institute Malaysia (FRIM).

Import procedures for timber in consuming countries

Most importing countries, including the UK, do not have any special checking procedures related to the import of tropical hardwoods. As with most other commodities, Customs rely almost entirely on the paperwork relating to consignments to detect any irregularities. Some random checking of goods is carried out, but in the case of timbers this does not involve any identification to species or even species group level. Phytosanitary checks on tropical timber consignments are also undertaken in

certain countries. Any trade involving the few timber species listed on the CITES Appendices would only be detected from the documentation.

Alternative measures for monitoring trade

CITES

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) came into force in 1975 but has not been extensively used for controlling trade in timber species. The Convention has three appendices in which species are listed. Appendix I is for endangered species for which all commercial trade is banned. Appendix II is for species that may be threatened with extinction unless international trade is controlled. Appendix III allows Parties to restrict or ban exports from their own territory of species that are nationally threatened but not internationally threatened.

Currently only the following timber species are listed in the appendices:

Araucaria araucana	Appendix I/II	Argentina, Chile
Caryocar costaricense	Appendix II	Costa Rica, Panama
Fitz-Roya cupressoides	Appendix I	Argentina, Chile
Pilgerodendron uviferum	Appendix I	Argentina, Chile
Quercus copeyensis	Appendix II	Costa Rica, Panama
Vantanea barbourii	Appendix II	Costa Rica
Oreomunnea (=*Engelhardtia*) *pterocarpa*	Appendix I	Costa Rica
Cynometra hemitomophylla	Appendix II	Costa Rica
Platymiscium pleiostachyum	Appendix II	Costa Rica
Tachigali versicolor	Appendix II	Colombia, Costa Rica, Panama
Swietenia humilis	Appendix II	Central America
Batocarpus costaricensis	Appendix II	Costa Rica
Abies guatemalensis	Appendix I	Central America
Podocarpus parlatorei	Appendix I	Argentina, Bolivia, Peru
Guaiacum sanctum	Appendix II	Central America

The fact that these are all New World species is related to the interests of the country representatives at the Plenipotentiary meeting of the Convention in Washington in 1973.

It is unlikely that any African or Asian species currently involved in international trade would benefit from listing on Appendix I, but Appendix II could be usefully employed to help prevent illegal trade and over-exploitation of species that are, or may be, internationally threatened by trade. Before export of specimens of species listed on Appendix II is allowed, an export permit must be issued by a Management Authority of the exporting state. One of the terms of issuance of export permits is that a prior assessment that such export will not be detrimental to the survival of that species must be made by a Scientific Authority. Scientific Authorities are further required to monitor exports and to consider recommending limitations on the granting of export permits in order to maintain a 'species throughout its range at a level consistent with its role in the ecosystems in which it occurs and well above the level at which that species might become eligible for inclusion in Appendix I' (Article IV.3 in the text of CITES). Upon entry to the country of import, the validity of export permits is checked, usually by Customs, and, ideally, the specimens are identified to guard against smuggling and false declarations.

The identification of specimens is likely to be a limiting factor as far as listing species on CITES is concerned. Timber species are never traded internationally as whole specimens (i.e. trees complete with leaves and roots) and therefore the timber and manufactured products that would be covered by the provisions of Appendix II of the Convention are defined by the phrase 'any readily recognisable part or derivative thereof unless such parts and derivatives are specifically exempt' (Wijnstekers, 1990). The only parts and derivatives that are specifically exempted for the timber species already listed on Appendix II are seeds. The term 'readily recognisable' has not been clearly defined but it is likely that only primary products of timber species such as logs and sawnwood would

be considered readily recognisable by many Parties. Manufactured items such as furniture could generate considerable identification problems and should perhaps be specifically excluded.

The tariff headings adopted by the Harmonized System and other systems used by Customs are largely decided on economic grounds and it is therefore unlikely that the current headings can be further subdivided to provide more detail on individual species. The advantage of CITES is that it is geared to control the trade in individual species and would be most appropriate for some of the African species which are relatively easy to identify e.g. *Entandrophragma* species, *Khaya* species and *Pericopsis elata*.

Conservation benefits of monitoring the timber trade at species level

The currently available trade statistics which place emphasis on the value of the trade, and provide detailed information on the main timber products involved, are designed for economic and commercial analyses but are of little value in relating the effects of trade on the conservation status of individual species. The information that is widely available on traded volumes of individual timbers relates mainly to the most heavily traded or the most valuable timbers. These timbers, especially the Asian ones, frequently encompass a group of species rather than just one botanical species and therefore the trade data cannot generally be compared directly with forest inventory or timber production data. Nevertheless, information on the volumes of trade for certain species of conservation concern is already available. It is interesting to note, for example, that many of the species considered to be rare or vulnerable in Côte d'Ivoire are major export items, as shown in the country section for Côte d'Ivoire. Volumes of trade for some species are available for other countries such as Ghana, where conservation categories have not yet been applied. For certain species considered to be over-exploited and in need of in-situ conservation, such as *Entandrophragma* and *Khaya* spp., of great value to African producer countries, there is already a substantial body of trade data available for a number of years. The same is also true for certain Malaysian timber species, such as *Agathis borneensis*. Already, in certain countries, decline in production of valuable species for the export market has been noted, for example for *Aucoumea klaineana* and *Terminalia superba* in Congo, based on statistical data compiled over 40 years (N'Sosso, 1990). It would be of great benefit to have a system of monitoring the production and trade for such species throughout their range on a comparable basis. This would allow for the development of regional measures to conserve stocks where appropriate, through pricing policies, export restrictions or *in situ* conservation.

Unfortunately, for very rare species which are of high value but of relatively little significance in terms of gross national timber production or world trade, there appear to be very few recorded trade data. This is the case, for example, for certain of the species selected for the species case studies, such as *Diospyros celebica* and *Pericopsis mooniana*. Further information on trade in these timbers is presumably held by Forestry Departments but attempts to obtain such data for the present study have been unsuccessful. Timber trade organisations contacted in both producer and consumer countries were unable to provide information on the very rare timber species produced for the speciality market. There is clearly a need for further trade information to be made available on these species which are already the focus of concern amongst consumers.

Ideally, if full data on the quantities of each species of timber in trade were available, along with inventory data for all producing countries, it would theoretically be possible to monitor the rate of timber production and tailor this to ensure that it was sustainable. In practice, full data on neither trade nor inventories are likely to be available in the foreseeable future but nevertheless some significant advances in tropical forest conservation could result from more detailed monitoring of the timber in trade. With more information to species level it should be possible to determine how much of a particular species is obtained from countries where it is under threat, and to reduce targets for production to a sustainable level. More information on the volume of species imported by consumer countries would be beneficial in planning for sustainable production and would also help in the promotion of alternative species.

Some countries manage their timber exports by charging differential tariffs on individual species. In such cases, monitoring of the species imported could be used to compare with the reported export trade and thereby highlight fiscal irregularities. The same mechanism could also help to identify

attempts to circumvent bans on the export of particular timbers, possibly by mislabelling a rare timber as a more common species.

Although inventory data are incomplete, there is usually basic information on the distribution of species. Where timber is reported to have been exported from a country in which the species does not occur, this may be an indication of smuggling or at least inaccurate statistics. Monitoring by Customs authorities of exports of Okoumé logs from Gabon showed that considerably greater quantities were being exported than the Forestry Department believed to have been produced. With other timber species, this discrepancy could be explained by re-exports of timber from the Central African Republic, but this could not account for the Okoumé, which does not occur in the Central African Republic and therefore must have been produced in Gabon (Rietbergen, 1988). More widespread monitoring of the species of timber traded would undoubtedly reveal further information of use both to the Exchequer and for conservation.

The grouping together of different timbers in trade tends to conceal heterogeneity. The constituent species may have different properties and different values, and so recording and pricing them individually will tend to maximise their value. Even where no illegal trade is revealed, recording the species involved may highlight new sources of timber unknown to the authorities. Such information would tend to stimulate further inventory work.

In the longer term, if monitoring trade at species level was introduced for as many species as possible, bearing in mind that the timbers of some closely related species are likely to be very difficult or impossible to distinguish in the form in which they are normally traded, it would be feasible after a few years to produce annual charts of trade fluctuations (cf. Graph 15 in ITTO, 1987b which shows trade patterns for five African species) in a wide range of species. Analyses of these charts would provide an early warning system for detecting problem species by highlighting sudden fluctuations in world trade.

Increasingly, NGOs and timber consumers are demanding improved data on the sources of tropical timber and evidence that timber is produced sustainably. WWF, for example, has recommended that ITTO should introduce a scheme for monitoring timber flows and establish targets for the volume of sustainably produced timber to be traded internationally (WWF, 1989). Monitoring of the levels of sustainable production for international trade should take into account at least the major species involved, as the trade cannot be said to be sustainable if it is threatening individual timber species with extinction.

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PART 6

REVIEW OF EXISTING CONSERVATION MEASURES

This review considers the range of existing conservation measures which are relevant to tropical timber species and places the data held on the Tropical Timber Conservation database in a broader context. It provides a background for the consideration of the options available to ITTO to promote timber species conservation.

In situ conservation

In situ conservation of timber resources requires management of populations in natural stands of sufficient size to maintain themselves and preserve a reservoir of genes of potential use in breeding (Ledig, 1986). Conservation *in situ* is preferable for the majority of species because populations are free to evolve in their native environment, the protection of species promotes ecosystem stability and forest management for genetic resource conservation may be compatible with other uses. *Ex situ* conservation, including the storage of seed, pollen, and tissue cultures or the preservation of trees in arboreta or provenance plantations, is an important back-up for valuable and highly threatened species but is relatively expensive, labour intensive, and risks loss of genetic diversity.

To protect the genetic resources of any one species the ideal objective would be to preserve its whole range of genetic variation. In reality, this is frequently unknown and the next best alternative is to protect populations within the whole range of ecological conditions in which they are found (Poore and Sayer, 1987). Given the large number of timber species within tropical moist forests and the extent to which many are threatened, at least in parts of their natural distribution, the task of preserving tropical timber genetic resources appears daunting. As Poore and Sayer (1987) point out, if the system of nature conservation forests of a country is comprehensive, populations of all species of plants and animals will be preserved. At present, with only around 3% of tropical moist forest included in areas set aside for nature conservation, clearly only a relatively small proportion of tropical timber genetic resources will be protected in this way. Frequently national parks and other protected areas are not immune from logging pressures and other development forces.

In situ protection of timber species necessitates greater security within nature conservation forests and the extension of protected area networks to incorporate sites rich in timber species, particulary where these are threatened, together with the designation of protected stands in other forest areas, including some which may have previously been set aside for timber production.

In general, the value of protected areas established for conservation purposes has scarcely been considered for the conservation of tropical timber species. This is partly because attempts to review the conservation status of tropical timber species have been limited and considerations of the role and value of protected areas have tended, until recently, to focus on the protection they afford to mammal and bird species. FAO has, however, been active in identifying priorities for the conservation of woody species and promoting *in situ* conservation.

In 1974 the FAO Panel of Experts on Forest Gene Resources approved proposals for a Global Programme for Improved Use of Forest Genetic Resources. A table was prepared showing priority ratings by species, for various operations, including *in situ* conservation. The list of priority species has been revised subsequently by the Panel of Experts. A table showing the presence of 27 priority African Forest species within protected areas was included in a review of *in situ* conservation of wild plant genetic resources, prepared for the first session of the FAO Commission on Plant Genetic Resources held in 1985 (FAO, 1984b). It was felt in the review that in the development of *in situ* genetic resource conservation it would be desirable to build on the framework of already existing protected areas before the establishment of new ones. This, in itself, requires considerable further research to inventory the species present.

General reviews of the protected areas systems of Africa and South East Asia have been carried out by IUCN and UNEP (IUCN/UNEP 1986a and IUCN/UNEP 1986b), to determine the adequacy of the networks in terms of biogeographical coverage, coverage of major vegetation types and in

affording protection to centres of biological richness and species endemism. Adequacy of protection of species of special biological, conservation and/or economic interest is considered. As the authors point out, the distribution of existing protected areas in both regions reflects a bias towards the conservation of large mammals. 'More recently increasing interest has been directed towards identifying sites of importance for birds, plants, reptiles, butterflies and other groups'.

The Protected Areas Systems Reviews identify major gaps in the networks which have implications for timber species conservation. In parts of South East Asia, for example, including the Malay Peninsula, Sumatra, Java, Bali and Borneo, the least threatened habitats are the best protected and the more vulnerable habitats are under-represented in protected areas. Attention is drawn to the lowland rain forests of the Malay Peninsula; the ironwood forests of Sumatra (overlogged for *Eusideroxylon zwageri*); and forests below 200 m in Borneo which are most severely affected by logging and land developments.

In Africa, protected area coverage is reviewed by biogeographic unit, following White (1983). The Guineo-Congolian regional centre of endemism covers the forests of south-west Ghana, southern Côte d'Ivoire, Liberia, Sierra Leone, southern Guinea, southern Nigeria, southern Cameroon, Congo, Equatorial Guinea, Gabon and Zaire. The high timber value of the forests is recognised. It is considered that the whole biogeographic unit is under-protected, 'particularly in view of the richness, high endemism and extreme vulnerability of the rain forests. Most of the unit's protected areas have poor or no effective protection or management'.

Brief information on the protected areas within rain forests ecosystems is incorporated into the country section for the present report. For each ITTO country, a table has been prepared showing the forest types of each protected area and, as far as possible, the presence of timber species of conservation interest has been recorded. The tables were compiled using information held by the Protected Areas Data Unit of WCMC, including management plans and survey reports for individual protected areas. Some additional plant data were collected from IUCN and WWF International. Where species lists are available to WCMC, relevant information has been incorporated into the TTC database. In addition, the tables have been circulated to experts in producer countries, primarily to ascertain the availability of timber species lists for protected areas. In many cases, full botanical surveys have not yet been carried out although frequently the presence of dominant timber species is noted in the literature on protected areas. The information which the TTC Database holds on the presence of timber species within protected areas is far from complete. It can, however, already be used to evaluate the extent to which the genetic resources of certain species are protected *in situ*, and to plan further conservation measures.

Following Poore and Sayer (1987), the steps necessary in national programmes for genetic resource conservation are:

1) **Identify species of actual or potential economic importance.**
   For timber species, this has already been done to a significant extent throughout tropical countries.

2) **Determine the extent to which the varieties of each species are preserved in existing protected areas.**
   This is known to a varying degree depending on forest inventory data and biological surveys of protected areas.

3) **Decide what additional protected areas are necessary.**
   Some information is already available from forest inventories and biological surveys which have been carried out to a varying degree in protected areas.

4) **Decide what additional management is required, both in protected areas and production forests, to preserve genetic resources and make them available for use.**
   The role of production forests in the conservation of biological diversity is being considered by IUCN as part of the development of a conservation strategy for ITTO. The conservation of timber genetic diversity is possible within production forests if the long-term security of the

forests is safeguarded, exploitation is effectively controlled and timber stands are demarcated for genetic resource conservation.

The Virgin Jungle Reserve system of Peninsular Malaysia is the best known example of such an approach (see p. 158) and provides a model which could be developed elsewhere. The VJR system has, however, been heavily damaged by logging (Whitmore pers. comm., 1990).

Whatever system of *in situ* conservation is adopted for the conservation of tropical timber species it needs to be given the force of law. In addition to the legal designation of protected areas, specific legislation is necessary to protect threatened timber species wherever they occur.

***Ex situ* conservation**

The *ex situ* conservation of tropical timber resources in, for example, botanic gardens, arboreta and experimental plantations provides an important back-up for timber species depleted in the wild. The majority of botanic gardens and arboreta have been established outside the tropics, especially in Europe, the USSR and North America. There are, however, important botanic gardens and arboreta within African and South East Asian countries many of which are committed to plant conservation and have significant tree collections. A list of the main botanic gardens and arboreta in ITTO member countries for Africa and South East Asia is given in Table 88.

Within tropical countries the functions of botanic gardens have changed over the past hundred years. Originally established for the introduction of important species into cultivation and for dissemination of plant material around the world, old style botanic gardens had mixed collections of exotic species. Rather than botanical collections developed on an *ad hoc* basis, a growing interest in the cultivation of native species has since evolved along with increased attention to the genetic variation of plant material.

Certain botanic gardens have established collections of important tree families. In Malaysia, for example, the Forest Research Institute at Kepong has a collection of local and introduced dipterocarps. The National Botanic Gardens at Bogor, Java also has a dipterocarp collection, and dipterocarps are important in various Thai botanic gardens.

Increasingly botanic gardens have become involved in plant conservation and this is now seen as one of their main aims within the tropics. The IUCN Botanic Gardens Conservation Secretariat (BGCS) provides a framework to coordinate and monitor the plant conservation activities of botanic gardens and aims to build a worldwide network of centres for the cultivation and propagation of endangered species.

One of the functions of BGCS is to record, at an international level, the presence of plant species of conservation interest within botanic gardens. This is of great importance in the planning and development of conservation collections. Using the computerised records maintained by BGCS at the Royal Botanic Gardens Kew it is possible, for example, to determine species which are under-represented or not known to be present at all within *ex situ* collections.

BGCS is currently preparing a survey of the tropical timber germplasm collections held within botanic gardens. This is the first international survey of tropical timber genetic resources in *ex situ* collections and will be of great value in ascertaining the current and potential importance of botanic gardens in tropical timber species conservation. A questionnaire is being circulated to BGCS members asking for information on the origin, cultivation, propagation and seed storage of tropical timber species accessions. The questionnaire also asks for information on the national conservation status of species, following IUCN categories, and conservation activities relating to tropical timber species carried out by the institution.

BGCS works closely with WCMC and information has been routinely exchanged between the Secretariat and the Threatened Plants Unit of WCMC. A draft listing of tropical timber species, partly incorporating information from the ITTO pre-project study, is being provided for the BGCS questionnaire survey and it is envisaged that new status information received from the survey will be

incorporated into the TTC database. With close collaboration it will be possible to link data on *in situ* conservation of tropical timber species to that on *ex situ* conservation collections.

Table 88

Botanic Gardens and their conservation activities in African and South East Asian countries of ITTO

AFRICA	
Botanic Gardens	**Conservation Activities**
Cameroon	
Limbe Botanic Garden	being developed as a centre for the conservation of rain forest genetic resources; member of BGCS
Yaounde Botanic Garden	
Gabon	
Arboretum de Sibang	a state-owned listed forest with important timber species; member of BGCS
Ghana	
Aburi Botanic Gardens	member of BGCS
University Botanic Garden, Kumasi	
University of Ghana, Legon	
Côte d'Ivoire	
ORSTOM, Laboratoire de Botanique, Abidjan	
SOUTH EAST ASIA	
Indonesia	
Arboreta and Experimental Gardens, Forest Research Institute, Bogor	
Botanic Gardens of Indonesia, Bogor	conservation collections of endangered tropical species; conservation research; member of BGCS
Kebun Raya Eka Kanya, Bali	conservation research member of BGCS
Kebun Raya Cibodas, Java	member of BGCS
Purwodadi Botanic Garden	conservation research; member of BGCS
Malaysia	
Forest Research Institute of Malaysia, Kepong	has an associated nature reserve of 500 ha, Bukit Lagang Forest Reserve; conservation research; member of BGCS
Kinabalu Park, Kota Kinabalu	
Rimba Ilmu Universiti Malaya	conservation collections of wild fruit trees; member of BGCS
Taman Kiara Arboretum	
Botanical Research Centre, Semengoh, Kuching	has an associated nature reserve of 652 ha, Semenong Forest Reserve; member of BGCS
Penang Botanic Garden	reserved forest surrounds the garden; member of BGCS
Sepilok Arboretum, Sandakan	collection of trees for Forest Research Centre; associated with Virgin Forest Reserves throughout Sabah
Tenom Orchid Centre and Agricultural Station	conservation research; member of BGCS
Philippines	
Makiling Botanic Garden	native trees with emphasis on endangered species
Arboretum, University of the Philippines	
Pharmaceutical Gardens, University of Santo Thomas	

Hortorium, University of the Philippines, Los Banos	
Thailand	
Central Botanical Garden (Phu Khae)	conservation collections of dipterocarps and native gymnosperms
Peninsular Botanical Garden (Khao Chong)	
Eastern Botanical Garden (Khao Hin Son)	
Northern Botanical Garden (Mae Sa)	conservation collections of native gymnosperms
North-eastern Botanical Garden (Dong-fa Huan)	

Legislation

The operation and regulation of activities in the forestry sector are generally laid down in forestry legislation for tropical timber producer countries. Conservation of the forest resource is frequently incorporated into basic forestry legislation but there is rarely any legal provision for the conservation of individual timber species or timber genetic resources. Brief information on legislation relating to forest conservation and to timber species is incorporated into the country sections of the report. Details of legislation relating to individual species is stored within the TTC database.

