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MARITIME TRANSPORT OF WOOD AND WOOD PRODUCTS

Background paper

Prepared by

the UNIDO Secretariat*

*In co-operation with the UNCTAD Secretariat.

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Explanatory notes

References to tonnes (t) are to metric tonnes.

Besides the common abbreviations, symbols and terms, the following have been used in this document:

ASEAN	Association of South-East Asian Nations
ATO	African Timber Organization
BAF	Bunker adjustment factor
CAF	Currency adjustment factor
CAMSHIP	Cameroon Shipping Line
c.f.	Cost and freight
CFCO	Congolese Railways
c.i.f.	Cost, insurance and freight
CMB	Compagnie Maritime Belge (Belgian Shipping Company)
CNCC	Conseil National des Chargeurs du Cameroun (Cameroon Shippers' Council)
COWAC	Continent West Africa
DWT	Dead-weight tonnage
EEC	European Economic Commission
FAO	Food and Agriculture Organization of the United Nations
FAP SAUF	Free of particular average unless
f.a.s.	Free alongside ship
FAS	First and second
f.i.o.	Free in and out
FOC	Flags of convenience
f.o.b.	Free on board
IDREM	Institut de documentation, de recherches et d'études maritimes (Côte d'Ivoire)
ITTO	International Tropical Timber Organization
KD	Knocked-down
MEWAC	Mediterranean Europe West Africa Conference
OAB	Office Africain du Bois
OCB	Office Congolais du Bois
OCTRA	Gabonese Railways
OIC	Office Ivoirien de chargeurs (Côte d'Ivoire Shippers' Council)
SATA	Classification for African tropical squared-off wood
SCADOA	Service Commun des Armateurs de l'Ouest et Centre-Afrique
SITRAM	Côte d'Ivoire Maritime Transport Company
SIVOMAR	Côte d'Ivoire Shipping Company
SNBG	Gabonese National Timber Company
SNCDV-France	Delmas-Vieljeux Commercial Shipping Company
SOFREMER	Societé française d'études et de réalisation maritimes, portuaires et navales (France)
SONATRAM	National Maritime Transport Company (Gabon)
UCCA	Union des Conseils de Chargeurs Africains (Union of African Shippers' Councils)
UKWAL	United Kingdom West Africa Lines

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The annexes of part one and the tables of part two have been reproduced without formal editing.

PREFACE

Transportation costs of wood and wood products constitute a barrier to trade in much the same way as tariffs since they both raise the cost of delivering the product. Besides, the increase of the processing degree from rough wood to wood manufactured products influences transportation costs which can range from 2.9 per cent for rough wood to up to 25.7 per cent for plywood. Truck transport by road, rail transport, waterways and maritime transport constitute the possible alternatives or parts of the timber transport chain from the forest to the factory and to the markets.

This study is a follow-up activity to the recommendations of the First Consultation on the Wood and Wood Products Industry held at Helsinki, Finland, from 19 to 23 September 1983, where the participants recommended that UNIDO should "give priority to an in-depth study of shipping and transport in view of the high impact that these costs have on the price of the products in the domestic market and on the export earnings derived from wood products".

The participants at the Consultation also recommended that the emphasis of the Second Consultation on the Wood and Wood Products Industry should be on the secondary wood-processing industry because (a) it is far less developed than the primary wood-processing industry in developing countries; (b) it can provide for the improvement of living conditions; and (c) it is labour intensive. Accordingly, this study aims at analysing in particular the last portion of the connected chain, namely, the maritime transport of wood and wood products from the terminal to the export markets. This particular analysis is in view of the fact that the secondary wood-processing industry has a market-oriented nature in comparison with the resource-oriented primary processing industry for which surface transport of raw materials from log source to the factory represents the major transport cost element.

The present study, which will be presented at the Second Consultation on the Wood and Wood Products Industry, to be held at Vienna, in January 1991, is divided into two parts which separately examine the main problems related to maritime transport of wood and wood products in two major timber-supplier regions, namely West/Central Africa and South-East Asia.