In few countries is there any specific legislation recognising the threatened status of tropical timber species and specifying legal conservation measures accordingly. Sri Lanka has, however, a new schedule of threatened plant species to replace the species listed under the Fauna and Flora Protection Ordinance 1937. A number of timber species are included, with 14 dipterocarps and 11 species of *Diospyros*. The Burma Forest 1902, as amended, protects 18 names species and all smooth-barked *Dipterocarpus* species in Lower Myanmar.

Some countries have felling restrictions on certain specified timber species. Generally, under such legislation, felling is subject to permission from the forestry department. In Côte d'Ivoire, 25 commercially important timbers are listed as protected species under Decree No. 66-122 of 1966. Elsewhere in Africa, Botswana, Gambia, Malawi, Mali, Mozambique, Senegal and Somalia all have legislation protecting certain tree species. Legislation in Mozambique regulates the felling of eight timber species and another law empowers the Ministry of Agriculture to designate timber species threatened with extinction, the exploitation of which is prohibited. An International Agreement on the Joint Regulations on Fauna and Flora, signed by Cameroon, Chad, Niger and Nigeria, lists 15 tree species which should be protected (de Klemm, 1990). In the Philippines, the DENR Administrative Order No. 78 Series of 1987 imposes restriction on the felling of 20 prime commercial timbers which are generally recognised as being of conservation concern. A special permit is required for the felling of certain Thai species under the Ministry of Agriculture and Cooperatives Decree of 22 January 1988, and specific legal measures are set out for teak and dipterocarp species under the Thai Forestry Act.

In general, felling restrictions are specified by legislation as minimum girth limits or minimum exploitable diameters. The determination of girth limits for forest exploitation is considered to be a first management regulation, preventing trees being cut before they reach maturity. Cutting limits should be enforced until the forest can be treated under more sophisticated management and silvicultural systems (Schmithusen, 1986). However, it has been found in Africa that cutting limits are rarely adequately enforced (Rietbergen, 1988). Grut (1990) points out that legal minimum exploitable diameters for timber species in African countries are generally considerably higher than commercial minimum diameters. It is more profitable to remove all timber of commercial size in one felling than to respect the legal cutting limits. A gradual reduction in the legal diameter limits is recommended by Grut (1990), who does not consider that this would damage sustained yield production.

Bans on the export of logs of certain species are in force in some producer countries. Generally, the primary motivation is to promote value-added production within the country as a means of increasing national revenue and employment in forest industry. There may also be an element of concern for species conservation. Log export bans can contribute indirectly to timber species conservation by:

1) promoting value-added production which increases economic incentives for the conservation of the natural forest resource;

2) restricting the uses to which the species can be put;

3) reducing the international market for the species concerned.

Ghana currently bans the export of 18 timber species in log form. Côte d'Ivoire operates a log export ban which is selective by species and also related to a log supply quota. A log export ban on ten species was proposed in Liberia, to come into force in October 1990, but it is uncertain whether the ban is operational. Nigeria initially banned the export of logs of major redwood species before introducing a general log export ban. Table 89 provides a summary of national timber export prohibitions currently in force. It has proved remarkably difficult to obtain full details of national prohibitions on timber exports and the legal documentation relating to this. It would be beneficial for full details to be published by ITTO on a regular basis.

International legislation relating specifically to the conservation of timber species remains very limited. The Agreement on the Joint Regulations on Fauna and Flora signed by the Governments of Cameroon, Chad, Niger and Nigeria in December 1977 lists 15 savanna tree species which should be protected and regenerated. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is the most appropriate international agreement for consideration in relation to the conservation of over-exploited tropical timber species but as yet its potential role in this area has not been realised. A few very rare and scarcely exploited timbers of Latin America are incorporated into the Appendices of the Convention. Listing on Appendix I of CITES means that international commercial trade in the species is banned. Species listed on Appendix II are subject to licensing requirements and trade monitoring. The licensing of trade in Appendix II species is an important aspect of the management of commercially valuable wild species, requiring that the exporting countries certify that the export is not detrimental to the survival of wild stocks.

There has been growing interest in utilising CITES to control and monitor trade in tropical timber species within both producer and consumer countries. Proposals to list a range of prime African species were prepared, for example, for the 1987 Conference of the Parties to CITES in Ottawa. Ghana had agreed to introduce them but the proposals were not put forward before the official deadline. The Philippines is currently collecting information on a number of over-exploited timber species with a view to CITES listing. The CITES Plants Committee has considered the general question of tropical timber listings at several meetings and has considered the possibility of a CITES Tropical Timber Action Group to review and research the matter.

Currently the EEC is supporting the preparation of a review of timber species for listing on Annexes of its Regulation to implement CITES. This follows the development of a Commission strategy on tropical forests, one of the five elements of which relates to the timber trade. The Commission requested that CITES, 'should be examined to see if protection given especially to endangered species of tropical forest trees is adequate. Here, preliminary enquiry appears to indicate that the CITES listing of such species needs urgently to be updated' (European Commission, 1989). The Regulation may go further than CITES in the species it covers but at the same time the EEC is prepared to promote CITES listings for tropical timber species where appropriate.

CITES may become an important measure in the monitoring and control of rare and threatened tropical timber species in international trade but considerable political will and allocation of resources will be necessary. As N'Sosso (1990) points out, the rigorous application of CITES to tropical timber species would encourage producers and exporters of tropical wood to revise their management of forest ecosystems entirely. This he considers would be an acceptable alternative to the imposition of any form of trade boycotts by consumer countries.

Practical problems are envisaged in the enforcement of CITES for timber species because of the difficulty of identification of timbers in the form in which they are traded. This may not be a major problem for the distinctive noble woods, if appropriate identification materials are developed. It will, however, restrict the number of timbers for which CITES listing has any value. In addition, monitoring of the trade in products manufactured from the listed species, as required under the

Convention, will be difficult. Careful consideration of which products should be controlled would therefore be necessary.

Table 89

Timber Export Prohibitions

Country	Product Banned	Legal instrument or documentation	Date introduced
Côte d'Ivoire	logs of certain species and by log supply quota	no details	
Ghana	logs of 18 timber species		April 1979, revised Feb. 1988
Indonesia	logs of all species		Jan. 1985
Laos	logs of all species		Jan. 1989
Liberia	logs of 10 species	Forestry Development Authority Regulation No. 17	proposed for 1 October 1990
Malaysia - Peninsular Malaysia	logs of 27 timbers	Timber Export Bulletin No. 1/77 (Revised 0383)	24 March 1983
Malaysia - Sarawak	*Eusideroxylon zwageri*	no details	1950
Nigeria	logs of all species	no details	
Papua New Guinea	logs of certain species	Export (Control and Valuation) Act (as applied to timber)	Jan. 1984
Philippines	logs and lumber of all species		1 July 1989
Thailand	general logging ban		Jan. 1989

Natural forest management

Natural forest management within tropical forests has been thoroughly reviewed both for ITTO and elsewhere (Poore, 1988; Schmidt, 1991) and is not considered in detail here. Nevertheless, good forestry management and silvicultural practices are essential prerequisites for timber species conservation and therefore a brief summary of some relevant management issues is provided.

Various management systems have been designed to enhance the production of major commercial timber species and, if operated effectively, should guarantee their long-term survival for sustained timber production. Management for timber production may disregard or directly damage tree species which are not currently of economic importance and will also, of course, lead to ecological changes in the structural diversity of forest ecosystems. Although production forests will become increasingly important in terms of conservation of the forest resource as the remaining forest declines in extent, at present lack of effective management suggests that management for timber production cannot be relied on to ensure the conservation of even the most commercially important species.

It is widely acknowledged and accepted by ITTO that current problems in the management of tropical forests result mainly from economic, political and social factors rather than scientific constraints. There is, however, a lack of basic biological information on tropical timber species which can be used in management prescriptions. Knowledge of the autecology even of some of the most important commercial timbers, such as the African Meliaceae, is either lacking or not in published form.

Management of natural forests will result in changes in yield of individual species from one cycle to the next and also in changes in the species composition of the forest. Primary forest species have certain characteristics which predispose them to a decline as the forest is modified. Such species tend to have large seeds which are dispersed by large birds and/or mammals; they are shade-tolerant, slow-growing and long-lived. In contrast, secondary pioneer species are better able to respond to changes in the forest cover and to exploit conditions created by logging. As pointed out by Terborgh (1990), the availability of prime hardwood species will inevitably decline as more and more primary forest is exploited, leading to price rises. 'At some point, the rising value of hardwood should compensate for its slower rate of growth and create incentives for management directed towards increased

production'. At the same time, special consideration should be given to the conservation of primary species within areas of production forest, which should include protection of the seed dispersers.

A range of management systems has been in force throughout the tropics and currently utilised systems are briefly described in the country sections of this report. Selective logging of preferred timber species is generally seen to be the least destructive form of timber production in terms of damage to the forest ecosystem, as only a small proportion of the total tree species is removed. Nevertheless, even limited felling may effectively remove the main commercial species from a localised area of forest and threaten their long term survival in such places. At a national level, high extraction rates concentrating on a limited number of commercial timber species are leading to commercial extinction of certain species. For management to relate to conservation of such species, exploitation must take into account regeneration capacity and appropriate felling cycles.

Management systems are being employed without basic information on the reproductive biology of the tree species, and failure of management for regeneration may be due to the lack of this information. In the past, extensive forest stands surrounding managed areas could serve as sources of pollinators and genetic material. With fragmentation of forest cover this is no longer possible (Bawa and Krugman, 1991). Successful management of production forests for sustained timber production will increasingly demand more knowledge of the species and their interactions in the forest ecosystem.

The conditions for sustainable management of tropical moist forests have been set out for ITTO by Poore (1988) as follows:

a) the establishment of a Permanent Forest Estate;
b) the guarantee of conditions for the forest manager;
c) the setting of standards for forestry practice including annual allowable cut, cutting cycles and environmental safeguards;
d) the adequate control of all aspects of harvesting and post-harvesting treatment;
e) appropriate economic and financial policies;
f) appropriate environmental policies;
g) enough information for the effective operation of all the above conditions.

If these conditions were met the conservation of at least the currently important commercial timbers should be ensured. In particular, it is essential to retain sufficiently large areas under permanent forest cover so that even if species are over-exploited there is the chance of regeneration from soil seed banks. At the same time, appropriate standards of forestry practice for individual species and adequate control of all aspects of harvesting and post-harvesting treatment are essential to prevent both commercial and biological extinction. Improved training for felling crews may be appropriate to limit ecological damage and promote species regeneration.

National forestry policy

Management of the forestry resource of a particular country will clearly be more effective if it has full Government backing under a national forestry policy. As Wyatt-Smith (1987) points out, "The production cycle of TMF (Tropical moist forest) goods and services is too long to endure either vacillation or sudden change in policy, especially when the full implications of such changes are not effectively considered and dealt with". Forestry policies, which are briefly dealt with in the country sections, frequently cover both production and conservation of the forest resource and establish categories for various types of forestry land use. Ideally, the long-term conservation of individual timber species should be incorporated into national forestry policies.

In certain cases, national policy has specified clearance of large areas of lowland forest for cultivation of more profitable crops, leading to wastage of timber resources and quite possibly to species extinctions. This is the case in Peninsular Malaysia where the wastage is considered inevitable in the context of national development (Mok, 1982).

Silvicultural systems

In general, silvicultural systems specify the felling cycle and minimum girth limits. Both are designed to approximate the growth and reproductive cycles of major timber species and ensure sustainable production. Frequently, however, the specifications are inappropriate or not adequately enforced. Furthermore, even if appropriate for commercial species and enforced, they may be inappropriate for other species of potential value.

Regeneration

The methods by which tropical timber species regenerate were summarised by Garwood (1989) as:

1) seed rain (recently dispersed seeds)
2) soil seed bank (dormant seeds in the soil)
3) seedling bank (established, suppressed seedlings in the understorey)
4) advance regeneration (suppressed seedlings in the understorey)
5) coppice (root or shoot sprouts of damaged individuals).

In general, the intention of different levels of silvicultural intervention, where these are carried out, is to induce regeneration of the preferred commercial species.

For commercial timber production in South East Asian forests, silvicultural treatments are generally applied to release seedlings already present on the forest floor, while the natural regeneration treatments in West Africa aim at inducing germination of desirable species.

In harvesting operations, it is obviously important that seed-bearers be retained within the production forest. In general, most seeds of tropical timber germinate around mother trees and do not disperse widely. In order to maintain species richness and prevent species loss, seed-bearers must be adequately protected.

The regeneration potential of individual timber species may ultimately determine their survival within the forest ecosystem. Moabi *Baillonella toxisperma* is one species which, although presently common, could become endangered in the long term because natural regeneration is insufficient to compensate for the current rate of felling. Other examples of species with poor regeneration include *Aquilaria* spp., *Gonystylus* spp., *Koompassia malaccensis* and *Neobalanocarpus heimii*, all noted by FAO (1990), and *Agathis* spp.

Economic measures

The use of economic measures to promote the conservation of tropical timber species is a complex subject which should be considered in relation to the improved management of the tropical forest resource. In general it is acknowledged that government policies through timber concession agreements and revenue systems have encouraged wasteful resource-depleting logging within the tropics (Repetto and Gillis, 1988). Low revenue systems have encouraged high grading of the forests, with the best specimens of the most valuable species being exploited as rapidly as possible. Means of increasing the currently low value accorded to both tropical forests and logs derived from them are being considered by ITTO in relation to promoting incentives for sustainable forest production. The forest revenue systems of various countries apply royalty rates and export duties differentially between species. This is seen as a positive conservation measure in so far as it discourages commercial utilisation of over-exploited species and promotes trade in a wider range of timbers. Differential export duties are usually applied as a means of retaining sufficient stocks of valuable timber species for value-added domestic production which may in itself be a factor promoting forest conservation.

Countries which apply differential royalty rates on a species basis include Côte d'Ivoire, Ghana, Kenya and Malaysia (Sarawak). Ghana, for example, set differential rates for 50 timbers (five genera and the rest species) under the Forest Fees (Amendment) Regulations, 1986. Export levies which vary according to species are imposed by Ghana, Liberia and Peninsular Malaysia.

With growing awareness of tropical deforestation in consumer countries it is being shown that consumers are prepared to pay higher end prices for tropical timber products. As Kemp (1990) points out, 'There is no doubt that market prices have failed to reflect adequately the real cost of regeneration and sustainable management of the resource.' Increased prices for over-exploited species may contribute to falling demand for such species and, if channelled back to the producer country, provide greater revenue for forest management. It is already apparent that very rare and highly sought-after timber species such as *Dalbergia* spp. and *Diospyros* spp. command accordingly high prices on the international market. Natural stands of such species are, at least on paper, relatively well-managed and controlled as a result. It may be inappropriate to discourage the international trade in such species but it is important to ensure that effective policing prevents illegal trade and that management leads to regeneration.

Plantation development

The development of industrial wood plantations should ultimately contribute to the conservation of natural forests and the timber species within them. At present, however, plantation development largely utilises fast-growing exotic species, whereas traditionally valued and over-exploited hardwood species continue to be extracted from natural forests. As Leakey (1986) points out, it is essential to provide alternative supplies of these valuable hardwoods, both to reduce further losses of natural forest and to ensure a continuing source of economic revenue for the producer countries.

According to Lamprecht (1989), in the choice of tree species for plantation within the tropics, 'Typical primary forest species do not enter into consideration'. Relatively tolerant, fast-growing secondary species are generally suitable for a wide range of soil conditions. The development of commercial plantations for the majority of threatened primary forest species is likely to be unrealistic as a conservation tool. Nevertheless there is a much broader range of secondary species which could be developed as plantation timbers, some of which are themselves declining in their natural ecosystems. Davidson (1985) points out the urgent need for research on potential indigenous forest plantation trees. The advance in vegetative propagation techniques is one aspect of plantation development of particular value in restocking degraded forests with over-exploited indigenous species.

OPTIONS FOR CONSERVATION ACTION

The preliminary findings of the pre-project study suggest that 304 timber species are threatened with extinction in Africa and South East Asia, many of these in ITTO countries. It is considered unlikely that commercially useful timber species will become extinct as a result of exploitation for trade alone but there is clear evidence that certain timber species are becoming commercially extinct in various countries. Over-exploitation of high grade timber selectively removed from the forest can lead to economic devaluation of the forest resource and thus lessen the chances of its long-term conservation. Over-exploitation, leading to commercial extinction, also clearly affects the intraspecific genetic resource base of major commercial species.

ITTO is concerned about the loss of tropical timber species at a local or global level primarily because the potential for the sustainable supply of timber is reduced. It should also be noted that the loss of diversity by local or global extinction of a species may reduce the stability of entire ecosystems (Ledig, 1986). Furthermore the loss of genetic diversity within a species clearly restricts the development of breeding potential and improvement of species as plantation timbers.

Options available to ITTO to promote species conservation should clearly take into account the activities of other international organisations in this field. ITTO is, however, uniquely placed to bring together governmental, trade and conservation interests. It would be possible to take no direct action on timber species conservation and leave regulation to the market. In theory, as a particular species becomes commercially exhausted in one part of its range the trade will look to alternative sources of supply. As long as the forest habitat remains in the area of over-exploitation, transferring the trade demand should allow the species the chance to recover. However, this is unlikely in practice, given the general pressures on forest resources and rates of deforestation, which tend to be highest in countries with intensive timber exploitation. A reduction in the acreage of available commercial-sized timber of a particular species will also concentrate the exploitation on fewer populations and thus transfer the risk to them. This is particularly likely at a time of increasing demand for timber both for domestic and international markets. ITTO should therefore be prepared to promote active measures designed to ensure species conservation.

1) One option would be to use the data collected in the pre-project study to support current ITTO programmes and projects which relate to conservation of the forest resource. This would be beneficial whether or not species-orientated conservation measures are also promoted because the data on threatened timber species held in the Tropical Timber Conservation (TTC) database reinforce the need for effective management and conservation of the tropical forest resource. They provide an extra layer of information which can be used to justify and rationalise conservation priorities, particularly when the species information is related to geographical data on a site-specific basis.

   The main application of the data collected may be in the work of the Permanent Committees on Reforestation and Forest Management and the Economic Information and Market Intelligence. It is also of relevance to the work of the Permanent Committee on Forest Industry in so far as the Committee promotes the use of lesser known species, and the more efficient use of timber to reduce wastage of valuable and declining species.

2) A second and related option is to develop the TTC database as a service to ITTO members. The structure now exists for the storage of data on species of conservation concern and the availability of such data has been explored. The main priorities for development of the database are:

   i) extension of geographical coverage;
   ii) expansion of data on threatened populations;
   iii) routine collection of trade data.

   The extension of geographical coverage is logical in order to review the conservation status of tropical timber species globally and to allow for the provision of data to and for all ITTO member states. The expansion of data on threatened populations is particularly important in the planning of conservation activities and for the long-term sustainable management of timber species. Bawa and Krugman (1991) point out that for conservation and long-term management

of tropical timber species, 'It is imperative that we begin to gather data on the spatial organisation of genetic variability both on a local and geographical scale'.

The forest departments of several countries already compile data relating to trade in individual timber species. These data should be collected and analysed centrally to allow monitoring of the impact of trade on threatened timber species. Other countries should be encouraged to collect data of comparable detail and in a standardised format.

3) ITTO could disseminate the existing data to other organisations as a means of promoting species conservation, and to provide updates as and when the database is further developed. Clearly the current location of the TTC database at the World Conservation Monitoring Centre, which is jointly managed by the World Conservation Union (IUCN), World Wide Fund for Nature (WWF) and United Nations Environment Programme (UNEP), would facilitate the dissemination of data if considered desirable and appropriate to the aims of ITTO.