Due to the nature of their infrastructure, legislation, external trade structure and product destinations, the two regions face problems which often require different solutions. An analysis and comparison of the most common problems and the approach used to solve them might, however, constitute an efficient starting point for identifying cost-savings methods and improving the effectiveness of maritime transport of wood and wood products in developing countries.

The study also responds directly to concerns expressed at the Committee on Shipping of the United Nations Conference on Trade and Development (UNCTAD) with respect to the impact of conditions of ocean transport services, particularly ocean freight rates, on exports of manufactured goods from developing countries, and on exports in trades between those countries. In particular, in operative paragraph 1 of its resolution 61 (XIII) adopted at the thirteenth session held at Geneva from 14 to 22 March 1988, the Committee requested the UNCTAD secretariat to prepare relevant studies in order to provide developing countries with information required for making appropriate decisions in this area.

Accordingly, this study has been prepared by the System of Consultations Division of UNIDO, Unit for Light Industries, in co-operation with UNCTAD. It is largely based on the work of two consultants who have provided an analysis of the situation in particular with respect to two major regions: Brian B. Tate on South-East Asia and Jean-Claude Kouassi on Africa.

The present report or relevant extracts or information in this respect will be made available by the UNCTAD secretariat to the Committee on Shipping at its fifteenth session. The Committee will also be informed of decisions taken at meetings convened under UNIDO auspices at which this report is being considered - in particular the Second Consultation on the Wood and Wood Products Industry - and any subsequent actions taken.

It is considered that this joint undertaking of the study by UNIDO and UNCTAD provides an excellent example of practical and effective inter-agency co-operation in order to save resources and increase efficiency within the United Nations system of organizations.

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PART ONE. MARITIME TRANSPORT OF WOOD AND WOOD PRODUCTS IN ASIA

Prepared by
Brian B. Tate*

INTRODUCTION

This study on the maritime transport costs for wood and wood products from South-East Asia has been carried out with a view to identifying the impact of these costs on the export price and, at a later stage, to assessing the competitiveness of South-East Asian wood and wood products vis-à-vis those originating from Africa.

While the study concentrates on the aspect of maritime transport within the overall transport of these commodities, non-transport aspects of the trade are considered in several instances, particularly in forecasting transport requirements and routes. The separation of shipping costs from other transport costs has posed certain problems in cases where, for instance, the cargo was floated or rafted down rivers, drayed over roadless terrain or on temporary cross-country tracks, railed, sometimes barged, sometimes loaded ex port, often loaded ex beach or loosely afloat at sea. Since such costs vary considerably from one port or loading point to another, and given the great number of such loading points in South-East Asia, it has generally not been possible to provide accurate cost figures which are given on a sample basis where available.

An additional problem with regard to assessing export prices was that the value of a log or sawn timber of a given species can vary up to 100 per cent, depending on the quality, colour and other characteristics of the wood, while the freight remains the same, usually charged per cubic metre.

For the purpose of this study visits were undertaken to nine selected South-East Asian countries in order to collect data or verify statistical information through on-the-spot investigations. Due to time constraints, such investigations could cover only a limited number of ports. Therefore, rather extensive use is made of information contained in official publications and statistical reports, publications of the wood and wood-products industry and data collected.

Statistics

To arrive at correct data for production and trade in the wood industry using statistics as a source presented yet another problem. "Official" overall data on production and trade appearing in statistics of the Food and Agricultural Organization of the United Nations (FAO) often differ considerably from the "official" figures published by the same countries that provided an input to FAO. Similarly, two countries often show different figures for trade between them (see, for example, table 1 on the timber trade between the Philippines and Japan and between Papua New Guinea and Japan). Furthermore, cumulative figures made available by the shipping industry (or conference) often differ from government and FAO data. Sometimes a brief

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discussion or an on-the-spot survey can reveal or clarify information which statistics cannot. For example, one country exported either 20,000 m^3 or 460,000 m^3 of sawn timber per year if "official" figures could be believed. But an on-the-spot visit to the port revealed a rough estimate of 20,000 m^3 in port stores awaiting export to various destinations. Thus the lower figure was certainly wrong, and the higher figure could have been, but was not necessarily, correct.