Two current research initiatives relating to the tropical forest resource being undertaken by IUCN should be mentioned in this context. The first is the 'Centres of Plant Diversity' project which is being carried out by the IUCN Plant Conservation Office, with financial support from WWF International, the Commission of the European Communities, and the UK Overseas Development Administration. The project is a major international collaborative effort to identify the world's most species-rich plant sites and vegetation types. It will result in the publication of a guide to the location of the world's centres of plant diversity and endemism, with details of their current status and opportunities for their sustainable use and protection. The project will help to identify those sites within tropical forest regions which, if conserved, would safeguard the greatest number of plant species, to document the benefits that conservation of those areas would bring and to develop a strategy for the effective conservation of the centres of plant diversity. The project is not specific to tropical forest areas and embraces all botanically rich sites. The utilisation of data held in the TTC database could, however, enable the data on rare and declining timber species to be related to internationally important sites for botanical conservation. In this way it would enhance the protection of sites which are important centres for timber species diversity and the *in situ* protection of the species within these areas. Examples of sites which have been identified as internationally important for plant conservation are botanically rich areas that can be defined geographically, e.g. Mt Kinabalu in Borneo; and vegetation types which are exceptionally rich in diversity, such as the Amazon rain forests, Atlantic forests of Brazil and lowland rain forests of Cameroon (IUCN Plant Conservation Office, 1990).

The second initiative is concerned with the collection of data on the *ex situ* conservation of tropical timber species by botanic gardens and arboreta. This activity undertaken by BGCS has already been outlined in the review of existing conservation measures. Continuing collaboration between ITTO and BGCS, through, for example, data exchange, should assist in the promotion of *ex situ* conservation of tropical timber resources.

The provision of information on the conservation status of timber species could usefully be added to the various databases on the technical properties of lesser known species, in order to lessen the risk of such species being inappropriately promoted. It is also of direct relevance to the work of the FAO Panel of Experts on Forest Gene Resources. The Panel intends to increase the attention it gives to timber species and humid zones because these are often biologically little-known, over-utilised and inadequately managed (FAO, 1990). It would also be relevant for ITTO to consider the provision of timber data to support biodiversity programmes. Data on the threatened status of timber species have not previously been collated for utilisation in such programmes which have generally relied on bird and mammal data.

4) A fourth option is for ITTO to promote national databases to support the conservation of rare and threatened timber species. It is clear from the pre-project study that considerable quantities of data on the conservation status of tropical timber species are available at a national level within forestry and botanical institutions or are being assembled through ongoing research projects. Whereas there is a major and acknowledged need for greater botanical research within the tropics, primarily for basic exploration and taxonomic studies, where the data on species rarity exist they should be compiled and stored in a compatible format. ITTO could usefully initiate

discussion, through workshops, on the development of a network of national databases on the status of timber species of conservation concern. Part 1 addresses some of the issues which need to be discussed further in this context. Although the pre-project study has not provided a thorough review of national database initiatives, it has become apparent that there is considerable interest in collaboration, with the development of the TTC, through activities in various countries. A number of NGOs and individual experts have stressed the need to carry further the data collection started by the pre-project study and the obvious advantages of doing so at a national level. It is suggested that Ghana and Malaysia be used for case studies in the development of national databases.

5) In the development of the TTC and consideration of a network of national databases, further refinement of the IUCN conservation categories would be desirable to design a system appropriate for commercially exploited tropical timbers. It would be helpful to develop clear guidelines for the use of conservation categories so that they can be applied with a greater degree of consistency.

6) A further option would be for ITTO to consider direct measures to conserve commercial timber species which have been identified as threatened by the pre-project study. In order to do so, an important first step is for the data collected in the pre-project study to be reviewed so that agreement can be reached on which species are priorities for conservation action. Where threatened timber species are endemic to one particular country it is clearly the prerogative of the country concerned to decide which species they consider to be in need of conservation action. For non-endemic species, international discussion and agreement on priorities for conservation is appropriate. ITTO is well placed to promote such discussion, in collaboration with other bodies such as the FAO Panel of Experts on Forest Genetic Resources.

7) Conservation measures to protect threatened timber species include the development of national protected species legislation, international legislation and *in situ* conservation, and measures to limit trade.

   ITTO should promote the development of appropriate national legislation designed to protect the genetic resources of threatened timber species as part of its remit to, 'encourage the development of national policies aimed at sustainable utilisation and conservation of tropical forests and their genetic resources'. Likewise it should promote *in situ* conservation through, for example, inventory of protected areas and encouraging a complete ban on logging within areas set aside for conservation.

8) ITTO should encourage all producer countries to review and, where necessary, revise management prescriptions relating to species and, in particular, the minimum girth limits for each species exploited.

9) ITTO should request its members to review current levels of national trade for all species identified as threatened by the pre-project study and develop appropriate measures to restrict the trade in such species where necessary. In exporting countries this could, for example, be through quota systems or export bans on unworked timber.

10) ITTO should consider publishing details of national export controls on timber products on a regular basis. Importing countries should be encouraged to assist with ensuring compliance with these rules. National reports on enforcement and infringements should be commissioned.

11) ITTO should consider the ways in which revenue and pricing mechanisms are appropriate as a means of restricting trade in over-exploited species. Differential royalty rates and export levies are already used by various countries to restrict exploitation of traditionally favoured commercial species and promote use of lesser-known species. The effectiveness of such measures in terms of conserving stocks of over-exploited species should be evaluated. One of the primary objectives of the ITTO is to improve transparency in the tropical timber market. It is recognised that one of the pivotal questions which should be addressed in this process is how prices at various stages for tropical timber products are formed in international markets. It would be of value to look

specifically at how natural rarity and scarcity of supply relate to pricing and the extent to which consumers would be prepared to pay more for products of timber species in need of conservation attention.

12) The development of international controls to restrict trade in timber species which are of conservation concern is a matter for urgent consideration. ITTO should discuss the suitability of CITES as such a mechanism and, if appropriate, endorse the listing of tropical timber species on the Appendices, or it should decide whether a new system for monitoring and controlling trade should be developed. ITTO should consider the provision of technical assistance to the CITES Secretariat and cooperation in developing national enforcement capabilities if and when timber species are listed on the Appendices to the Convention.

13) ITTO should promote measures to reduce the wastage of wood of valuable and declining timber species. The Permanent Committee on Forest Industry has identified the need to monitor the grading rules for tropical timber and to support research on waste utilisation. Discussion with traders in the pre-project study has emphasised that unnecessarily strict grading rules increase the wastage of wood which does not meet grading requirements or is unacceptable to the markets of some importing countries.

    At present, waste of wood resources is a feature of all stages in the international chain of commercial timber exploitation. Grut (1990), for example, points out that in Ghana annually 33-50% (0.7-1.3 million m^3) of usable industrial wood is wasted - left on the forest floor - mainly because of inappropriate equipment and uncertain markets. In Cameroon, wastage in the forest from the raw log can be up to 25% and the conversion rate at the sawmill 45-50%, with most of the waste burned on tips (Gartlan, 1990). The factors accounting for waste in Cameroon include high rates of rejection of imperfect logs, lack of local markets, inefficient equipment and poor levels of training. In Malaysia, natural defects and damage resulting from logging operations are major reasons restricting the use of extracted timber (Mok, 1982).

    With the declining tropical timber resource base and threatened status of many species it is inappropriate to continue such low levels of utilisation of extracted timber. On international markets, there needs to be increased acceptance of 'defective' timber such as pinhole Meranti timber, which is refused by the UK for example, and timber with blue staining. Revision of grading rules may be appropriate in this respect.

14) ITTO should promote the use of botanical species names within timber trade contracts and for trade monitoring purposes. It should also encourage all countries to use a standard unit of volume for recording imports and exports of tropical timber.

15) ITTO should encourage its members to develop more rigorous procedures for checking timber consignment, in both the exporting and the importing countries. This would have advantages for revenue collection as well as timber conservation.

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APPENDIX 1

Customs Tariff Headings relating to tropical hardwood timbers

Key

Column 1

AE = United Arab Emirates
AT = Austria
AU = Australia
BEX = Belgium/Luxembourg
BN = Brunei
CA = Canada
CH = Switzerland
CI = Côte d'Ivoire
CM = Cameroon
CN = China
CY = Cyprus
DE = Germany (West)
DZ = Algeria
EEC = European Economic Community
ES = Spain
FI = Finland
FR = France
GA = Gabon
GB = United Kingdom
GR = Greece
HK = Hong Kong
ID = Indonesia
IE = Ireland
IN = India
IT = Italy
JP = Japan
KE = Kenya
KR = Republic of Korea
LK = Sri Lanka
MA = Morocco
MB = Sabah (Malaysia)
MK = Sarawak (Malaysia)
MO = Macau
MY = Peninsular Malaysia (Malaysia)
NL = Netherlands
NO = Norway
NZ = New Zealand
OM = Oman
PH = Philippines
PK = Pakistan
PT = Portugal
SA = Saudi Arabia
SE = Sweden
SG = Singapore
TH = Thailand
TR = Turkey
TW = Taiwan
US = USA
ZA = South Africa

Column 2

I = Imports
E = Exports

Country	Imp/Exp	SITC	HS	Description
AE	IE	24831	4405B	Wood of non-coniferous species, sawn lengthwise, sliced/peeled of thickness exceeding 5mm.
AT	IE		440331000	Raw wood, Dark Red Meranti.
AT	IE		440333000	Raw wood, Keruing, Ramin, Teak.
AT	IE		440334000	Raw wood, Okoumé, Makoré.
AT	IE		440335000	Tiama, Mansonia.
AT	IE		440391100	Tropical Eichen.
AT	IE		440399100	Raw wood, tropical deciduous.
AT	IE		440399900	Raw wood and trees.
AT	IE		440722000	Okoumé wood, different lengths.
AT	IE		440723000	Baboen, Balsa, different lengths.
AT	IE		440799900	Wood, other lengths.
AT	IE		440820100	Wood for inlaying, tropical trees.
AT	IE		440820900	Tropical trees, different lengths.
AT	IE		440890100	Wood for inlaying.
AT	IE		440890900	Wood and trees, different lengths.
AT	IE		440920900	Wood with square finish.
AU	I		440300	Wood in rough, whether or not stripped of bark or sapwood, or roughly squared.
AU	I		44033	Other tropical woods.
AU	I		4403350	Tiama, Mansonia, Ilomba, Dibétou, Limba, and Azobé.
AU	I		44039	Other.
AU	I		4407	Wood sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or finger-jointed, of a thickness exceeding 6mm.
AU	I		44072	Tropical woods.

Country	Imp/Exp	SITC	HS	Description
AU	I		440721	Dark Red Meranti, Light Red Meranti, Meranti Bakau, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, Keruing, Ramin, Kapur, Teak, Jongtong, Merbau, Jelutong & Kempas.
AU	I		4407219	Other.
AU	I		4407221	Planed or sanded.
AU	I		440722	Okoumé, Obeche, Sapelli, Sipo, Acajou, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba & Azobé.
AU	I		4407229	Other.
AU	I		440723	Baboen, Mahogany, Imbuia & Balsa.
AU	I		440799	Other.
AU	I		4408	Veneer sheets & sheets for plywood (whether or not spliced) & other wood sawn lengthwise, sliced or peeled, whether or not planed, sanded or finger-jointed of thickness not exceeding 6mm.
AU	I		4409	Wood (including strips & friezes for parquet flooring, not assembled) cont. shaped (tongued, grooved, rebated, chamfered, V-Jointed, beaded, moulded, rounded or the like) along any of its edges or faces, whether or not planed, sanded or finger-jointed.
AU	I		4412	Plywood, veneered panels & similar laminated wood.
AU	I		44121	Plywood consisting solely of sheets of wood, each ply not exceeding 6mm.
AU	I		44122	Other, with at least one outer ply of non-Coniferous wood.
AU	I		441229	Other.
AU	I		4412900	Other.
AU	I		441299	Other.
AU	I		44031000	Treated with paint, stains or other preservatives.
AU	I		44033100	Dark Red Meranti, Light Red Meranti & Meranti Bakau.

Country	Imp/Exp	SITC	HS	Description
AU	I		44033200	White Lauan, White Meranti, White Seraya, Yellow Meranti and Alan.
AU	I		44033300	Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong & Kempas.
AU	I		44033400	Okoumé, Obeche, Sapelli, Sipo, Acajou, Makoré & Iroko.
AU	I		44039900	Other.
AU	I		44071010	Planed or sanded.
AU	I		44072110	Planed or sanded.
AU	I		44072191	Teak.
AU	I		44072199	Other.
AU	I		44072291	Acajou d'Afrique.
AU	I		44072299	Other.
AU	I		44072310	Planed or sanded.
AU	I		44072390	Other.
AU	I		44079290	Other.
AU	I		44079910	Planed or sanded.
AU	I		44082000	Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou, Sapelli, Baboen, Mahogany, Palissandre du Bresil & Bois de Rose Femelle.
AU	I		44089000	Other.
AU	I		44092000	Non-coniferous wood.
AU	I		44121100	With at least one outer ply of the following tropical woods Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou, Sapelli, Baboen, Mahogany, Palissandre du Bresil or Bois de Rose femelle.
AU	I		44121200	Other with at least one outer ply of Non-Coniferous wood.
AU	I		44121900	Other.
AU	I		44122910	Plywood.

Country	Imp/Exp	SITC	HS	Description
AU	I		44122990	Other.
AU	I		44129910	Plywood.
AU	I		44129990	Other.
BEX	IE		440331000	Dark Red Meranti, Light Red Meranti and Meranti Bakau, not treated.
BEX	IE		440331000	Dark Red Meranti, Light Red Meranti, and Meranti Bakau, non treated.
BEX	IE		440332000	White Lauan, White Meranti, White Seraya, Yellow Meranti, and Alan, not treated.
BEX	IE		440332000	White Lauan, White Meranti, White Seraya, Yellow Meranti, and Alan, not treated.
BEX	IE		440333000	Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong, and Kempas, not treated.
BEX	IE		440333000	Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong, and Kempas, not treated.
BEX	IE		440334000	Okoumé, not treated.
BEX	IE		440334100	Okoumé, not treated.
BEX	IE		440334300	Obeche, not treated.
BEX	IE		440334300	Obeche, not treated.
BEX	IE		440334500	Sipo, not treated.
BEX	IE		440334500	Sipo, not treated
BEX	IE		440334700	Makoré, not treated.
BEX	IE		440334700	Makoré, not treated.
BEX	IE		440334900	Sapelli, Acajou d'Afrique, Iroko, not treated.
BEX	IE		440334900	Sapelli, Acajou d'Afrique, Iroko, not treated.
BEX	IE		440335100	Limba, not treated.
BEX	IE		440335100	Limba, not treated
BEX	IE		440335902	Azobé, not treated.
BEX	IE		440335902	Azobé, not treated

Country	Imp/Exp	SITC	HS	Description
BEX	IE		440335909	Tiama, Mansonia, Ilomba, Dibétou, not treated.
BEX	IE		440335909	Tiama, Mansonia, Ilomba, Dibétou, not treated.
BEX	IE		440391000	Chene, not treated.
BEX	IE		440399900	Non-treated wood excluding those under 440320000 to 440399100.
BEX	IE		440720910	Dark Red and Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil and Bois de Rose Femelle, not represented under 440820.100 to 440820.500 of a thickness = < 1 mm.
BEX	IE		440721100	Dark Red Meranti, Light Red Meranti, Meranti Bakau, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas, glued with finger-joints.
BEX	IE		440721100	Dark Red Meranti, Light Red Meranti, Meranti Bakau, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas, glued with finger-joints.
BEX	IE		440721310	Thin plates and friezes for flooring, not assembled of Dark Red and Light Red Meranti, Meranti Bakau, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas.
BEX	IE		440721310	Thin plates and friezes for flooring, planed, not assembled of Dark Red and Light Red Meranti, Meranti Bakau, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas.
BEX	IE		440721390	Dark Red and Light Red Meranti, Meranti Bakau, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong, and Kempas, in the rough not represented under 440721.100 and 440721.310.

Country	Imp/Exp	SITC	HS	Description
BEX	IE		440721390	Dark Red and Light Red Meranti, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas, planed, not represented under 440721100 and 440721310.
BEX	IE		440721500	Dark Red and Light Red Meranti, Meranti Bakau, White Lauan, White Meranti, White Seraya, Yellow, Meranti, Alan, Keruing, Ramin, Kapur, Teak, Jonkong, Merbau, Jelutong and Kempas, pumiced, not represented under, 440721.100.
BEX	IE		440721500	Dark Red Meranti, Light Red Meranti, Meranti Bakau, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, Keruing, Ramin, Kapur, Teak, Jongkong, and Kempas, pumiced not represented under 440721.100.
BEX	IE		440721902	Dark Red Meranti, Light Red Meranti not represented under 440721.100 to 440721.500.
BEX	IE		440721902	Dark Red Meranti and Light Red Meranti, not represented under 440721.100 to 440721.500.
BEX	IE		440721909	Meranti Bakau, White, Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas not represented under 440721.100 to 440721.500.
BEX	IE		440721909	Meranti Bakau, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas, not represented under 440721.100 to 440721.500.
BEX	IE		440722100	Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé, glued with finger-joints.
BEX	IE		440722100	Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé, glued with finger-joints.
BEX	IE		440722310	Thin planes and friezes for flooring, planed, not assembled, Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé.

Country	Imp/Exp	SITC	HS	Description
BEX	IE		440722310	Thin plates and friezes for flooring, planed, not assembled of Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé.
BEX	IE		440722390	Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé, planed not represented under 440722.100 and 440722.310.
BEX	IE		440722390	Okoumé, Obeche, Sapelli, Sipo, Acajou D'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé, planed, not represented under 440722.100 and 440722.310.
BEX	IE		440722500	Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé, pumiced not represented under 440722.100.
BEX	IE		440722500	Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé, pumiced, not represented under 440722.100.
BEX	IE		440722902	Azobé, not represented under 440722.100 to 440722.500.
BEX	IE		440722902	Azobé, not represented under 440722.500.
BEX	IE		440722909	Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba, not represented under 440722.100 to 440722.500.
BEX	IE		440722909	Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Debetou, Limba, not represented under 440722.100 to 440722.500.
BEX	IE		440723100	Baboen, Mahogany, Imbuia and Balsa, glued with finger-joints.
BEX	IE		440723100	Baboen, Mahogany, Imbuia and Balsa, glued with finger-joints.
BEX	IE		440723300	Baboen, Mahogany, Imbuia and Balsa, planed, not represented under 440723.100.
BEX	IE		440723300	Baboen, Mahogany, Imbuia and Balsa, planed, not represented under 440722.100

Country	Imp/Exp	SITC	HS	Description
BEX	IE		440723500	Baboen, Mahogany, Imbuia and Balsa, pumiced, not represented under 440723.100.
BEX	IE		440723500	Baboen, Mahogany, Imbuia and Balsa, pumiced, not represented under 440723.100.
BEX	IE		440723900	Baboen, Mahogany, Imbuia and Balsa, not represented under 440723.100 to 440723.500.
BEX	IE		440723900	Baboen, Mahogany, Imbuia and Balsa, not represented uner 440723.100 to 440723.500.
BEX	IE		440791100	Oak glued with finger-joints.
BEX	IE		440799990	Other wood, not represented under 440710100 to 440799930.
BEX	IE		440820100	Dark Red and Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil, Bois du Rose Femelle, glued with finger-joints.
BEX	IE		440820300	Dark Red and Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil and Bois de Rose Femelle, planed not represented under 440820.100.
BEX	IE		440820300	Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil et Bois de Rose Femelle, planed, not represented under 440820.100.
BEX	IE		440820500	Dark Red and Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil and Bois de Rose Femelle, pumiced, not represented under 440820.100.
BEX	IE		440820500	Dark Red and Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil and Bois de Rose Femelle, pumiced, not represented under 440820.100.
BEX	IE		440820910	Dark Red and Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil, and Bois de Rose Femelle, not represented under 440820.100 to 440820.500.

Country	Imp/Exp	SITC	HS	Description
BEX	IE		440820990	Dark Red and Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil, and Bois de Rose Femelle, not represented under 440720.100 to 440820.500 of a thickness > 1 mm.
BEX	IE		440820990	Dark Red and Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil, and Bois de Rose Femelle, not represented under 440820.100 to 440820.500 of a thickness > 1 mm.
BN	I	2479000	4403300	Pit props, poles, piling posts and other wood in the rough.
BN	I	2483100	4405200	Wood sawn over 5mm thick, non-coniferous.
BN	I	2481000	4407000	Railway sleepers of wood.
BN	I	2483200	4413200	Blocks, planed, tongued, grooved etc, of non-coniferous.
CA	E		440721	Lumber of Meranti Red (Light & Dark), Meranti Bakau, White Lauan etc.
CA	E		440722	Lumber of Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré etc.
CA	E		440723	Lumber of Baboen, Mahogany (*Swietenia* spp.) Imbuia and Balsa.
CH	I		44032099	Other tropical wood in the rough.
CH	I		44033100	Dark Red Meranti, Light Red Meranti, Meranti Bakau.
CH	I		44033300	Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong, Kempas.
CH	I		44033400	Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko.
CH	I		44033500	Tiama, Mansonia, Ilomba, Dibétou, Limba, Azobé.
CH	I		44071090	Other tropical wood (excluding 4403.31/33).
CH	I		44072190	Other tropical wood (excluding 4403.34/35).