For the above-mentioned reasons the consultant has consolidated relevant statistical information into bar charts, which provide a quick and realistic impression of comparative quantities rather than giving a list of "exact" figures of which some are known to be incorrect or estimates.

I. FOREST-PRODUCTS INDUSTRY: TIMBER, PAPER AND PULP

A. Commodity divisions traded internationally

The forest-products industry covers a wide range of sub-industries. However, for the purpose of this report which focuses on shipping, one can distinguish between the timber industry and the paper industry, because pulp and paper in all forms is transported in a different manner as compared to other timber products, frequently in specialized vessels. Since not one timber-exporting developing country produces or exports paper pulp in major quantities, the transportation of that product is not covered by the report. Woodchip movements, although not of major importance in the context of this survey, have been included under timber up to delivery to the pulping factory.

Although so far the production of pulp and paper has been considered too sophisticated to be carried out in quantity in developing countries, a transfer of such industries closer to the source of raw materials is certainly a target to be aimed at. Although the costs for sea transport of woodchips for paper pulp are relatively low because it is efficiently carried in large parcels of 20,000-50,000 tonnes it is expected that over the next two decades there will be a shift from shipment of woodchips to the shipment of pulp, paper and paper products on the same trade routes as for woodchips today.

B. Value-added steps in the timber industry

For shipping and statistical purposes, the following processing stages, according to the value added, can be distinguished:

1.	Primary product	Logs
2.	Primary processing Veneer sheets, plywood, particle board, fibre board (MDF), crates, boxes, chopsticks etc.	Sawn timber
3.	Secondary processing Picture frames, doors etc.	Mouldings
4.	Advanced secondary processing	Knocked-down (KD) furniture Made-up (assembled) furniture Specialized pieces (e.g. jewellery boxes)
5.	Paper industry	Not included in this study

In the East/South-East Asian and South-West Pacific regions there are only two major exporters of primary product: Malaysia (the East Malaysian states of Sabah and Sarawak) and Papua New Guinea. Important exporters of primary processed timber are Malaysia and Indonesia, and to a lesser extent Singapore with re-exports. Exports of secondary processed products are relatively small in shipping terms and include all present and former exporters of primary processed timber, e.g. Indonesia, Malaysia, Singapore and Taiwan Province of China. The quantity of products from advanced secondary processing, which have a significant value-added content, is almost negligible in shipping terms. In fact only in few shipping statistics are these timber products separated from other general cargoes. The producers are basically the semi-industrialized economies such as China, Hong Kong, Republic of Korea, Taiwan Province and also Japan because of its big timber-processing industry.

C. Furniture and doors

Apart from a small quantity of luxury items like carved pieces, craftwork, jewelry boxes, carved chests (and of course products of the pulp and paper industry), the largest quantity of high value-added products to be transported comes from the furniture industry. It seems that furniture is on top of the value-added scale of products in all developing countries.

While supply of the domestic market is unproblematic, there are some obstacles once deep-sea shipment is involved. In the international shipping of furniture, two types of furniture and two production levels are distinguished: (a) wooden furniture and bamboo/rattan furniture. Larger quantities of the latter originate mainly from South-East Asia; (b) knocked-down (KD) and made-up (assembled) furniture. KD wooden and bamboo/rattan furniture comprises mostly wooden pieces cut to a certain length, planed and shaped just like mouldings with a nominal content of value-added.

For developing economies with comparatively low labour costs, the export of made-up furniture which has a high labour content and hence a high value-added content, would be far more attractive than the export of KD furniture. Unfortunately, the cubic space required for made-up furniture is such that freight costs per unit often outweigh the advantage of lower labour costs. This is so even when made-up furniture is nested to the maximum extent. One chair in KD form can be individually packed into a cardboard carton of 80 x 40 x 20 cm (i.e. 15 cartons per cubic metre of freight), whereas only 6 to 7 similar chairs, when assembled and cartoned, take up one cubic metre. If such chairs are only wrapped in paper and shipped in a container, up to 11 can be nested per cubic metre, but some damage may occur because of insufficient packaging.