Country	Imp/Exp	SITC	HS	Description
CH	I		44072290	Baboen, Mahogany, Imbuia, Balsa.
CH	I		44082000	Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil, Bois de Rose Femelle.
CI	E		440301	Logs of Aboudikrou.
CI	E		440302	Logs of Acajou.
CI	E		440303	Logs of Avodiré.
CI	E		440304	Logs of Bossé.
CI	E		440305	Logs of Sipo.
CI	E		440306	Logs of Dibétou.
CI	E		440307	Logs of Iroko.
CI	E		440308	Logs of Makoré.
CI	E		440309	Logs of Tiama.
CI	E		440310	Logs of Niangon.
CI	E		440311	Logs of Samba.
CI	E		440312	Logs of Bété.
CI	E		440313	Logs of Framire.
CI	E		440314	Logs of Lengue.
CI	E		440315	Logs of Ilomba.
CI	E		440316	Logs of Frake.
CI	E		440317	Logs of Assamela.
CI	E		440319	Logs of Fromager.
CI	E		440320	Logs of Aningueri.
CI	E		440321	Logs of Kossipo.
CI	E		440322	Logs of Amazakoue.
CI	E		440323	Logs of Ako.
CI	E		440324	Logs of Koto.

Country	Imp/Exp	SITC	HS	Description
CI	E		440325	Logs of Azobé.
CI	E		440326	Logs of Badi.
CI	E		440327	Logs of Kotibe.
CI	E		440328	Logs of Aiele.
CI	E		440329	Logs of Akossika.
CI	E		440330	Logs of Ba.
CI	E		440331	Logs of Bahia.
CI	E		440332	Logs of Bi.
CI	E		440333	Logs of Dabema.
CI	E		440334	Logs of Difou.
CI	E		440335	Logs of Emeri.
CI	E		440336	Logs of Faro.
CI	E		440337	Logs of Latandza.
CI	E		440338	Logs of Kekele.
CI	E		440341	Logs of Lotofa.
CI	E		440342	Logs of Melegba.
CI	E		440343	Logs of Movingui.
CI	E		440344	Logs of Pocouli.
CI	E		440345	Logs of Podo.
CI	E		440346	Logs of Tali.
CI	E		440347	Logs of Vaa.
CI	E		440360	Tropical wood.
CI	E		440379	Other wood.
CI	E		440390	Other dark woods.
CI	E		440402	Acajou, squared.
CI	E		440407	Iroko, squared.
CI	E		440460	Sheets of other tropical wood.

Country	Imp/Exp	SITC	HS	Description
CI	E		440490	Other wood simply squared.
CI	E		440501	Aboudikrou as wood wool/flour.
CI	E		440502	Acajou as wood wool/flour.
CI	E		440504	Bossé as wood wool/flour.
CI	E		440505	Sipo as wood wool/flour.
CI	E		440506	Dibétou as wood wool/flour.
CI	E		440507	Iroko as wood wool/flour.
CI	E		440508	Makoré as wood wool/flour.
CI	E		440509	Tiama as wood wool/flour.
CI	E		440510	Niangon as wood wool/flour.
CI	E		440512	Bété as wood wool/flour.
CI	E		440513	Framire as wood wool/flour.
CI	E		440516	Frake as wood wool/flour.
CI	E		440518	Essessang as wood wool/flour.
CI	E		440520	Aningueri as wood wool/flour.
CI	E		440522	Amazakoue as wood wool/flour.
CI	E		440523	Ako as wood wool/flour.
CI	E		440524	Koto as wood wool/flour.
CI	E		440526	Badi as wood wool/flour.
CI	E		440527	Kotibe as wood wool/flour.
CI	E		440531	Bahia as wood wool/flour.
CI	E		440535	Emien as wood wool/flour.
CI	E		440539	Kondroti as wood wool/flour.
CI	E		440543	Movingui as wood wool/flour.
CI	E		440549	Other sheets of tropical wood.
CI	E		440551	Aboudikrou, Assapela, Acajou.
CI	E		440559	Other wood sawn in portions.

Country	Imp/Exp	SITC	HS	Description
CI	E		440561	Aboudikrou, Assamela, Acajou.
CI	E		440569	Other woods sawn, stripped.
CI	E		440590	Other wood sawn simply.
CI	E		440947	Vaa in the rough.
CM	E	24272		Sawn veneer logs, non-coniferous.
CM	E	24721		In the rough.
CM	E	248		Wood shaped sleepers.
CM	E	2481		Railway sleepers.
CM	E	2483		Lumber shaped, non-coniferous.
CM	E	24831		Lumber sawn, etc, non-coniferous.
CN	I	2472		Sawn veneer logs, non-coniferous.
CY	I		44121100	Plywood cast solely of sheets of wood, each ply =< 6mm thickness, with at least one outer ply of Dark Red Meranti, Light Red Meranti, White Lauan, etc.
CY	I		44033100	Dark Red Meranti, Light Red Meranti and Meranti Bakau wood in the rough (ext treated).
CY	I		44033410	Okoumé wood in the rough, exc treated.
CY	I		44072139	Dark Red, Light Red and Bakau Meranti, White Lauan, White Meranti, sawn or chipped lengthwise, sliced or peeled of a thickness > 6mm, planed.
CY	I		44072190	Dark Red, Light Red and Bakau Meranti, White Lauan, White Meranti etc, sawn or peeled, of a thickness > 6mm (exc 4407.21-10 to 4407.21-50).
CY	I		44072239	Okoumé, Obeche, Sapelli, Sipo, Acajou D'Afrique, Makoré, Iroko, etc planed, sawn or chipped lengthwise, sliced or peeled (exc 4407.22-10 and 4407.22-31).
CY	I		44072290	Okoumé, Obeche, Sapelli, Sipo, Acajou D'Afrique, etc sawn or chipped lengthwise, sliced or peeled, of a thickness, > 6mm (exc 4407.22-10 to 4407.22-50).

Country	Imp/Exp	SITC	HS	Description
CY	I		44072390	Baboen, Mahogany, Imbuia and Balsa, sawn or chipped lengthwise, sliced or peeled, of a thickness > 6mm, (exc 4407.23-10-4407.23-50).
CY	I		44082030	Veneer sheets and sheets for plywood and other wood sawn lengthwise, sliced or peeled, of Dark Red Meranti etc planed, of a thickness =< 6mm (exc 4408.20-10).
CY	I		44082091	Veneer sheets and sheets for plywood and other wood sawn lengthwise, sliced or peeled, of Meranti etc of a thickness < 1mm (exc 4408.20-10 to 4408.20-50).
CY	I		44082099	Veneer sheets and sheets for plywood and other wood sawn lengthwise, sliced or peeled, of Meranti etc of a thickness > 1mm (exc 4408.20-10 to 4408.20-50).
DE	I		440331000	Dark Red Meranti.
DE	I		440332000	White Lauan, Meranti.
DE	I		440333000	Keruing, Ramin, Kapur.
DE	I		440334100	Okoumé.
DE	I		440334300	Obeche.
DE	I		440334500	Sipo.
DE	I		440334700	Makoré.
DE	I		440334900	Sapelli, Acajou d'Afrique, Iroko.
DE	I		440335100	Limba.
DE	I		440335900	Tiama, Mansonia, Ilomba.
DE	I		440399902	Other tropical wood in the rough.
DE	I		440721100	Red Meranti.
DE	I		440721310	Red Meranti.
DE	I		440721390	Red Meranti.
DE	I		440721500	Red Meranti.
DE	I		440721900	Dark Red Meranti.
DE	I		440722100	Okoumé.

Country	Imp/Exp	SITC	HS	Description
DE	I		440722310	Okoumé.
DE	I		440722390	Okoumé.
DE	I		440722500	Okoumé.
DE	I		440722900	Okoumé.
DE	I		440799992	Other tropical wood, serrated along the edge, of a thickness > 6 mm.
DE	I		440799999	Other wood, serrated along the edge, of a thickness > 6 mm.
DE	I		440820100	Tropical wood, serrated along the edge, wedge coated, of a thickness < 6 mm.
DE	I		440820300	Tropical wood, serrated along the edge, planed, of a thickness < 6 mm.
DE	I		440820500	Tropical wood serrated along the edge, sanded/smoothed, of a thickness < 6 mm.
DE	I		440820910	Strips of wood for inlaying, of a thickness < 1 mm.
DE	I		440820990	Strips of wood for inlaying, of a thickness > 1 mm.
DE	I		440890932	Other strips of wood for inlaying, of a thickness < 1 mm.
DE	I		440890992	Other strips of wood for inlaying, of a thickness > 1 mm.
DE	I		441211000	Plywood, laid out of a thickness < 6 mm.
DE	I		441212000	Plywood, laid out, of a thickness < 6 mm, deciduous wood.
DE	I		441219000	Plywood, laid out, and other wood of a thickness < 6 mm.
DZ	I	*M247		Other wood roughly squared.
DZ	I	*M24711		In the rough.
DZ	I	*M2472		Sawn veneer-logs non-coniferous.
DZ	I	*M24721		In the rough.

Country	Imp/Exp	SITC	HS	Description
EEC	I		44033100	Dark Red Meranti, Light Red Meranti and Meranti Bakau wood in the rough (excl treated).
EEC	E		44033100	Dark Red Meranti, Light Red Meranti and Meranti Bakau wood in the rough (excl treated).
EEC	E		44033200	White Lauan, White Meranti, White Seraya, Yellow Meranti and Alan wood in the rough (excl treated).
EEC	I		44033200	White Lauan, White Meranti, White Seraya, Yellow Meranti and Alan wood in the rough (excl treated).
EEC	I		44033300	Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas wood in the rough (excl treated).
EEC	E		44033300	Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas wood in the rough (excl treated).
EEC	E		44033410	Okoumé wood in the rough (excl treated).
EEC	I		44033410	Okoumé wood in the rough (excl treated).
EEC	I		44033430	Obeche wood in the rough (excl treated).
EEC	E		44033430	Obeche wood in the rough (excl treated).
EEC	I		44033450	Sipo wood in the rough (excl treated).
EEC	E		44033450	Sipo wood in the rough (excl treated).
EEC	E		44033470	Makoré wood in the rough (excl treated).
EEC	I		44033470	Makoré wood in the rough (excl treated).
EEC	E		44033490	Sapelli, Acajou d'Afrique and Iroko wood in the rough, (excl treated).
EEC	I		44033490	Sapelli, Acajou d'Afrique and Iroko wood in the rough (excl treated).
EEC	E		44033510	Limba wood in the rough (excl treated).
EEC	I		44033510	Limba wood in the rough (excl treated).
EEC	E		44033590	Tiama, Mansonia, Ilomba, Dibétou, and Azobé wood in the rough (excl treated).
EEC	I		44033590	Tiama, Mansonia, Ilomba, Dibétou and Azobé wood in the rough (excl treated).

Country	Imp/Exp	SITC	HS	Description
EEC	I		44039990	Wood in the rough (excl treated), (excl. 4403.20-00 to 4403.99-10).
EEC	I		44072110	Dark Red Meranti, Light Red Meranti, Meranti Bakau, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas sawn or chipped lengthwise, sliced or peeled, finger-jointed of a thickness > 6mm.
EEC	E		44072110	Dark Red Meranti, Light Red Meranti, Meranti Bakau, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas sawn or chipped lengthwise, sliced or peeled, finger-jointed, of a thickness > 6 mm.
EEC	E		44072130	Baboen, Mahogany, Imbuia and Balsa sawn or chipped lengthwise, sliced or peeled, planed, of a thickness > 6 mm (excl 440723-10).
EEC	E		44072131	Blocks, strips and friezes for parquet or wood block flooring, (not assembled) of planed Dark Red Meranti, Light Red Meranti, Meranti Bakau, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas sawn or chipped lengthwise, sliced or peeled, of a thickness > 6 mm.
EEC	I		44072131	Blocks, strips and friezes for parquet or wood block flooring (not assembled), of planed Dark Red Meranti, Light Red Meranti, Meranti Bakau, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas sawn or chipped lengthwise, sliced or peeled of a thickness > 6mm.
EEC	E		44072139	Dark Red Meranti, Light Red Meranti, Meranti Bakau, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, Keruing, Ramin, Kapur, Teak, Hongkong, Merbau, Jelutong and Kempas sawn or chipped lengthwise, sliced or peeled, of a thickness > 6 mm, planed (excl 440721-10 and 440721-31).
EEC	I		44072139	Dark Red Meranti, Light Red Meranti, Meranti Bakau, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas sawn or chipped lengthwise, sliced or peeled of a thickness > 6mm, planed (excl, 440721-10 and 440721-31).

Country	Imp/Exp	SITC	HS	Description
EEC	E		44072150	Dark Red Meranti, Light Red Meranti, Meranti Bakau, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas, sawn or chipped lengthwise, sliced or peeled, sanded, of a thickness > 6 mm (excl 440721-10).
EEC	I		44072150	Dark Red Meranti, Light Red Meranti, Meranti Bakau, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas, sawn or chipped lengthwise, sliced or peeled, sanded, of a thickness > 6mm (excl 440721-10).
EEC	E		44072190	Dark Red Meranti, Light Red Meranti, Meranti Bakau, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas, sawn or chipped lengthwise, sliced or peeled of a thickness > 6 mm excl, 440721-10 to 440721-50).
EEC	I		44072190	Dark Red Meranti, Light Red Meranti, Meranti Bakau, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, Keruing Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas, sawn or chipped lengthwise, sliced or peeled, of a thickness > 6mm (excl 440721-10 to 440721-50)
EEC	E		44072210	Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia Ilomba, Dibétou, Limba and Azobé, sawn or chipped lengthwise, sliced or peeled, finger-jointed, of a thickness > 6 mm.
EEC	I		44072210	Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique,, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé sawn or chipped lengthwise, sliced or peeled, finger-jointed of a thickness > 6mm.
EEC	I		44072231	Blocks, strips and friezes for parquet or wood block flooring not assembled or planed. Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé, of a thickness > 6mm.

Country	Imp/Exp	SITC	HS	Description
EEC	E		44072231	Blocks, strips and friezes for parquet or wood block flooring not assembled or planed, Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé, of a thickness > 6 mm.
EEC	E		44072239	Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé, planed, sawn or chipped lengthwise, sliced or peeled (excl 440722-10 and 440722-31).
EEC	I		44072239	Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba, and Azobé, planed, sawn or chipped lengthwise, sliced or peeled (excl 440722-10 and 440722-31).
EEC	I		44072250	Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé, sawn or chipped lengthwise, sliced or peeled, sanded, of a thickness > 6mm (excl 440722-10).
EEC	E		44072250	Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé, sawn or chipped lengthwise, sliced or peeled, sanded, of a thickness > 6 mm (excl 440722-10).
EEC	I		44072290	Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba, and Azobé, sawn or chipped lengthwise, sliced or peeled, of a thickness >6mm(excl 440722-50).
EEC	E		44072290	Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé, sawn or chipped lengthwise, sliced or peeled of a thickness > 6 mm (excl 440722-10 to 440722-50)
EEC	I		440723	Wood sawn or chipped lengthwise, sliced or peeled, of Baboen, Mahogany '*Swietenia* spp.', Imbuia and Balsa of a thickness exceeding 6mm.
EEC	I		44072310	Baboen, Mahogany, Imbuia and Balsa sawn or chipped lengthwise, sliced or peeled, finger-jointed, of a thickness > 6mm.

Country	Imp/Exp	SITC	HS	Description
EEC	E		44072310	Baboen, Mahogany, Imbuia and Balsa sawn or chipped lengthwise, sliced or peeled, finger-jointed, of a thickness > 6 mm.
EEC	I		44072330	Baboen, Mahogany, Imbuia and Balsa, sawn or chipped lengthwise, sliced or peeled, planed, of a thickness > 6mm (excl 440723-10).
EEC	I		44072350	Baboen, Mahogany, Imbuia, and Balsa sawn or chipped lengthwise, sliced or peeled, sanded of a thickness > 6mm (excl 440723-10).
EEC	E		44072350	Baboen, Mahogany, Imbuia and Balsa, sawn or chipped lengthwise, sliced or peeled, sanded of a thickness > 6 mm (excl 440723-10).
EEC	E		44072390	Baboen, Mahogany, Imbuia and Balsa, sawn or chipped lengthwise, sliced or peeled, of a thickness > 6 mm (excl 440723-10 to 440723-50).
EEC	I		44072390	Baboen, Mahogany, Imbuia and Balsa, sawn or chipped lengthwise, sliced or peeled of a thickness > 6mm (excl 440723-10 and 440723-50).
EEC	I		44082010	Veneer sheets and sheets for plywood and other wood sawn lengthwise, sliced or peeled, of Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil and Bois de Rose Femelle, finger-jointed, of a thickness = < 6 mm.
EEC	E		44082010	Veneer sheets and sheets for plywood and other wood sawn lengthwise, sliced or peeled, of Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany (*Swietenia* spp), Palissandre du Bresil and Bois de Rose Femelle of a thickness not exceeding 6 mm.
EEC	I		44082030	Veneer sheets and sheets for plywood and other wood sawn lengthwise, sliced or peeled, of Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil and Bois de Rose Femelle, planed, of a thickness = < 6 mm (excl 440820-10).

Country	Imp/Exp	SITC	HS	Description
EEC	E		44082030	Veneer sheets and sheets for plywood and other wood sawn lengthwise, sliced or peeled, of Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil and Bois de Rose Femelle, planed, of a thickness = < 6 mm (excl 440820-10).
EEC	I		44082050	Veneer sheets and sheets for plywood and other wood sawn lengthwise, sliced or peeled, of Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil, and Bois de Rose Femelle, sanded, of a thickness = < 6 mm (440820-10).
EEC	E		44082050	Veneer sheets and sheets for plywood and other wood sawn lengthwise, sliced or peeled, of Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil and Bois de Rose Femelle, planed, of a thickness = < 6 mm (excl 440820-10).
EEC	E		44082091	Veneer sheets and sheets for plywood and other wood sawn lengthwise, sliced or peeled, of Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil and Bois de Rose Femelle, of a thickness = < 1 mm (excl 440820-10 to 440820-50).
EEC	I		44082091	Veneer sheets and sheets for plywood and other wood sawn lengthwise, sliced or peeled, of Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil and Bois de Rose Femelle, of a thickness - > 1 mm (excl 440820-10 to 440820-50).
EEC	E		44082099	Veneer sheets and sheets for plywood and other wood sawn lengthwise, sliced or peeled, of Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil, and Bois de Rose Femelle, of a thickness > 1 mm (excl. 440820-10 to 440820-50).

Country	Imp/Exp	SITC	HS	Description
EEC	I		44082099	Veneer sheets and sheets for plywood and other wood sawn lengthwise, sliced or peeled, of Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil and Bois de Rose Femelle of a thickness > 1 mm (excl 440820-10 to 440820-50).
EEC	I		441211	Plywood consisting solely of sheets of wood each ply = < 6 mm thickness with at least one outer ply of Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil or Bois de Rose Femelle.
EEC	E		44121100	Plywood consisting solely of sheets of wood, each ply = < 6 mm thickness, with at least one outer ply of Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil, or Bois de Rose Femelle.
EEC	I		44121100	Plywood consisting solely of sheets of wood, each ply = < 6 mm thickness, with at least one outer ply of Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil or Bois de Rose Femelle.
EEC	E		44121200	Plywood consisting solely of sheets of wood, each ply = < 6 mm thickness, with at least one outer ply of non-coniferous wood (excl 4412.11-00)
EEC	I		44121200	Plywood consisting solely of sheets of wood, each ply = < 6 mm thickness, with at least one outer ply of non-coniferous wood (excl 4412.11-00)
EEC	E		44121900	Plywood consisting solely of sheets of wood, each ply = < 6 mm thickness, (excl 4412.11-00 and 4412.12-00)
EEC	I		44121900	Plywood consisting solely of sheets of wood, each ply = < 6 mm thickness (excl 4412.11-00 and 4412.12-00).
ES	IE		44033100200D	

Country	Imp/Exp	SITC	HS	Description
ES	IE		44033300100D	
ES	IE		44033300200B	
ES	IE		44033410100A	
ES	IE		44033430100G	
ES	IE		44033434200E	
ES	IE		44033450100B	
ES	IE		44033450200J	
ES	IE		44033470100H	
ES	IE		44033470200F	
ES	IE		44033490100D	
ES	IE		44033490200B	
ES	IE		44033510100J	
ES	IE		44033510200H	
ES	IE		44033590100C	
ES	IE		44033590200A	
ES	IE		44039990100F	
ES	IE		44039990200D	
ES	IE		44072139000A	
ES	IE		44072190100E	
ES	IE		44072190200C	
ES	IE		44072190300A	
ES	IE		44072210000C	
ES	IE		44072231000H	
ES	IE		44072239000J	
ES	IE		44072290100D	
ES	IE		44072290200B	
ES	IE		44072290300J	

Country	Imp/Exp	SITC	HS	Description
ES	IE		44072310000B	
ES	IE		44072390200A	
ES	IE		44072390300I	
ES	IE		44079993300E	
ES	IE		44079999200A	
ES	IE		44079999300I	
ES	IE		44079999400G	
ES	IE		44079999500D	
ES	IE		44082050000E	
ES	IE		44082091000F	
ES	IE		44082099000H	
ES	IE		44089093000I	
ES	IE		44089099000C	
ES	IE		44091010000E	
ES	IE		44092010000C	
ES	IE		44092099900H	
ES	IE		44111100000B	
ES	IE		44112100000J	
ES	IE		44113900000J	
ES	IE		44121100000A	
ES	IE		44121200000J	
ES	IE		44121900090D	
ES	IE		440334102001	
FI	IE		44033100	Dark Red Meranti, Light Red Meranti, Meranti Bakau.
FI	IE		44033300	Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong, Kempas.

Country	Imp/Exp	SITC	HS	Description
FI	IE		44033400	Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko.
FI	IE		44033500	Tiama, Mansonia, Ilomba, Dibétou, Limba, Azobé.
FI	IE		44072300	Baboen, Mahogany, Imbuia, Balsa.
FI	IE		44079990	Other
FI	IE		44082000	Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Pallissandre du Bresil and Bois de Rose Femelle.
FI	IE		44089010	Other
FI	IE		44089030	Teak
FI	IE		44089090	Other
FI	IE		4409	Long pieces of sanded, planed, finger-jointed wood.
FI	IE		44092090	Other
FI	IE		4412	Plywood, laminated sheets and similar types of laminates
FI	IE		44121100	Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil, Bois de Rose Femelle.
FI	IE		44121200	Other
FI	IE		44121900	Other
FI	IE		44122900	Other
FR	IE		440334700	Raw wood, Makoré.
FR	IE		440331000	Dark Red Meranti, Light Red Meranti and Meranti Bakau.
FR	IE		440332000	White Meranti, White Seraya.
FR	IE		440333000	Raw wood, Keruing, Ramin, Kapur, Teak, Merbau, Jelutong and Kempas.
FR	IE		440334300	Raw wood, Obeche.

Country	Imp/Exp	SITC	HS	Description
FR	IE		440334300	Raw wood, Okoumé.
FR	IE		440334500	Raw wood, Sipo.
FR	IE		440334900	Raw wood, Sapelli, Mahogany from Africa, Iroko.
FR	IE		440610000	Railway or tramway sleepers, (cross ties) of wood. Non-impregnated.
FR	IE		440721500	Wood sawn longitudinally, peeled, Dark Red Meranti, Light Red Meranti, Meranti Bakau, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong, Kempas.
FR	IE		440721901	Wood sawn or chipped lengthwise, sliced or peeled, not planed, sanded or finger-jointed, of a thickness not exceeding 6mm. Types, Dark Red Meranti, Light Red Meranti, Meranti Bakau, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, Keruing, Ramin, Kapur, Teak, Jonkgkong, Merbau, Jelutong, Kempas.
FR	IE		440721902	Meranti wood, sawn lengthwise, sliced or peeled, not planed, not exceeding 6mm.
FR	IE		440721909	Other woods, sawn lengthwise, sliced or peeled, not planed, not exceeding 6mm.
FR	IE		440722100	Wood sawn lengthwise, peeled or sawn, of Okoumé, Obeche, Sapelli, Sipo, Acajou, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé. Not planed, finger-jointed.
FR	IE		440722310	Thin for laying down, planed, of Okoumé, Obeche, Sappelli, Sipo, Acajou (African), Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé.
FR	IE		440722390	Wood sawn or chipped lengthwise, Okoumé, Obeche, Sapelli, Sipo, Acajou (African), Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé.
FR	IE		440722500	Wood sawn or chipped lengthwise, sliced or rolled, of Okoumé, Obeche, Sapelli, Sipo, Acajou (African), Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé.

Country	Imp/Exp	SITC	HS	Description
FR	IE		440722900	Wood sawn or chipped lengthwise sliced or rolled. Okoumé, Obeche, Sapelli, Sipo, Acajou (African), Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé.
FR	IE		440723300	Wood sawn or chipped lengthwise , sliced or peeled, planed. Mahogany, Baboen, Imbuia, Balsa. Not exceeding 6mm. thickness. (not including 4407.23-10).
FR	IE		440723500	Wood sawn or chipped lengthwise, sliced or peeled, planed. Mahogany, Baboen, Imbuia, Balsa. Not exceeding 6mm thickness. (not including 44072310).
FR	IE		440723900	Wood sawn or chipped lengthwise, sliced or peeled, planed. Mahogany, Baboen, Imbuia, Balsa. Not exceeding 6mm thickness. (not including 44072350).
FR	IE		440791100	Oak wood sawn or chipped lengthwise, sliced or peeled, planed. Finger- jointed, not exceeding a thickness of 6mm.
FR	IE		440791390	Oak wood, sawn or chipped lengthwise, sliced or peeled, planed. Finger-jointed, not exceeding a thickness of 6mm. (not including 44079110 or 44079131).
FR	IE		440799990	Wood sawn or chipped lengthwise, sliced or peeled, not exceeding a thickness of 6mm. (not including 44071010 to 44079993).
FR	IE		440820300	Veneer sheets and sheets of plywood, spliced. Dark and Light Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou (African), Sapelli, Baboen, Mahogany.
FR	IE		440820500	Veneer sheets and sheets for plywood, spliced. Dark and Light Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou (African), Sapelli, Baboen, Mahogany.
FR	IE		440820910	Veneer sheets and sheets for plywood, spliced. Dark and Light Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Obeche, Acajou (African), Sapelli, Baboen, Mahogany.
FR	IE		440820990	Veneer sheets and sheets for plywood, spliced. Dark and Light Meranti, white Lauan, Sipo, Limba, Okoumé, Obeche, Obeche, Acajou (African), Sapelli, Baboen, Mahogany.

Country	Imp/Exp	SITC	HS	Description
FR	IE		440890300	Veneer sheets and sheets for plywood, spliced. Planed, not exceeding 6mm thickness. (Not including 44081010 to 44089010). Other wood types.
FR	IE		440890950	Other woods, as veneer sheets and sheets for plywood, sliced or peeled, sawn lengthwise. Not exceeding a thickness of 6mm. (Not including 44081010 to 44089091)
FR	IE		440899910	Other woods, as coarse planks for the manufacture of pencils. Not exceeding a thickness of 6mm. (Not including 44081090).
FR	IE		440920100	Non-coniferous woods,including strips and friezes for parquet flooring, interior decorating and such like.
FR	IE		440920910	Non-coniferous woods, including strips and friezes for parquet floors, (not assembled), continuously shaped along any of it's edges or faces.
FR	IE		440920990	Non-coniferous woods (including strips and friezes for parquet flooring). Continuosly shaped (tongued, grooved, rebated, chamfered, V-jointed, beaded, moulded, rounded or the like along any of its edges or faces) (Not including 44091010 to 44092091).
FR	IE		441211000	Plywood consisting solely of sheets of wood, each ply not exceeding 6mm thickness. With at least one outer ply of the following tropical woods: Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajau (African), Sapelli, Baboen, Mahogany (*Swietenia* spp.), Palissandre (Brazilian).
FR	IE		441219000	Other, containing at least one outer ply of non-coniferous wood. (Each ply not exceeding 6mm). (Not including 44121100 and 44121200).
FR	IE		441229100	Other, plywood, veneered panels and similar laminated woods. (Not including 441221100 to 44122910).
FR	IE		442121000	Other, containing at least one layer of particle board. Not exceeding 6mm. (Other coniferous woods not including 44121100).
GA	E		44030100	Rough Abura.
GA	E		44030300	Rough African Acajou.

Country	Imp/Exp	SITC	HS	Description
GA	E		44030500	Rough Aiele.
GA	E		44030900	Rough Andoung.
GA	E		44031300	Rough Azobé.
GA	E		44031700	Rough Berlinia.
GA	E		44031900	Rough Bossé.
GA	E		44032100	Rough Bubinga.
GA	E		44032300	Rough Dabema.
GA	E		44032500	Rough Dibétou.
GA	E		44032700	Rough Douka.
GA	E		44032900	Rough Doussie.
GA	E		44033100	Rough Ebony.
GA	E		44033300	Rough Eyong.
GA	E		44033500	Rough Framire.
GA	E		44033700	Rough Fromager.
GA	E		44033900	Rough Igaganga.
GA	E		44034100	Rough Ilomba.
GA	E		44034300	Rough Iroko.
GA	E		44034500	Rough Izombe.
GA	E		44034700	Rough Kosipo.
GA	E		44034900	Rough Kotibe.
GA	E		44035300	Limba, first quality.
GA	E		44035500	Rough Makoré.
GA	E		44035700	Rough Moabi.
GA	E		44035900	Rough Movingui.
GA	E		44036100	Rough Mutenye.
GA	E		44036300	Rough Niangon.
GA	E		44036500	Rough Novie.

Country	Imp/Exp	SITC	HS	Description
GA	E		44036900	Rough Olon.
GA	E		44037100	Okoumé, first quality.
GA	E		44037300	Okoumé, second quality.
GA	E		44037400	Okoumé, rough, other qualities.
GA	E		44037700	Rough Ozigo.
GA	E		44037900	Rough Padauk.
GA	E		44038100	Pau Rosa, rough.
GA	E		44038300	Rough Sapelli.
GA	E		44038500	Rough Sipo.
GA	E		44038700	Rough Tchitola.
GA	E		44038900	Rough Tiama.
GA	E		44039100	Rough Tola.
GA	E		44039300	Rough Zingana.
GA	E		44039900	Other rough wood.
GA	E		44051900	Sawn Bossé.
GA	E		44052100	Sawn Bubinga.
GA	E		44052500	Sawn Dibétou.
GA	E		44052900	Sawn Doussie.
GA	E		44054500	Sawn Izombe.
GA	E		44055700	Sawn Moabi.
GA	E		44056300	Sawn Niangon.
GA	E		44057300	Okoumé, sawn, other qualities.
GA	E		44057400	Okoumé, second quality.
GA	E		44057700	Sawn Ozigo.
GA	E		44057900	Sawn Padouk.
GA	E		44059900	Other wood sawn.
GA	E		44140100	Veneered sheets of Okoumé.

Country	Imp/Exp	SITC	HS	Description
GA	E		44140900	Veneered sheets of other wood.
GB	I		440722500	Tropical hardwood sanded.
GB	E		440320009	Other wood, in the rough.
GB	E		440331000	Other tropical hardwood in the rough, Dark Red Meranti, Light Red Meranti, & Meranti Bakau.
GB	I		440331000	Other tropical hardwood in the rough, Dark Red Meranti, Light Red Meranti and Meranti Bakau
GB	E		440332000	Other tropical hardwood, White Lauan, White Meranti, White Seraya, Yellow Meranti & Alan.
GB	I		440332000	Other tropical hardwood, White Lauan, White Meranti, White Seraya, Yellow Meranti and Alan.
GB	E		440333000	Other tropical wood, Keruing, Ramin, Kapur, Teak, Jelutong, Merbau, Jongkong & Kempas.
GB	I		440333000	Other tropical wood, Keruing, Ramin, Jelutong and Kempas.
GB	I		440334000	Tropical wood in the rough.
GB	I		440334500	Tropial wood in the rough, Sipo.
GB	I		440334700	Tropical wood in the rough, Makoré.
GB	I		440334901	Tropical wood in the rough, Acajou D'Afrique.
GB	E		440334909	Other tropical hardwood in the rough.
GB	I		440334909	Other tropical hardwood in the rough.
GB	I		440335100	Tropical hardwood in the rough, Limba.
GB	I		440335900	Tropical hardwood in the rough, other.
GB	E		440335900	Tropical hardwood in the rough, other.
GB	E		440399901	Tropical hardwood in the rough not falling within 440331, 440332, 440333, 440334, or 440335.
GB	I		440399901	Tropical hardwood in the rough not falling within 440331, 440332, 440333, 440335 or 440335.
GB	I		440399909	Wood o/t tropical or coniferous, nes.

Country	Imp/Exp	SITC	HS	Description
GB	I		440721100	Tropical wood finger-jointed, whether or not planed or sanded, Dark Red Meranti, Light Red Meranti, Meranti Bakau etc.
GB	I		440721310	Tropical hardwood blocks, strips and friezes for parquet floors or wood block flooring not ass Meranti, Lauan, Keruing.
GB	E		440721310	Tropical hardwood blocks, strips & friezes for parquet or wood block flooring not ass Meranti, Lauan, Keruing.
GB	I		440721390	Tropical wood, planed, other.
GB	I		440721390	Tropical wood, planed, other.
GB	E		440721390	Tropical wood, planed, other.
GB	I		440721500	Tropical wood, sanded.
GB	I		440721901	Wood sawn lengthwise, tropical hardwood, Dark Red Meranti, Light Red Meranti, Meranti Bakau.
GB	E		440721901	Wood sawn lengthwise, tropical hardwood, Dark Red Meranti, Light Red Meranti, Meranti Bakau.
GB	I		440721901	Wood sawn lengthwise, tropical hardwood, Dark Red Meranti, Light Red Meranti, Meranti Bakau.
GB	I		440721903	Wood sawn lengthwise, tropical hardwood, White Lauan, White Meranti, White Seraya, Yellow Meranti.
GB	E		440721903	Wood sawn lengthwise, tropical hardwood, White Lauan, White Meranti, White Sereya, Yellow Meranti.
GB	I		440721905	Wood sawn lengthwise, tropical hardwood, Keruing.
GB	E		440721905	Wood sawn lengthwise tropical hardwood, Keruing.
GB	E		440721906	Wood sawn lengthwise tropical hardwood, Ramin.
GB	I		440721906	Wood sawn lengthwise, tropical hardwood, Ramin.
GB	E		440721907	Wood sawn lengthwise tropical hardwood Teak (*Tectona grandis*).

Country	Imp/Exp	SITC	HS	Description
GB	I		440721907	Wood sawn lengthwise, tropical hardwood Teak (*Tectona grandis*).
GB	E		440721909	Wood sawn lengthwise tropical hardwood other.
GB	I		440721909	Wood sawn lengthwise, tropical harwood other.
GB	I		440722100	Other tropical hardwood, Okoumé, Obeche etc, finger-jointed, whether or not planed or sanded.
GB	E		440722100	Other tropical hardwood, Okoumé, Obeche, etc, finger-jointed, whether or not sanded or planed.
GB	I		440722310	Tropical hardwood, blocks, strips and friezes for parquet or wood block flooring not incl. Okoumé, Obeche, etc.
GB	E		440722390	Tropical hardwoods, planed, tongued, grooved, etc.
GB	I		440722390	Tropical hardwood, planed, tongued, grooved etc.
GB	E		440722390	Tropical hardwoods, blocks, strips & friezes for parquet or wood block flooring not incl. Okoumé, Obeche etc.
GB	I		440722901	Wood sawn lengthwise, tropical hardwood, Obeche.
GB	E		440722901	Wood sawn lengthwise, hardwood, Obeche.
GB	E		440722903	Wood sawn lengthwise, tropical hardwood, Sapelli.
GB	I		440722903	Wood sawn lengthwise, tropical hardwood, Sapelli.
GB	I		440722905	Wood sawn lengthwise, tropical hardwood, Acajou d'Afrique.
GB	E		440722905	Wood sawn lengthwise, tropical hardwood, Acajou d'Afrique.
GB	E		440722907	Wood sawn lengthwise, tropical hardwood, Iroko.
GB	I		440722909	Wood sawn lengthwise, other tropical hardwoods.
GB	E		440723100	Tropical hardwood Baboen, Mahogany, etc, finger-jointed, whether or not planed or sanded.

Country	Imp/Exp	SITC	HS	Description
GB	I		440723100	Tropical hardwood, Baboen, Mahogany Mahogany, etc, finger-jointed, whether or not sanded or planed.
GB	E		440723300	Tropical hardwood Baboen, Mahogany, etc, planed.
GB	I		440723300	Tropical hardwood Baboen, Mahogany, etc, planed.
GB	I		440723500	Tropical hardwood Baboen, Mahogany, etc, sanded.
GB	E		440723500	Tropical hardwood, Baboen, Mahogany, etc, sanded.
GB	I		440723901	Wood sawn lengthwise, Mahogany.
GB	E		440723901	Wood sawn lengthwise, Mahogany.
GB	E		440723909	Wood sawn lengthwise, other tropical hardwood.
GB	I		440723909	Wood sawn lengthwise, other tropical hardwoods.
GB	E		440799993	Tropical hardwood not falling within hdg no. 440721, 440722, or 440723.
GB	I		440799993	Tropical hardwood not falling within hdg no.440721, 440722 or 440723.
GB	I		440820100	Tropical wood finger-jointed etc; Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba etc, other woods.
GB	E		440820100	Tropical wood, finger-jointed, etc, Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, etc, other wood.
GB	E		440820300	Tropical wood, planed, Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, other wood.
GB	I		440820300	Tropical wood planed, Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, other wood.
GB	I		440820500	Tropical wood sanded, Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, etc, other woods.
GB	E		440820910	Tropical wood of a thickness not exd 1mm, Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, etc.

Country	Imp/Exp	SITC	HS	Description
GB	I		440820910	Tropical wood of a thickness not exd 1mm, Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, etc.
GB	E		440820990	Tropical wood of a thickness exd 1mm, Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, etc.
GB	I		440820990	Tropical wood of a thickness exd 1mm Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, etc.
GB	E		440820990	Tropical wood of a thickness exd 1mm, Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, etc.
GB	I		440890999	Other wood nes.
GB	I		440920910	Blocks, strips & friezes for parquet or wood block flooring not ass non-coniferous.
GB	I		440920990	Other non-coniferous wood nes.
GB	I		440922907	Wood sawn lengthwise tropical hardwood, Iroko.
GB	I		441211000	Plywood solely of sheets of wood, nel 6mm thick at least one outer ply of Dark Red Meranti, Light Red Meranti, Limba etc.
GB	E		441211000	Plywood solely of sheets of wood, nel 6mm thick, at least one outer ply of Dark Red Meranti, Light Red Meranti, Limba etc.
GB	I		441212000	Plywood, solely sheets of wood nel 6mm thick, other, with at least one outer ply of non-coniferous wood.
GB	I		441219000	Plywood solely of sheets of thickness nel 6mm.
GB	I		441229901	Plywood with at least one outer ply of non-coniferous wood.
GB	I		441299901	Plywood nes.
GR	I		44033000	Wood in the rough.
GR	I		44036000	
GR	I		44037900	
GR	I		44039900	Other wood in the rough.
GR	I		44079000	

Country	Imp/Exp	SITC	HS	Description
GR	I		44099000	
GR	I		44121000	Plywood, veneered panels and similar laminated wood. Further description needed.
HK	I	247204		Teakwood in the rough or roughly squared (cu m).
HK	I	247205		Sandalwood in the rough or roughly squared (kg).
HK	I	247206		Decorative woods in the rough or roughly squared.
HK	I	247209		Non-coniferous logs in the rough or roughly squared (cu m).
HK	I	248304		Teakwood conversions and squares (cu m).
HK	I	248305		Sandalwood simply worked (kg)
HK	I	248306		Decorative woods nes simply worked (cu m).
HK	I	248309		Non-coniferous lumber simply worked nes (cu m).
ID	I		440310210	Wood in the rough, treated with paint, stains, Meranti .
ID	I		440310299	Wood in the rough, treated with paint, stains, other non-coniferous spp.
ID	I		440331000	Wood in the rough of Dark Red & Light Red Meranti, and Meranti Bakau.
ID	I		440333900	Wood in the rough, other wood.
ID	I		440334000	Wood in the rough, of Okoumé, Obeche, Sapelli, Sipo, African Acajou.
ID	I		44039990	Wood in the rough, other woods.
ID	E	2472200	4404900	Wood roughly squared or half of non-coniferous species.
ID	E	2482111	4405111	Agathis wood sawn lengthwise thickness >5mm.
ID	E	2483111	4405211	Meranti wood sawn lengthwise thickness >5mm.
ID	E	2483112	4405212	Ramin wood sawn lengthwise thickness >5mm.