Unless labour costs for assembling the product in the importing country reach some 200 per cent of production and freight costs, there will be no mass market for made-up furniture. As labour costs in developing countries are rising (as a percentage of the low base costs of a few years ago) at a far faster level than those in developed economies (some of which are even decreasing in real terms, e.g. Australia, New Zealand), there is little hope that the made-up furniture trade will reach significant shipping levels, although due to its value it could be more significant in monetary terms.

However, many countries include the expanding trade in wooden doors under furniture. Some are not much fancier than sheets of plywood, others include considerable shaping and mouldings. Doors are one step up from plywood production in the value-added scale, but the labour content is no way near that of made-up furniture with which they are increasingly combined in statistics.

II. THE ASIAN AND PACIFIC REGIONS

A. Survey by country or area

India

Although a major producer, India's production is completely absorbed by the home market. Only an insignificant (by world timber standards) quantity of wooden furniture is being exported.

Nepal

Production is for the home market, with some overland export to neighbouring India, but no export by sea.

Laos

There is production for the home market and some overland export to Viet Nam, but again no export by sea.

Myanmar

Formerly a major exporter of many species, Myanmar still is one of the world's major sources of teak. However, in most shipping statistics of other countries teak is treated as a special or exotic wood together with mahogany, ebony, sandalwood etc. The movement by whole round logs from Myanmar to any one destination is not great, much "log" export is in sections of logs, and frequently shipment is in bagged scantlings i.e. small pieces. All in all, the teak shipping trade (like that of other exotic wood) is a relatively small and specialized trade, unlike the mass production and shipment in bulk quantities of normal tropical hardwoods. Also, most of the Myanmar timber export is coastal and not deep sea.

Myanmar has to overcome internal political restrictions before it can be considered a regular supplier of tropical hardwood to overseas markets.

Japan

Japan is the world's major importer of logs (some 47 per cent of world trade) which are all for the local market and over 99 per cent ex South-East Asia. The export of timber products (i.e. plywood) gradually decreased from the late 1960s on and stopped in the mid-1970s due to high production costs and an increasing domestic demand. For details on Japanese imports and exports see figures I and II; the main importing companies are listed in annex I.

Republic of Korea

The Republic of Korea, formerly the world's second or third largest importer of South-East Asian logs and traditionally Japan's competitor and successor as exporter to the United States, has similarly been priced out by the market due to increasing labour costs and an expanding home consumption. Since 1983, it has become a net importer of timber products. Logs are imported for the home market.

China

Over recent years China has imported logs from South-East Asia, but as import levels are fluctuating, it cannot yet be considered a major market

force in the shipping industry. It is likely that supplies of primary logs (at least ex South-East Asia) will decrease significantly before import requirements will increase.

Taiwan Province

Taiwan Province has traditionally been the second or third largest importer of logs and always a major competitor of Japan and later of the Republic of Korea in the export of plywood. While becoming the world's major exporter as of 1983, the plywood industry was delivered a death-blow as a result of the revaluation of the local currency in 1988, designed to curb exports to the United States of America to balance the trade surplus. Subsequently, other products with a higher value-added have replaced plywood, so that the overall trade surplus at the higher exchange level still remains. The timber exports still figuring in statistics are largely old contracts ending in 1989 and not expected to be renewed for 1990, plus a relatively small movement in more value-added timber products such as mouldings, frames, doors, furniture etc.

Thus from 1990 onwards, Taiwan Province can be expected to join the Republic of Korea as an importer of logs for the home market, with little timber product for re-export, and, if not in 1990 then soon after, to become a net importer of timber products.