Country	Imp/Exp	SITC	HS	Description
ID	E	2483113	4405213	Pulai group sawn lengthwise thickness >5mm.
ID	E	2483114	4405214	Kapur wood sawn lengthwise thickness >5mm.
ID	E	2483115	4405215	Keruing wood sawn lengthwise thickness >5mm.
ID	E	2483116	4405216	Matoa group sawn lengthwise thickness >5mm.
ID	E	2483117	4405217	Teak wood sawn lengthwise thickness >5mm.
ID	E	2483119	4405219	Other wood sawn lengthwise thickness >5mm of non-coniferous.
ID	I		440721910	Other sawn Meranti spp. sawn lengthwise but not planed.
ID	I		440799990	Other sawn tropical wood for other purposes.
ID	I		440890000	Veneer sheets of other wood.
ID	I		441211000	Plywood with at least one outer ply of tropical wood.
ID	I		441212900	Other plywood with outer ply of other non-coniferous wood.
ID	I		441219900	Other plywood with outer ply of other woods.
ID	I		441221000	Plywood with at least one outer ply of Teak.
ID	I		441299900	Other plywood.
ID	E	2483219	441391900	Other Teak wood not further worked for other purposes.
IE	I	24840		Non-coniferous wood, sawn lengthwise sliced or peeled over 6mm.
IN	I	2471100		Sawlogs and Veneer logs in rough Strips.
IN	I	2471209		Others of saw & veneer logs squared etc.
IN	I	2472108		Gurjan.
IN	I	2472113		Katha Cutch.
IN	I	2472131		Teak.
IN	I	2472149		Other Hardwood.
IN	I	2472209		Others.

Country	Imp/Exp	SITC	HS	Description
IN	I	2483106		Teak.
IN	I	2483109		Other Lumber.
IN	I	2483200		Wood non-coniferous spp. planed etc.
IN	E		44033301	Teak wood.
IN	E		440399	Other wood in the rough.
IN	E		44039913	Sandalwood (*Santalum album*).
IN	E		44039929	Other.
IN	E		44072101	Sawn/chipped Teak wood.
IN	E		44072109	Other tropical woods sawn or chipped.
IN	E		440820	Other tropical woods, Lauan, Sipo, Limba, Okoumé, Obeche, African Acajou, Sapelli, Baboen, Mahogany, Palissandre etc.
IN	E		44082009	Others.
IN	E		440890	Veneer sheets for plywood etc, of other wood.
IN	E		44089001	Sheets for plywood.
IN	E		44089009	Others.
IN	E		44092000	Non coniferous wood, continuously shaped.
IN	E		44092009	Others.
IN	E		44121101	Ply of tropical wood like Meranti, Lauan etc. Decorative plywood.
IN	E		44121109	Others.
IN	E		441212	Plywood consisting of sheets of wood thickness up to but not exceeding 6mm and at least one outer ply of non-coniferous wood.
IN	E		44121201	Decorative plywood.
IN	E		44121209	Others.
IN	E		441219	Other plywood consisting only of sheets of wood of a thickness not exceeding 6mm.
IN	E		44121901	Decorative plywood.
IN	E		44121909	Others.

Country	Imp/Exp	SITC	HS	Description
IT	IE		4403210	Tropical wood, in the rough, simply stripped, Okoumé.
IT	IE		4403220	Limba.
IT	IE		4403230	Obeche.
IT	E		4405310	Other wood, simply sawn, cut up to 5mm in thickness, tropical wood of Limba.
IT	E		4405330	Sipo.
IT	E		4405791	Ramin, other.
IT	E		4405793	Other.
JP	I		440331090	Wood in the rough, Dark Red Meranti, Light Red Meranti and Meranti Bakau, nes.
JP	I		440332090	Wood in the rough. White Lauan, White Meranti, White Seraya, Yellow Meranti and Alan nes.
JP	I		440333019	Wood in the rough Keruing and Kapur.
JP	I		440333091	Wood in the rough, Teak.
JP	I		440333099	Wood in the rough, Ramin, Jongkong, Merbau, Jelutong, and Kempas.
JP	I		440334000	Wood in the rough, Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré and Iroko.
JP	I		440335000	Wood in the rough, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé.
JP	I		440399290	Wood in the rough, of Dipterocarpaceae, nes.
JP	I		440399311	Wood in the rough, of Kwarin, Tsuga or boxwood, Tagayasan (*Cassia siamea*), Red Sandalwood, Rosewood or Ebony wood, excluding Ebony wood with white streaks, roughly squared or half-squared.
JP	I		440399319	Wood in the rough, of Kwarin, Tsuga or boxwood Tagayasan (*Cassia siamea*), Red Sandalwood, Rosewood or Ebony wood, excluding Ebony wood with white streaks.
JP	I		440399399	Wood in the rough, nes.

Country	Imp/Exp	SITC	HS	Description
JP	I		440721110	Wood sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6mm, of Teak, planed or sanded.
JP	I		440721190	Wood sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6mm, of Teak, nes.
JP	I		440721210	Wood sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6mm, of Dipterocarpaceae, planed or sanded.
JP	I		440721290	Wood sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6mm, of Dipterocarpaceae, nes.
JP	I		440721300	Wood sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6mm. Dark Red Meranti, Light Red Meranti, Meranti, Bakau, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, Keruing, Ramin, Kapur, Jongkong, Merbau, Jelutong and Kempas (excluding Teak and Dipterocarpaceae.
JP	I		440722000	Wood sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6mm, Okoumé, Obeche, Sapelli, Sipo, Acajou D'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé.
JP	I		440723000	Wood sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6mm. Baboen, Mahogany (*Swietenia* spp), Imbuia and Balsa.
JP	I		440799110	Wood sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6mm, of Kwarin, Tsuga or Boxwood, Tagayasan (*Cassia siamea*), Red Sandalwood, Rosewood, or Ebony wood, planed or sanded.
JP	I		440799190	Wood sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6mm, of Kwarin, Tsuga, or Boxwood, Tagayasan (*Cassia siamea*), Red Sandalwood, Rosewood, or Ebonywood, nes.
JP	I		440799310	Wood sawn or chipped lengthwise, sliced or peeled, of thickness exceeding 6mm, of Dipterocarpaceae, planed or sanded.
JP	I		440799390	Wood sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6mm of Dipterocarpaceae, nes.

Country	Imp/Exp	SITC	HS	Description
JP	I		440820010	Sheets for plywood, Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil and Bois de Rose Femelle.
JP	I		440820090	Veneer sheets and other wood sawn lengthwise, sliced or peeled, of a thickness not exceeding 6mm, Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou D'Afrique, Sapelli, Baboen, Mahogany, Palissandre du Bresil, and Bois de Rose Femelle.
JP	I		440890100	Veneer sheets and sheets for plywood and other wood sawn lengthwise, sliced or peeled, of a thickness not exceeding 6mm, of Kwarin, Tsuga or boxwood, Tagayasan (*Cassia siamea*), Red Sandalwood, Rosewood or Ebony wood.
JP	I		440890200	Veneer sheets and sheets for plywood and other wood sawn lengthwise, sliced or peeled, of a thickness not exceeding 6mm, of Teak.
JP	I		440890300	Veneer sheets and sheets for plywood and other wood sawn lengthwise, sliced or peeled, of a thickness not exceeding 6mm, of Jelutong, not more than 20cm in length and not more than 8cm in width.
JP	I		440920310	Wood continuously shaped (tongued, grooved, rebated, chamfered, V-jointed, beaded, moulded, rounded or the like) along any of its edges or faces, of Kwarin, Tsuga or boxwood, Tagayasan (*Cassia siamea*), Red Sandalwood, Rosewood or Ebony wood.
JP	I		440920330	Wood continuously shaped (tongued, grooved, rebated, chamfered, V-jointed, moulded rounded or the like) along any of its edges or faces, of Dipterocarpaceae.
JP	I		441211019	Plywood with at least one outer ply of tropical woods, varnished, printed, or similarly surface-worked, nes.
JP	I		441211021	Plywood with at least one outer ply of tropical woods, less than 3mm in thickness nes.
JP	I		441211022	Plywood with at least one outer ply of tropical woods, less than 6mm but not less than 3mm in thickness nes.
JP	I		441211023	Plywood with at least one outer ply of tropical woods, less than 12mm but not less than 6mm in

Country	Imp/Exp	SITC	HS	Description
				thickness, nes.
JP	I		441211024	Plywood with at least one outer ply of tropical woods, less than 15mm but not less than 12 mm in thickness.
JP	I		441211029	Plywood with at least one outer ply of tropical woods, not less than 15mm in thickness, nes.
KE	I	248310		Wood of non-coniferous species sawn lengthwise sliced or peeled, but not further prepared, of thickness >5mm.
KE	I	248320		Wood including blocks, strips & friezes for parquet flooring of non-coniferous spp.
KR	I	24731	4403101000	Tropical Woods.
KR	I	24732	4403102000	Teak, Baryxglum, Rufun, Bombay, Blackwood, Rosewood, Ebony wood, Hickory, Mahogany, (*Swietenia* spp.), Balsa, Ash, Walnut.
KR	I	24739		Other.
KR	I	2475111		Dark Red Meranti.
KR	I	2475112		Light Red Meranti.
KR	I	2475113		Meranti Bakau.
KR	I	2475121		White Lauan.
KR	I	2475122		White Meranti.
KR	I	2475123		White Seraya.
KR	I	2475124		Yellow Meranti.
KR	I	2475131		Teak.
KR	I	2475132		Keruing.
KR	I	2475134		Kapur.
KR	I	2475135		Jongkong.
KR	I	2475137		Jelutong.
KR	I	2475138		Kempas.
KR	I	2475141		Okoumé.

Country	Imp/Exp	SITC	HS	Description
KR	I	2475142		Obeche.
KR	I	2475143		Sapelli.
KR	I	2475144		Sipo.
KR	I	2475145		Acajou d'Afrique.
KR	I	2475152		Mansonia.
KR	I	2475291A		Rosewood.
KR	I	2475291B		Ebony wood.
KR	I	2475291Z		Other.
KR	I	2475299A		Tropical woods, not specified in the foregoing.
KR	I	2475299Z		Other.
KR	I	248411		Dark Red Meranti, Light Red Meranti, and Meranti Bakau.
KR	I	248412		White Lauan, White Meranti, White Seraya, Yellow Meranti, and Alan.
KR	I	248413		Keruing, Ramin, Kapur, Jongkong, Merbau, Jelutong and Kempas.
KR	I	248414		Teak.
KR	I	2484911		Rosewood.
KR	I	2484912		Ebony wood.
KR	I	2484919		Other.
KR	I	2484991		Tropical Woods, not specified in the foregoing.
KR	I	2484999		Other.
KR	I	2485		Non-coniferous.
KR	I	6341211		Dark Red Meranti and Light Red Meranti.
KR	I	6341212		White Lauan.
KR	I	6341213		Okoumé, Obeche, Sapelli, Sipo, and Acajou d'Afrique.
KR	I	6341291A		Teak.
KR	I	6341291B		Rosewood.

Country	Imp/Exp	SITC	HS	Description
KR	I	6341291C		Ebony wood.
KR	I	6341291Z		Other.
KR	I	6341299A		Tropical Woods, not specified in the foregoing.
KR	I	6341299Z		Other.
LK	E		4407	Wood sawn lengthwise, sliced, exd, 5mm, other.
LK	E		4414	Wood sawn lengthwise.
LK	E		4417	Improved wood, in sheets, blocks, or the like.
LK	E		44030	Wood in the rough, other.
LK	I		44048	Odd not futher manufactured-other.
LK	E		44048	Wood, roughly or half squared, but not manufactured, other.
LK	I		44058	Wood sawn lengthwise-other.
LK	E		44058	Wood sawn lengthwise, sliced, exd, 5mm, other.
LK	E		44138	Wood, planed, tongued, manufactured, other.
LK	E		44156	Plywood, Blackwood, etc; - other
MA	I		440349	Wood in the rough, with circumference less than 60cm.
MA	I		440352	Okoumé.
MA	I		440361	Acajou.
MA	I		440369	Wood from other trees.
MA	I		440390	Miscellaneous, rough wood.
MA	I		440549	Other wood >5mm.
MA	I		440562	Acajou sawn to more than 5mm.
MA	I		440790	Other irregular wood, injected.
MA	I		441490	Other woods as frames for paintings, photos and similar.

Country	Imp/Exp	SITC	HS	Description
MB	E	247		Other wood in the rough or roughly squared.
MB	E	24721000		Other sawlogs & veneer logs, non-con, in the rough.
MB	E	24811900		Railway or tramway sleepers of wood, standard grade- other.
MB	E	24812900		Railway or tramway sleepers of wood, select grade - other.
MK	E	247 group total		Other wood in the rough or roughly squared.
MK	E	24711200		Sawlogs & veneer logs of coniferous species in the rough - Bindang.
MK	E	24721000		Other sawlogs & veneer logs, non-coniferous, in the rough.
MK	E	24831800		Wood, non-coniferous, sawn lengthwise, but not further prepared, of a thickness exceeding 5mm - other.
MK	I	24831800		Wood non-coniferous, sawn, lengthwise, but not further prepared, of a thickness exceeding 5mm - Ramin
MK	E	24831883		Wood, non-coniferous, sawn lengthwise, but not further prepared, of a thickness exceeding 5mm - Ramin.
MK	I	24832110		Teak for parquet or wood block flooring.
MK	I	24832910		Wood, non-coniferous, excl, Teak, planed, tongued, grooved, etc, for parquet or wood block flooring.
MK	E	24832910		Wood, non-coniferous, excl, Teak, planed, tongued, grooved, etc, for parquet or wood block flooring.
MK	E	24832990		Wood, non-coniferous, excl, Teak, planed, tongued, grooved, etc. not for parquet or wood block flooring.
MK	I	24832990		Wood, non-coniferous, excl Teak, planed, tongued, grooved etc, not for parquet or wood block flooring.
MO	I		44010001	Fuel woods, in logs, in billets, in twigs, in faggots or similar forms.

Country	Imp/Exp	SITC	HS	Description
MO	I		44030302	Wood in the rough, pulped.
MO	I		44030359	Wood in the rough.
MO	I		44040001	Hoopwood; split poles; piles, pickets and stakes of wood, pointed but not sawn lengthwise; wooden sticks, roughly trimmed but not turned, bent or otherwise worked, suitable for the manufacture of walking sticks, umbrellas and the like.
MO	I		44050159	Wood sawn lengthwise, >75mm length, <25mm width.
MO	I		44050259	Wood sawn lengthwise, >75mm length, >25mm width.
MO	I		44130101	Densified wood, in blocks, plates, strips or profile shapes.
MY	E	24721000	4403309	Other sawlogs & veneer logs, non-coniferous, in the rough.
MY	E	24721083	4403383	Sawlogs & veneer logs, non-coniferous, in the rough - Ramin.
MY	E	24722100	4404811	Other sawlogs & veneer logs, non-coniferous roughly squared or half-squared.
MY	E	24722200	4404901	Other baulks roughly, non-coniferous, roughly squared or half-squared.
MY	E	24831100	4405554	Wood, non-coniferous, sawn.
MY	E	24831200	4405610	Wood, non-coniferous, sawn lengthwise, sliced or peeled of a thickness >5mm - cross arms.
MY	E	24831300	4405781	Wood, non-coniferous, sawn lengthwise sliced or peeled, of a thickness >5mm - wagon planks.
MY	E	24831800	4405816	Wood non-coniferous, sawn lengthwise, but not further prepared, of a thickness >5mm - other.
MY	E	24831883	4405883	Wood non-coniferous, sawn lengthwise, but not further prepared, of a thickness >5mm - Ramin.
MY	E	24831900	4405994	Wood, non-coniferous, sliced or peeled, but not further prepared, of a thickness >5mm.
MY	E		440710140	Damar Minyak.
MY	E	24811100	4407111	Railway or tramway sleepers of wood, standard grade - Kempas.

Country	Imp/Exp	SITC	HS	Description
MY	E	24811300	4407113	Railway or tramway sleepers of wood, standard grade - Kapor.
MY	E	24811900	4407199	Railway or tramway sleepers of wood, standard grade - Other.
MY	E		440721141	Dark Red Meranti.
MY	E		440721142	Light Red Meranti.
MY	E		440721143	Meranti Bakau.
MY	E		440721242	White Meranti.
MY	E		440721341	Yellow Meranti.
MY	E		440721344	Keruing.
MY	E		440721441	Melawis (Ramin).
MY	E		440721442	Kapur.
MY	E		440721542	Merbau.
MY	E		440721543	Jelutong.
MY	E		440721640	Kempas.
MY	E	24812300	4407613	Railway or tramway sleepers of wood, select grade - Kapor.
MY	E	24812900	4407619	Railway or tramway sleepers of wood, select grade - Other.
MY	E		440799401	Balau.
MY	E		440799402	Red Balau.
MY	E		440799404	Bitis.
MY	E		440799405	Chengal.
MY	E		440799406	Giam.
MY	E		440799407	Kekatong.
MY	E		440799408	Keranji.
MY	E		440799412	Resak (Keladan).
MY	E		440799413	Tembusu.
MY	E		440799414	Mixed heavy hardwood.

Country	Imp/Exp	SITC	HS	Description
MY	E		440799415	Others - heavy hardwood.
MY	E		440799417	Derum.
MY	E		440799421	Kasai.
MY	E		440799423	Kelat.
MY	E		440799424	Keledang.
MY	E		440799426	Kulim.
MY	E		440799427	Mata Ulat.
MY	E		440799429	Mengkulang.
MY	E		440799431	Merawan.
MY	E		440799433	Merpauh.
MY	E		440799438	Petaling.
MY	E		440799439	Punah.
MY	E		440799441	Rengas.
MY	E		440799444	Simpoh.
MY	E		440799446	Tualang.
MY	E		440799448	Mixed medium hardwood.
MY	E		440799449	Others.
MY	E		440799457	Bintangor.
MY	E		440799460	Durian (Punggai).
MY	E		440799462	Geronggang.
MY	E		440799463	Gerutu.
MY	E		440799464	Kedondong.
MY	E		440799466	Kembang Semangkok.
MY	E		440799471	Machang.
MY	E		440799473	Medang.
MY	E		440799474	Melantai.
MY	E		440799475	Melunak.

Country	Imp/Exp	SITC	HS	Description
MY	E		440799476	Mempisang.
MY	E		440799478	Mersawa.
MY	E		440799479	Nyatoh.
MY	E		440799482	Penarahan.
MY	E		440799483	Perupok.
MY	E		440799484	Petai.
MY	E		440799485	Pulai.
MY	E		440799486	Rubberwood.
MY	E		440799489	Sepetir.
MY	E		440799490	Sesendok.
MY	E		440799492	Terentang.
MY	E		440799493	Red Meranti.
MY	E		440799494	Mixed light hardwood.
MY	E		440799495	Others.
MY	E		440799497	Redwood.
MY	E	24832110	4413910	Teak for parquet or wood block flooring.
MY	E	24832190	4413920	Teak other than for parquet or wood block flooring.
MY	E	24832910	4413930	Wood, non-coniferous, excl. Teak, planed tongued etc for parquet or wood block flooring.
MY	E	24832990	4413990	Wood, non-coniferous, excl. Teak, planed, tongued etc not for parquet flooring.
NL	IE		440331000	Dark Red and Light Red Meranti, Meranti Bakau, in the rough.
NL	IE		440332000	White Lauan, White and Yellow Meranti, White Seraya and Alan, in the rough.
NL	IE		440333000	Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas, in the rough.
NL	IE		440334100	Okoumé, in the rough.
NL	IE		440334300	Obeche, in the rough.