United States of America and Canada

The United States are important suppliers of sawn timber and plywood to North-East Asia and their export to those countries is likely to increase. This is a new trend in the industry, insofar as products with a very low value-added are exported in large quantities and at competitive prices by a high-cost developed economy to a developing economy where labour costs are much lower. Of course, the United States exports are coniferous softwood and some temperate hardwoods and not tropical hardwoods, and are virtually the only large source of commercially farmed timber in the world. Due to similar geographical location (United States, Pacific North-West and Canada, British Columbia) and environment, what applies to the United States applies to a lesser degree also to Canada.

Philippines

The Philippines has often been the first country in Asia to experience western style development and was the first Asian country to be logged in a modern mass-production manner. At present, while relatively small quantities of logs, sawn timber, plywood, chopsticks, furniture etc. are still being exported, production is almost absorbed by the home market. Also, due to indiscriminate logging, most production now comes from areas where the costs for overland transportation are almost prohibitive for the major international markets.

Thailand

Due to its large population and the location of most of its timber supplies away from the coast, Thailand has always been a moderate exporter of logs. As its value-added sawn-timber industry, then plywood, prospered, so too did its national economy and standard of living - certainly in the Bangkok

and in all the tourist areas. Thus Thailand is no longer a timber exporter of importance, with production presently roughly balancing domestic demand, and soon it can be expected to become a net importer to satisfy its economic growth.

Malaysia

Malaysia is geographically and politically unusual, insofar as it embraces two roughly equal land masses, relatively far apart, with economies at a considerably different stage of development. Peninsular Malaysia does not export logs, and is almost self-sufficient in timber. East Malaysia still is the major exporter of logs world-wide (to the timber-consuming countries of North-East Asia) and also of sawn timber and some plywood. Although Peninsular Malaysia does export its own production of sawn timber and plywood, it imports logs and sawn timber, interstate, from East Malaysia.

Under its federal-type constitution, timber resources are a State matter. Thus, the higher developed economy of Peninsular Malaysia only exports value-added timber products while the two less economically developed East Malaysian States of Sabah and Sarawak still export vast quantities of logs, as well as sawn timber and plywood.

However, recently the Federal Government in Kuala Lumpur officially approached the two State Governments to ban log exports and discussions are being held on how the two States can be reimbursed for lost income and jobs until sawmills and plywood factories will be built and markets found to replace the log trade. Therefore, the world's major supplier of logs, East Malaysia, can be expected to decrease the export of logs, which might be an opportunity for West African log exporters to enter Malaysia's export market, parallel to the expected reduction of Malaysian exports.

Indonesia

Indonesia banned the export of logs some years ago to encourage the production of value-added sawn timber and plywood. At the same time the traditional supply areas of logs, Sumatra and South Kalimantan, are approaching - not soon, but in a foreseeable future - the end of commercially obtainable stocks. In conjunction with the ban, East Kalimantan was opened up for production and Indonesia now only exports a minimal quantity of logs (exotic species), and a vast quantity of sawn timber and plywood.

In 1987/88 a major fire destroyed at least 10 per cent of the Kalimantan timber stock and there is now doubt as to how large the commercially exploitable supplies ex East/Central, and South Kalimantan are. For the whole area, including Sabah and Sarawak (North and West Kalimantan respectively) it is expected that, from the turn of the century on, the stocks in that last great naturally grown supply area will approach the end of their commercial availability.

In September 1989 the Government banned the export of sawn teak, followed in October by a 100 to 300 per cent increase of the export tax for all other species of sawn timber. That doubling of costs effectively priced Indonesia out of the international market in sawn timber, but at the same time encouraged the production of plywood and led to a considerable expansion in the door and furniture manufacture. Subsequently the date for the tax increase has been deferred to 1 January 1990 and it is said that it will be strictly enforced.

Papua New Guinea

Although that country covers a large area, the stocks of commercially exploitable timber are not large. Species are extremely mixed, the land is very mountainous, and in general the present production rates (of which some 90 per cent are currently exported to North-East Asia) are said to approach the maximum an environmentally interested Government could allow. At the current rate of cutting, stocks are sufficient for some 30-40 years.