Country	Imp/Exp	SITC	HS	Description
NL	IE		440334500	Sipo, in the rough.
NL	IE		440334700	Makoré, in the rough.
NL	IE		440334900	Sapelli, Acajou d'Afrique and Iroko, in the rough.
NL	IE		440335902	Azobé, in the rough.
NL	IE		440335909	Tiama, Mansonia, Ilomba, Dibétou and Azobé, in the rough.
NL	IE		440399900	Other wood, in the rough.
NL	IE		440420000	Hoopwood for fence pickets, palings & rails, walking sticks etc.
NL	IE		440721100	Dark Red, Light Red, White and Yellow Meranti, Meranti Bakau, White Lauan, White Seraya, Alan, Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong, and Kempas, finger-jointed, of a thickness more than 6 mm.
NL	IE		440721310	Planks for floors, planed of Dark Red, Light Red, White and Yellow Meranti, Meranti Bakau, White Lauan, White Seraya, Alan, Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas, of a thickness more than 6 mm.
NL	IE		440721390	Other Dark Red, Light Red, White and Yellow Meranti, Meranti Bakau, White Lauan, White Seraya, Alan, Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas, planed, of a thickness more than 6 mm.
NL	IE		440721500	Other Dark Red and Light Red White and Yellow Meranti, Meranti Bakau, White Lauan, White Seraya, Alan Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas, sanded, of a thickness more than 6 mm.
NL	IE		440721902	Other Dark Red and Light Red Meranti, continuously sawn of a thickness more than 6 mm.
NL	IE		440721909	Other White and Yellow Meranti, Meranti Bakau, White Lauan, White Seraya, Alan, Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas, continuously sawn of a thickness more than 6 mm.

Country	Imp/Exp	SITC	HS	Description
NL	IE		440722100	Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé, finger-jointed of a thickness more than 6 mm.
NL	IE		440722310	Planks for floors, planed, of Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé, of a thickness more than 6 mm.
NL	IE		440722390	Other Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé, planed of a thickness more than 6 mm.
NL	IE		440722500	Other Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé, sanded of a thickness more than 6 mm.
NL	IE		440722902	Other Azobé, continuously sawn of a thickness more than 6 mm.
NL	IE		440722909	Other Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou and Limba, continuously sawn of a thickness more than 6 mm.
NL	IE		440723100	Baboen, Mahogany, Imbuia and Balsa, finger-jointed, >6mm.
NL	IE		440723500	Baboen, Mahogany, Imbuia and Balsa, sanded, >6mm.
NL	IE		440723900	Baboen, Mahogany, Imbuia and Balsa, sawn lengthwise, >6mm.
NL	IE		440799990	Other wood sawn lengthwise >6mm.
NL	IE		440820300	Dark and Light Red Meranti, White Lauan, Sipo, LImba, Okoumé, Obeche, Acajou (African), Sapelli, Baboen, Mahogany, Palissandre from Brazil, planed <6mm.
NL	IE		440820910	Dark Red and Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou (African), Sapelli, Baboen, Mahogany, Palissandre from Brazil, sawn lengthwise >1mm.

Country	Imp/Exp	SITC	HS	Description
NL	IE		440820990	Dark Red and Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou (African), Sapelli, Baboen, Mahogany, Palissandre from Brazil, sawn lengthwise >1mm but <6mm.
NL	IE		440920990	Other wood at least one side moulded.
NL	IE		441211002	Plywood, with ply <6mm, at least one outer ply of Okoumé.
NL	IE		441212009	Other plywood, <6mm, with at least one layer of other wood, excluding Beech, Birch, and Pinewood.
NO	IE		44033100	
NO	IE		44033200	
NO	IE		44033400	
NO	IE		44072100	
NO	IE		44082090	
NO	IE		44091020	
NO	IE		44092090	
NO	IE		44121101	
NO	IE		44121109	
NO	IE		44129900	
NZ	IER		4403100000	Wood, Dark Red Meranti, Light Red Meranti, Meranti Bakau, in the rough, whether or not stripped of bark or sapwood, or roughly squared, untreated.
NZ	I		4403100039	Wood, non-coniferous spp. in the rough, whether or not stripped of bark or sapwood, paint, stains, creosote or other preservatives.
NZ	I		4403100049	Wood, roughly squared, whether or not stripped of bark or sapwood, treated with paint, stains, creosote, or other preservatives.

Country	Imp/Exp	SITC	HS	Description
NZ	IER		4403100490	Wood, roughly squared, whether or not stripped of bark or sapwood, treated with paint, stains, creosote or other preservatives, excl. *Pinus radiata.*
NZ	IER		4403330000	Wood, Keruing, Ramin, Kapur, Teak, Jelutong, Merbau, Jonkong & Kempas, in the rough, whether or not stripped of bark or sapwood, or roughly squared, untreated.
NZ	IER		4403340000	Wood, Okoumé, Obeche, Sapelli, Sipo, Acajau D'Afrique, Makoré, Iroko, in the rough, whether or not stripped of bark or sapwood, or roughly squared, untreated.
NZ	IER		4403990000	Wood, in the rough, whether or not stripped of bark or sapwood, or roughly squared, untreated, n.n.s. in heading no.4403.
NZ	IER		4407201090	Wood, Okoumé, Obeche, Sapelli, Sipo, Makoré, Iroko, Tiama, Dibétou, Ilomba, Mansonia, Limba, Azobé, sawn or chipped lengthwise, sliced or peeled, thicker than 6mm, planed, not square dressed, structural.
NZ	IER		4407210101	Wood, Meranti, Lauan, Seraya, Alan, Keruing, Ramin, Kapur, Jelutong, Teak, Jonkong, Merbau, Kempas, sawn or chipped lengthwise, sliced or peeled, thicker than 6mm, planed, square dressed, structural.
NZ	IER		4407210109	Wood, Meranti, Lauan, Seraya, Alan, Keruing, Ramin, Kapur, Jelutong, Teak, Jonkong, Merbau, Kempas, sawn or chipped lengthwise, sliced or peeled, thicker than 6mm, planed, not square dressed, structural.
NZ	IER		4407211900	Wood, Meranti, Lauan, Seraya, Alan, Keruing, Ramin, Kapur, Jelutong, Teak, Jonkong, Merbau, Kempas, sawn or chipped lengthwise, sliced or peeled, thicker than 6mm, not planed, sanded or finger-jointed.
NZ	IER		4407221900	Wood, Okoumé, Obeche, Sapelli, Sipo, Makoré, Iroko, Tiama, Dibétou, Ilomba, Mansonia, Limba, Azobé, sawn or chipped lengthwise, sliced or peeled, thicker than 6mm, not planed, square dressed, structural.
NZ	IER		4407230101	Wood, Baboen, Mahogany (*Swietenia* spp.). Imbuia and Balsa, sawn or chipped lengthwise, sliced or peeled, thicker than 6mm, planed not square dressed, structural.

Country	Imp/Exp	SITC	HS	Description
NZ	IER		4407231900	Wood, Baboen, Mahogany (*Swietenia* spp.) Imbuia and Balsa, sawn or chipped lengthwise, sliced or peeled, thicker than 6mm not planed, sanded or finger-jointed.
NZ	IER		4407994100	Wood, sawn or chipped lengthwise sliced or peeled, thicker than 6mm, planed not square dressed or structural, n.e.s. in heading no.4407
NZ	IER		4407994101	Wood, sawn or chipped lengthwise sliced or peeled, thicker than 6mm, planed, square dressed, structural, n.e.s. in heading no.4407.
NZ	IER		4408200100	Wood, Meranti, Lauan, Sipo, Limba, Okoumé, Sapelli, Mahogany, Baboen, Palissandre, Rose wood: veneer or plywood sheets, other wood sawn lengthwise, sliced or peeled, 6mm or less thick, planed.
NZ	I		4408200901	Wood, Meranti, Lauan, Sipo, Limba, Okoumé, Sapelli, Mahogany, Baboen, Palissandre, Rose wood: veneer or plywood sheets, other wood sawn lengthwise, not thicker than 1mm, not planed, rotary.
NZ	IER		4408200909	Wood, Meranti, Lauan, Sipo, Okoumé, Sapelli, Mahogany, Baboen, Palissandre, rose wood, veneer or plywood sheets, other wood sawn lengthwise, not thicker than 1mm, not planed, sliced.
NZ	I		4408200911	Wood, Meranti, Lauan, Sipo, Okoumé, Obeche, Sapelli, Mahogany, Baboen, Palissandre, Rose wood, veneer or plywood sheets, other wood sawn lengthwise, over 1mm but not 6mm thick, unplaned, rotary.
NZ	I		4408200919	Wood, Meranti, Lauan, Sipo, Limba, Okoumé, Obeche, Sapelli, Mahogany, Baboen, Palissandre, Rose wood, veneer or plywood sheets, other wood sawn lengthwise, over 1mm but not 6mm thick, unplaned sliced.
NZ	I		4408900100	Wood, tropical hardwoods n.e.s. in item no. 440820 sheets for veneer or plywood, other wood sawn lengthwise, sliced or peeled, not thicker than 6mm, planed, whether or not sanded or finger-jointed.
NZ	I		4408900901	Wood, tropical hardwoods, n.e.s. in item no. 440820, sheets for veneer or plywood, other wood sawn lengthwise, sliced or peeled, not thicker than 1mm, not planed, rotary.

Country	Imp/Exp	SITC	HS	Description
NZ	I		4408900909	Wood, tropical hardwood, n.e.s. in item no. 440820, sheets for veneer or plywood, other wood sawn lengthwise, not thicker than 1mm, not planed, sliced.
NZ	I		4408900911	Wood, tropical hardwoods n.e.s. in item no.440820, sheets for veneer or plywood, other woods sawn lengthwise, sliced or peeled, exceeding 1mm but not 6mm in thickness, not planed, rotary.
NZ	I		4408900919	Wood, tropical hardwood n.e.s. in item no. 440820, sheets for veneer or plywood, other wood sawn lengthwise, exceeding 1mm but not 6mm in thickness, not planed, sliced.
NZ	I		4408902109	Wood, spp. n.e.s. in heading no. 4408 sheets for veneer or plywood, other wood sawn lengthwise, sliced or peeled, not thicker than 6mm, planed.
NZ	I		4408902901	Wood, spp. n.e.s. in heading no. 4408 sheets for veneer or plywood, other wood sawn lengthwise, sliced or peeled, not thicker than 1mm, not planed, rotary.
NZ	I		4408902909	Wood, spp. n.e.s. in heading no. 4408 sheets for veneer or plywood, other wood, sawn lengthwise, not thicker than 1mm, not planed, rotary.
NZ	I		4408902911	Wood, spp. n.e.s. in heading no. 4408 sheets for veneer or plywood, other woods, sawn lengthwise, exceeding a thickness of 1mm but not 6mm. Not planed, rotary.
NZ	I		4408902919	Wood, spp. n.e.s. in heading no. 4408 sheets for veneer or plywood, other woods sawn lengthwise exceeding 1mm but not 6mm in thickness. not planed, sliced.
NZ	IER		4409200900	Wood, non-coniferous (including unassembled strips and freizes for parquet flooring) whether or not planed, sanded or finger-jointed, drawn wood.
NZ	IER		4409201000	Wood, non-coniferous (including unassembled strips and friezes for parquet flooring), continuously shaped along any face or edge, whether or not planed, sanded or finger jointed, drawn wood.

Country	Imp/Exp	SITC	HS	Description
NZ	IER		4409201909	Wood, non-coniferous, excluding Beech (including strips and friezes for parquet flooring), continuously shaped along any face, edge, planed or not, sanded or finger-jointed, square dressed, structural.
NZ	IER		4409201919	Wood, non-coniferous, excluding Beech (including strips, friezes for parquet flooring), continuously shaped along any face, edge, planed or not, sanded, finger-jointed, not square dressed or structural.
NZ	IER		4412110001	Plywood, consisting solely of sheets wood, with at least one outer ply of tropical wood item no. 44082 each ply not exceeding 6mm thickness, overlaid, including veneered.
NZ	IER		4412110003	Wood, plywood, consisting solely of sheets of wood, with at least one outer ply of tropical wood of item no. 44082 each ply not exceeding 6mm thickness, other than overlaid or veneered.
NZ	IER		4412120001	Plywood, consisting solely of sheets of wood, with at least one outer ply of non-coniferous wood n.e.s. in item no. 441211, overlaid, including veneered.
NZ	IER		4412120009	Plywood, consisting solely of sheets of wood, with at least one outer ply of non-coniferous wood n.e.s. in item no. 441211 each ply not exceeding 6mm thickness, other than overlaid or veneered.
NZ	IER		4412190001	Plywood, consisting solely of sheets of wood, with at least one outer ply of wood n.e.s. in item no. 441211 & 441212 not including veneered.
NZ	IER		4412190009	Plywood, consisting solely of sheets of wood, with at least one outer ply of wood n.e.s. in item no. 4412 & 441212 not exceeding 6mm thickness, other than overlaid or veneered.
OM	I		44033000	Tropical wood, in the rough, whether or no stripped of bark or sapwood, or roughly squared but not treated with paint, stains, creosote or other preservative.
PH	E	247.21		Sawlogs and veneer logs, of non-coniferous species, in the rough, whether or not stripped of their bark or merely roughed down.

Country	Imp/Exp	SITC	HS	Description
PH	E	247.21-19		Other sawlogs and veneer logs, non-coniferous, in the rough.
PH	E	248.31		Wood of non-coniferous species, sawn lengthwise, sliced or peeled, but not further prepared, of a thickness exceeding 5mm.
PH	E	248.31-01		Almond (cu dm).
PH	E	248.31-03		"Apitong" (cu dm).
PH	E	248.31-04		"Kalantas" (cu dm).
PH	E	248.31-05		"Dao" (cu dm).
PH	E	248.31-08		"Lauan", red (cu dm).
PH	E	248.31-09		"Lauan", White (cu dm).
PH	E	248.31-13		"Nara", (cu dm).
PH	E	248.31-14		" Palosapis" (cu dm).
PH	E	248.31-15		"Yakal" (cu dm).
PH	E	248.31-16		"Tangile" (cu dm).
PH	E	248.31-17		"Bagtican" (cu dm).
PH	E	248.31-21		"Mayapis" (cu dm).
PH	E	248.31-29		Other non-coniferous, sawn lengthwise, sliced or peeled, of a thickness exceeding 5mm (cu dm).
PH	E	248.32		Wood of non-coniferous species (incl blocks, strips, etc.) planed, tongued, grooved, rebated, chamfered, V-jointed, center v-jointed etc, but not further manufactured.
PH	E	248.32-03		"Apitong" (cu dm).
PH	E	248.32-08		"Lauan", Red (cu dm).
PH	E	248.32-09		"Lauan", White (cu dm).
PH	E	248.32-13		"Narra" (cu dm).
PH	E	248.32-15		"Yakal" (cu dm).
PH	E	248.32-16		"Tangile" (cu dm).
PH	E	248.32-29		Other non-coniferous wood, planed, tongued, grooved, etc (cu dm).

Country	Imp/Exp	SITC	HS	Description
PK	I	2472100		Saw/Veneer log, Non-coniferous rough cm.
PK	I	2472206		Teak rough squared.
PK	I	2483101		Teak wood sawn sliced/peeled cm.
PK	I	2483109		Non-coniferous wood sliced peeled NSCM.
PK	I	2483201		Teakwood blocks strips friezed cm.
PT	I		440331000	
PT	I		440331903	
PT	I		440334100	
PT	I		440334500	
PT	I		440334700	
PT	I		440334901	
PT	E		440334903	
PT	E		440334905	
PT	I		440334905	
PT	I		440335900	
PT	E		440335900	
PT	I		440399909	
PT	E		440399909	
PT	I		440721310	
PT	I		440721900	
PT	E		440721900	
PT	E		440722900	
PT	I		440722900	
PT	E		440723900	
PT	I		440723900	
PT	E		440799300	
PT	I		440799300	

Country	Imp/Exp	SITC	HS	Description
PT	I		440799999	
PT	E		440799999	
PT	I		440820300	
PT	E		440820910	
PT	I		440820990	
PT	I		440821910	
PT	I		440920910	
PT	E		440920910	
PT	I		440920990	
PT	E		440920990	
PT	E		441211000	
PT	I		441211000	
SA	I		44030400	
SA	I		44030501	
SA	I		44030502	
SA	I		44040100	
SA	I		44040200	
SA	I		44050100	
SA	I		44050200	
SE	I		4403330	
SE	E		4403330	
SE	I		4403340	
SE	I		4404200	
SE	E		4407210	
SE	I		4407210	
SE	E		4407220	

Country	Imp/Exp	SITC	HS	Description
SE	I		4407230	
SE	E		4407230	
SE	I		4407990	
SE	E		4407990	
SE	I		4408200	
SE	E		4408200	
SE	E		4408900	
SE	I		4408900	
SE	E		4409202	
SE	I		4409202	
SE	I		4409209	
SE	E		4409209	
SE	E		4412110	
SE	I		4412110	
SE	E		4412121	
SE	E		4412122	
SE	I		4412122	
SE	I		4412129	
SE	I		4412191	
SE	E		4412191	
SE	E		4412199	
SE	I		4412199	
SG	IE	2475000	440331009	Other wood in the rough.
SG	IE	2484100	440721109	Wood sawn over 6mm thick, Jelutong.
SG	IE	2484200	440721202	Wood sawn over 6mm thick, Kapur.
SG	IE	2484300	440721304	Wood sawn over 6mm thick, Kempas.
SG	IE	2484400	440721406	Wood sawn over 6mm thick, Keruing.

Country	Imp/Exp	SITC	HS	Description
SG	IE	2484500	440721519	Wood sawn over 6mm thick, Meranti.
SG	IE	2484600	440721601	Wood sawn over 6mm thick, Ramin.
SG	IE	2484700	440721703	Wood sawn over 6mm thick, Teak.
SG	IE	2484990	440721907	Wood sawn over 6mm thick, other. hardwood.
SG	IE	2484910	440799107	Wood sawn over 6mm thick, Balau.
SG	IE	2484920	440799209	Wood sawn over 6mm thick, Chengal.
SG	IE	2484930	440799302	Wood sawn over 6mm thick, Mengkulang.
SG	IE	2484940	440799404	Wood sawn over 6mm thick, mixed light hardwood.
SG	IE	2485110	440920118	Strips and friezes for parquet flooring of Teak.
SG	IE	2485190	440920197	Strips and friezes for parquet flooring of other non-coniferous wood.
TH	E		4403100008	Wood in the rough, whether or not stripped or bark or sapwood, or roughly squared, treated with paint, stains, creosote or other preservatives.
TH	E		4403310900	Dark Red Meranti and Meranti Bakau in the rough, whether or not stripped of bark or sapwood or roughly squared.
TH	I		4403320003	White Lauan, White Meranti, White Seraya, Yellow Meranti and Alan in the rough, whether or not stripped or bark or sapwood or roughly squared.
TH	I		4403330105	Teak in the rough, whether or not stripped of bark or sapwood or roughly squared.
TH	I		4403330206	Keruing (yang) in the rough, whether or not stripped of bark or sapwood or roughly squared.
TH	I		4403330902	Ramin, Kapur, Jongkong, Merbau, Jelutong and Kempas in the rough, whether or not stripped or bark or sapwood or roughly squared.
TH	I		4403990026	Ching-chan or Ket-Daeng in the rough, whether or not stripped of bark or sapwood or roughly squared.
TH	I		4403990039	Krabak in the rough, whether or not stripped of bark or sapwood or roughly squared.

Country	Imp/Exp	SITC	HS	Description
TH	I		4403990041	Teng and Rang in the rough, whether or not stripped of bark or sapwood or roughly squared.
TH	E		4403990041	Teng and Rang in the rough, whether or not stripped of bark or sapwood or roughly squared.
TH	I		4403990054	Takien in the rough, whether or not stripped of bark or sapwood or roughly squared.
TH	I		4403990074	Para-rubber in the rough, whether or not stripped of bark or sapwood or roughly squared.
TH	I		4403990909	Other woods in the rough, whether or not stripped of bark or sapwood or roughly squared.
TH	E		4403990909	Other woods in the rough, whether or not stripped of bark or sapwood or roughly squared.
TH	E		4404200005	Hoopwood, split poles, piles, pickets and stakes of wood, pointed but not sawn lengthwise, wooden sticks, roughly trimmed but not turned, bent or otherwise worked, suitable for the manufacture of walking-sticks, umbrellas, tool handles or the like; chipwood and the like, of non-coniferous.
TH	E		4407219113	Teak, planks, sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6mm.
TH	I		4407219113	Teak, planks, sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6mm.
TH	E		4407219126	Teak, boards sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6mm.
TH	E		4407219139	Teak, scantlings, sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6mm.
TH	I		4407219139	Teak, scantlings, sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6mm.
TH	E		4407219141	Teak, decks, sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6mm.
TH	E		4407219195	Other Teak sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6mm.
TH	I		4407219195	Other Teak sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6mm.
TH	I		4407219201	Keruing (yang) sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6mm.

Country	Imp/Exp	SITC	HS	Description
TH	E		4407219201	Keruing (yang) sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6mm.
TH	I		4407219908	Other wood sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6mm.
TH	E		4407219908	Other wood sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6mm.
TH	I		4407229000	Wood sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6mm, of Okoumé, Obeche, Sapelli, Sipo, Acajou D'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé.
TH	E		4407999025	Wood, sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 6mm of Ching-Chan or Ket-Daeng.
TH	E		4407999040	Wood sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 5mm of Teng and Rang.
TH	E		4407999079	Wood sawn or chipped lengthwise, sliced or peeled, of a thickness exceeding 5mm of para-rubber.
TH	I		4408900100	Teak veneer sheets, sheets for plywood (whether or not spliced) sawn lengthwise, sliced or peeled, whether or not planed, sanded or finger-jointed, of a thickness not exceeding 6mm.
TH	E		4408900100	Teak veneer sheets, sheets for plywood (whether or not spliced) sawn lengthwise, sliced or peeled, whether or not planed, sanded or finger-jointed, of a thickness not exceeding 6mm.
TH	E		4408900908	Veneer sheets, sheets for plywood (whether or not spliced) sawn lengthwise, sliced or peeled, whether or not planed, sanded or finger-jointed, of a thickness not exceeding 6mm of other wood.
TH	E		4409200198	Other Teak continuously shaped along any of its edges or faces. Whether or not planed, sanded or finger-jointed.
TH	E		4409200204	Pra-du continuously shaped along any of its edges or faces, whether or not planed, sanded or finger-jointed.
TH	E		4409200305	Other non-coniferous wood continuously shaped along any of is edges or faces, whether or not planed, sanded, or finger-jointed.

Country	Imp/Exp	SITC	HS	Description
TR	I		440312	Other mature wood in the rough.
TR	I		440338	Teak.
TR	I		440340	Maun.
TR	I		440341	Balsam Tree.
TR	I		440349	Other mature wood in the rough.
TR	I		440364	Other broad leaved trees.
TR	I		440429	Other broad leaved trees.
TR	I		440569	Other.
TW	I		44031000101	Rubber wood in the rough, whether or not stripped of bark or sapwood, or roughly squared, treat with preservatives.
TW	I		44031000904	Other wood in the rough, whether or not stripped of bark or sapwood, or roughly squared, treat with paint, stains, creosote or other preservatives.
TW	E		44032	Other wood in the rough, whether or not stripped of bark or sapwood, or roughly squared, treated with paint, stains, creosote or other preservatives.
TW	I		44032010009	Scented and fragrant wood in the rough, whether or not stripped of bark or sapwood, or roughly squared.
TW	I		44033100008	Dark Red Meranti, Light Red Meranti, and Meranti Bakau wood in rough, whether or not stripped of bark or sapwood or roughly squared.
TW	E		44033100008	Dark Red Meranti, Light Red Meranti, and Meranti Bakau wood in the rough, whether or not stripped of bark or sapwood, or roughly squared.
TW	I		44033200007	White Lauan, White Meranti, White Seraya, Yellow Meranti and Alan Wood in the rough, whether or not stripped of bark or sapwood, or roughly squared bark or sapwood, or roughly squared.
TW	E		44033200007	White Lauan, White Meranti, White Seraya, Yellow Meranti and Alan wood in the rough, whether or not stripped of bark or sapwood, or

Country	Imp/Exp	SITC	HS	Description
				roughly squared.
TW	E		44033300006	Keruing, Ramin, Kapur, Teak, Jonkong, Merbau, Jelutong and Kempas, wood in the rough, whether or not stripped of bark or sapwood, or roughly squared.
TW	I		44033300006	Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong and Kempas, wood in the rough, whether or not stripped of bark or sapwood or roughly squared.
TW	I		44033400005	Okoumé, Obeche, Sapelli, Sipo, Acajou D'Afrique, Makoré and Iroko wood in the rough, whether or not stripped of bark or sapwood or roughly squared.
TW	I		44033500004	Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé, wood in the rough, whether or not stripped of bark or sapwood, or roughly squared.
TW	I		44039911004	Garoowood wood in the rough, whether or not stripped of bark or sapwood or roughly squared.
TW	I		44039912003	Sandalwood wood in the rough, whether or not stripped of bark or sapwood, or roughly squared.
TW	I		44039919006	Other non-coniferous scented and fragrant wood in the rough whether or not stripped of bark or sapwood, or roughly squared.
TW	I		44039990106	Malacca Albizia wood in the rough, whether or not stripped of bark or sapwood or roughly squared.
TW	I		44039990204	Pulpwood in the round, non-coniferous.
TW	E		44039990906	Other non-coniferous, scented and fragrant, wood in the rough, whether or not stripped of bark or sapwood, or roughly squared.
TW	I		44039990909	Other wood in the rough non-coniferous whether or not stripped of bark or sapwood, or roughly squared.
TW	E		44039990909	Other wood in the rough, non- coniferous, whether or not stripped of bark or sapwood, or roughly squared.
TW	I		44071010007	Scented and fragrant wood sawn or chipped lengthwise, sliced or peeled whether or not planed, sanded or finger-jointed, of a thickness exceeding 6mm.

Country	Imp/Exp	SITC	HS	Description
TW	E		44071300004	Baboen, Mahogany (*Swietenia* spp.) Imbuia and Balsa wood sawn or chipped lengthwise, sliced or peeled, whether or not planed, sande or finger jointed, of a thickness exceeding 6mm.
TW	I		44072100104	Dark Red Meranti, Light Red Meranti, Meranti Bakau, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan wood sawn or chipped, lengthwise, sliced or peeled whether or not planed sanded or finger-jointed, or a thickness exceeding 6mm.
TW	E		44072100104	Dark Red Meranti, Light Red Meranti, Meranti Bakau, White Lauan, White Meranti, White Seraya, Yellow Meranti, Alan, wood sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or finger-jointed. Of a thickness not exceeding 6mm.
TW	I		44072100202	Keruing wood sawn or chipped lengthwise sliced or peeled, whether or not planed sanded or finger-jointed, of a thickness exceeding 6mm.
TW	I		44072100300	Ramin wood sawn or chipped lengthwise sliced or peeled, whether of not planed sanded or finger-jointed, of a thickness exceeding 6mm.
TW	E		44072100300	Ramin wood sawn or chipped lengthwise, sliced or peeled, whether or not planed sanded or finger-jointed, of a thickness exceeding 6mm.
TW	I		44072100408	Teak wood sawn or chipped lengthwise sliced or peeled, whether or not planed sanded or finger-jointed of a thickness exceeding 6mm.
TW	E		44072100408	Teak wood sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or finger-jointed, of a thickness exceeding 6mm.
TW	I		44072100505	Kapur, Jongkong, Merbau, Jelutong and Kempas wood sawn or chipped lengthwise sliced or peeled, whether or not planed sanded or finger-jointed of a thickness exceeding 6mm.
TW	E		44072100505	Kapur, Jonkong, Merbau, Jelutong and Kempas wood, sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or finger-jointed, of a thickness exceeding 6mm.

Country	Imp/Exp	SITC	HS	Description
TW	I		44072200005	Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé Wood sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or finger-jointed, of a thickness exceeding 6mm.
TW	I		44072300004	Baboen, Mahogany (*Swietenia* spp.) Imbuia and Balsa wood sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or finger-jointed, , of a thickness exceeding 6mm.
TW	I		44079911000	Garoowood, wood sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or finger-jointed, of a thickness exceeding 6mm.
TW	I		44079912009	Sandalwood, wood sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or finger-jointed, of a thickness exceeding 6mm.
TW	I		44079919002	Scented and fragrant, other non-coniferous wood sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or finger-jointed, of a thickness exceeding 6mm.
TW	E		44079919002	Scented and fragrant, other non- coniferous wood sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or finger jointed, of a thickness exceeding 6mm.
TW	I		44079990004	Other non-coniferous wood sawn or chipped lengthwise, sliced or peeled whether or not planed, sanded or finger-jointed of a thickness exceeding 6mm.
TW	I		44082000006	Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany (*Swietenia* spp.) Palissandre du Bresil and Bois de Rose Femelle, veneer sheets and sheets for plywood (whether or not splices) and other wood sawn lengthwise, sliced or peeled, whether or not planed, sanded or finger-jointed, of a thickness not exceeding 6mm.
TW	E		44082000006	Dark, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany (*Swietenia* spp.), Palissandre from Brazil, Rosewood sheets for plywood, (whether or not splices), and other woods sawn lengthwise, sliced or peeled, whether or not planed sanded or finger-jointed, of a thickness not exceeding 6mm.

Country	Imp/Exp	SITC	HS	Description
TW	I		44089000001	Other veneer sheets and sheets for plywood (whether or not spliced) and other wood sawn lengthwise, sliced or peeled, whether or not planed, sanded or finger-jointed, of a thickness not exceeding 6mm.
TW	E		44089000001	Other veneer sheets and sheets for plywood (whether or not spliced), and other wood sawn lengthwise, sliced or peeled, whether or not planed sanded or finger-jointed, of a thickness not exceeding 6mm.
TW	I		44092000005	Non-coniferous wood (including strips and friezes for parquet flooring, not assembled) continuously shaped (tongued, grooved, rebated, chamfered, v-jointed, beaded, moulded, rounded or the like) along any of its edges or faces, whether or not planed, sanded or finger-jointed.
TW	E		44092000005	Non-coniferous wood (including strips and friezes for parquet flooring, not assembled), continuously shaped (tongued, grooved, rebated, chamfered, V-jointed, beaded, moulded, rounded or the like), along any of its faces or edges, whether or not planed, sanded or finger-jointed.
TW	E		44099990004	Other non-coniferous wood sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or finger jointed, of a thickness exceeding 6mm.
TW	I		44121110107	Dark Red Meranti, Light Red Meranti, White Lauan, unfinished plywood, each ply not exceeding 6mm thickness.
TW	E		44121110107	Dark and Light Red Meranti, White Lauan, unfinished plywood, each ply not exceeding 6mm thickness.
TW	I		44121110900	Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany (*Swietenia* spp.) Palissandre du Bresil or Bois de Rose Femelle, unfinished plywood, each ply not exceeding 6mm thickness.
TW	E		44121110900	Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany (*Swietenia* spp.), Palissandre from Brasil, Rosewood, unfinished plywood, each ply not exceeding 6mm.

Country	Imp/Exp	SITC	HS	Description
TW	I		44121120007	Processed plywood with at least one outer ply of the following tropical wood. Dark Red Meranti, Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou d'Afrique, Sapelli, Baboen, Mahogany (*Swietenia* spp.) Pallisandre du Bresil or Bois de Rose Femelle, each ply not exceeding 6mm thickness.
TW	E		44121120007	Processed plywood with at least one outer ply of tropical wood, Dark & Light Red Meranti, White Lauan, Sipo, Limba, Okoumé, Obeche, Acajou D'Afrique, Sapelli, Baboen, Mahogany, Palissandre from Brasil, Rosewood, each ply not exceeding 6mm.
TW	E		44121210008	Unfinished plywood, with at least one outer ply of non coniferous wood, each ply not exceeding 6mm thickness.
TW	E		44121220006	Processed plywood, with at least one outer ply of non coniferous wood each ply not exceeding 6mm thickness.
TW	E		44122100107	Dark & Light Red Meranti, White Lauan, unfinished plywood, at least one layer of particle board, each ply exceeding 6mm thickness.
TW	E		44122900109	Dark & Light Red Meranti, White Lauan, unfinished plywood, each ply exceeding 6mm.
US	I		4403310000	Dark Red Meranti, Light Red Meranti and Meranti Bakau wood in the rough whether or not stripped of bark or sapwood, or roughly squared, not treated.
US	I		4403320000	White Lauan, White Meranti, White Seraya, Yellow Meranti and Alan wood in the rough, whether or not stripped of bark or sapwood or roughly squared, not treated.
US	I		4403330000	Keruing, Ramin, Kapur, Teak, Jongkong, Merbau, Jelutong, and Kempas wood in the rough whether or not stripped of bark or sapwood or roughly squared, not treated.
US	I		4403340000	Okoumé, Obeche, Sipo, Acajou d'Afrique, Makoré and Iroko wood in the rough whether or not stripped of bark or sapwood or rougly squared, not treated.

Country	Imp/Exp	SITC	HS	Description
US	I		4403350000	Tiama, Mansonia, Ilomba, Dibétou, Limba and Azobé wood, in the rough, whether or not stripped of bark or sapwood, or roughly squared, not treated.
US	I		4403990090	Non-coniferous wood, Nesoi, in the rough, whether or not stripped of bark or sapwood, or roughly squared, not treated.
US	I		440399070	Walnut (*Juglans* spp.) wood in the rough, whether or not stripped of bark or sapwood, or roughly squared, not treated.
US	I		4407210005	Teak (*Tectona grandis*) wood sawn or chipped lengthwise, sliced or peeled, whether planed, sanded, finger-jointed, thickness over 6 mm, rough.
US	I		4407210010	Teak wood, Nesoi, sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or finger-jointed, thickness over 6 mm, Nesoi.
US	I		4407210025	Keruing wood sawn or chipped lengthwise, sliced or peeled, whether planed, sanded, finger-jointed, thickness over 6 mm, rough.
US	I		4407210030	Keruing wood, sawn or chipped lenthwise, sliced or peeled, whether or not planed, sanded or finger-jointed, thickness over 6 mm Nesoi.
US	I		4407210090	Dark Red, Light Red, White, Yellow Meranti, Meranti Bakau, White Lauan, White Seraya, Alan Ramin, Kapur, Jongkong, Merbau, Jelutong, Kempas Lumber, rough.
US	I		4407210095	Dark Red, Light Red, White, Yellow Meranti, Meranti Bakau, White Lauan, White Seraya, Alan, Ramin, Kapur, Jongkong, Merbau, Jelutong, Kempas Lumber, Nesoi.
US	I		4407220000	Okoumé, Obeche, Sapelli, Sipo, Acajou d'Afrique, Makoré, Iroko, Tiama, Mansonia, Ilomba, Dibétou, Limba, and Azobé Lumber.
US	I		4407230025	Mahogany wood, sawn or chipped lengthwise, sliced or peeled, whether planed, sanded or finger-jointed, thickness over 6 mm, rough.
US	I		4407230030	Mahogany wood, sawn or chipped lengthwise, sliced or peeled, whether planed, sanded or finger-jointed, thickness over 6 mm, Nesoi.

Country	Imp/Exp	SITC	HS	Description
US	I		4407230090	Baboen and Imbuia wood, sawn or chipped lenthwise, sliced or peeled, whether planed, sanded or finger-jointed, thickness over 6 mm, rough.
US	I		4407230095	Baboen and Imbuia wood, sawn or chipped lengthwise, sliced or peeled, whether planed, sanded or finger-jointed, thickness over 6 mm, Nesoi.
US	I		4407910021	Red Oak wood sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or finger-jointed, thickness over 6 mm, Nesoi.
US	I		4407910060	Oak except Red Oak wood, sawn or chipped lenghwise, sliced or peeled, whether or not planed, sanded or finger-jointed, thickness over 6 mm, rough.
US	I		4407910061	Oak except Red Oak wood, sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or finger-jointed, thickness over 6 mm, Nesoi.
US	I		4407990090	Non-coniferous wood, Nesoi, sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or finger-jointed, thickness over 6 mm, rough.
US	I		440799095	Non-coniferous wood sawn or chipped lengthwise, sliced or peeled, whether or not planed, sanded or finger-jointed, thickness over 6 mm, Nesoi.
US	I		4408100020	Veneer sheets and sheets for plywood and other wood sawn lengthwise, sliced or peeled, thickness not over 6 mm, reinforced or backed, coniferous.
US	I		4408100040	Veneer sheets and sheets for plywood and other wood sawn lengthwise, sliced of peeled thickness not over 6 mm, not reinforced or backed, coniferous.
US	I		4408200000	Veneer sheets and sheets for plywood and other wood sawn lengthwise, sliced or peeled, thickness not exceeding 6 mm, of tropical woods.
US	I		4408900080	Veneer sheets and sheets for plywood and other wood sawn lengthwise, sliced or peeled, thickness not over 6 mm, not reinforced, non-coniferous, Nesoi.

Country	Imp/Exp	SITC	HS	Description
US	I		4408900090	Veneer sheets and sheets for plywood and other wood sawn lengthwise, sliced or peeled, thickness not over 6 mm, reinforced or backed, non-coniferous.
US	I		4412111020	Plywood, face ply of Birch, at least one outer ply of tropical wood, not/or surface covered clear materials, not over 3.6mm thick, 1.2M wide and 2.2M long.
US	I		4412111040	Plywood with a face ply of Birch, at least one outer ply of tropical wood, solely of sheets of wood not over 6 mm thick, not surface covered, Nesoi.
US	I		4412111060	Plywood with a face ply of Birch, with at least one outer ply of tropical wood, solely of sheets of wood each ply not over 6 mm in thickness, Nesoi.
US	I		4412112010	Plywood with a face ply of Spanish Cedar, at least one outer ply of tropical wood, not surface covered of surface covered with a clear material, not over 6 mm.
US	I		4412112020	Plywood with a face ply of Walnut, at least one outer ply of tropical wood, not surface covered or surface covered with a clear material, not over 6mm.
US	I		4412112030	Plywood with a face ply of Sen, at least outer ply of tropical wood, not surface covered or surface covered with a clear material not over 6 mm thick.
US	I		4412112040	Plywood with a face ply of Mahogany, at least one outer ply of tropical wood, not/or surface cevered with a clear material, not over 6 mm thick.
US	I		4412112050	Plywood panels with at least one outer ply of tropical wood, not/or surface covered with clear material, not over 3.6mm, 1.2M wide, 2.2M long, Nesoi.
US	I		4412112070	Plywood with at least one outer ply of tropical wood, consisting solely of sheets of wood, not over 6 mm thick, surface coverfed with clear material, Nesoi.
US	I		4412112070	Plywood with at least one outer ply of tropical wood consisting solely of sheets of wood, not over 6mm thick, surface covered with clear material, Nesoi.

Country	Imp/Exp	SITC	HS	Description
US	I		4412115000	Plywood with at least one outer ply of tropical wood, consisting solely of sheets of wood, each ply not exceeding 6 mm in thickness, Nesoi.
US	I		4412115000	Plywood with at least one outer ply of tropical wood, consisting solely of sheets of wood, each ply not exceeding 6 mm in thickness, Nesoi.
US	I		4412121510	Plywood, face ply of Spanish Cedar, at least one outer ply of hardwood, solely of sheets of wood, not/or surface covered with a clear material.
US	I		4412121520	Plywood, face ply of Walnut, at least one outer ply of non-coniferous wood, solely of sheets of wood, not/or surface covered with a clear material.
US	I		4412122044	Plywood, face ply of Red Oak, at least one outer ply of non-coniferous wood, solely of sheets of wood, not/or surface covered with a clear material.
US	I		4412122046	Plywood, face ply of Oak Nesoi, at least one outer ply of nonconiferous wood, solely of sheets of wood, no/or surface covered with a clear material.
US	I		4412122050	Plywood panels at least one outer ply of hardwood, sheets of wood only, not/or surface covered clear material, not over 3.6 thick, 1.2M wide, 2.2M long.
US	I		4412122070	Plywood with at least one outer ply of non-coniferous wood, consisting solely of sheets of wood not over 6 mm thick, surface covered clear material, Nesoi.
US	I		4412122140	Plywood, face ply of Mahogany, at least one outer ply of nonconiferous wood, solely of sheets of wood, not/or surface covered with a clear material.
US	I		4412125000	Plywood with at least one outer ply of non-coniferous wood, consisting solely of sheets of wood, each ply not exceeding 6 mm in thickness, Nesoi.
US	I		4412294000	Plywood with at least one outer ply of nonconiferous wood, Nesoi.
ZA	I		44031040	
ZA	I		44031050	

Country	Imp/Exp	SITC	HS	Description
ZA	I		44031090	
ZA	I		44033190	
ZA	I		44033420