Australia

Australia is a major exporter of wood-chips and, if and when the market requires, an exporter of hardwood railway sleepers; at the same time it is a major per-capita importer of timber products. Because of its small population the high per-capita imports translate to a moderate overall import of virtually all other timber products.

New Zealand

Unlike Australia which has a big proportion of eucalypt hardwoods, New Zealand produces virtually all conifer softwoods. Like the United States, it has commercially farmed these conifer forests for many decades, for the last 20-30 years on a large scale, and the first generation of 20-25-year-old trees is ready to hit the market. However, there would appear to be few export markets for its production: South America is supplied by Brazilian hardwoods and Chilean softwoods, Central America is self-sufficient, as are Canada and the United States. Europe, including the Soviet Union, is self-sufficient in conifers, and Japan is supplied in softwoods by Canada, the United States, Alaska and Siberia at competitive prices. The New Zealand domestic market and the Australian market are small and Australian cities as markets are widespread in shipping terms. All this leaves New Zealand with a medium-size potential supply of coniferous logs in the future.

Siberia

It is difficult to extract Siberian exports from other Soviet exports; however, Japanese log imports from the Soviet Union can be said to come exclusively from coastal Siberia. Siberia has vast stocks of conifer softwoods (all of which can be considered commercially exploitable in a centrally-planned economy with a strong need for hard currency). With the reduction of political restrictions and perestroika within the Union of Soviet Socialist Republics, there would seem to be good prospects for the expansion of log trading to include also other North-East Asian importers such as the Republic of Korea and Taiwan Province. The only restrictions are political; should East Malaysia stop exporting logs, there is a likelihood that sawn-timber and plywood equipment in the Republic of Korea and Taiwan Province will have to be changed for the handling of softwood.

It has been reported that the Provincial Government in Vladivostok has requested the Republic of Korea to invest in sawmills and plywood factories in Siberia to be paid for by the export product. Nevertheless, a ban of log exports from Siberia in favour of value-added products is not expected in the near future, at least as long as there are nearby hard-currency markets for its logs.

Chile

Chile is a softwood supplier in the Pacific Region. Although it has the whole South American continent as a market, it experiences distance and cost problems similar to New Zealand. Like New Zealand, Chile will soon have a surplus of softwood for export and will be looking for additional markets in Asia.

Brazil

The fees for the Panama Canal, in addition to the high shipping costs over the Amazonas and ocean distances to Asian markets, make Brazilian hardwoods so expensive that at this stage Brazil does not play any role in Asia.

B. Developing economies in East Asia

Compared with developing economies elsewhere in the world, the economies of the newly industrializing countries (NICs) or areas of Hong Kong, Republic of Korea, Singapore and Taiwan Province are well developed, although not yet as advanced as Australia, Japan and New Zealand. It is said that Thailand is about to become the fifth NIC in Asia. Despite its relatively large population of 60 million, which accounts for its low per capita status, its overall economic position is indeed rapidly approaching that of the other four NICs. Malaysia with a much smaller population is not far behind and is likely to become the sixth NIC in not too distant a future.

Indonesia's oil resources and production account for its relatively high GNP and a healthy trade position. However, with a population of some 160 million, it will still keep its developing country status for some time. The Philippines are in a similar position.

The timber-trading countries or areas in East Asia are composed as follows:

(a) One fully developed importing economy: Japan;

(b) Four, or nearly five, NICs that are either self-sufficient or net importers, but no longer exporting in big quantitites: Hong Kong, Republic of Korea, Singapore, Taiwan Province and Thailand;

(c) Two specialized exporters: Australia and New Zealand, and in Australia's case also a net importer;

(d) Two countries continuing to export in large quantity, but gradually upgrading to value-added products: Indonesia and Malaysia;

(e) One smaller least developed economy, satisfied to continue exporting the primary product (logs), but without a large enough stock to fill the gap as others discontinue log exports: Papua New Guinea;

(f) One smaller, steady exporter to a single market with vast resources, but also with political and economic restrictions: Siberia. Siberia could become the second permanent supplier of logs to all East-Asian markets. These are, however, conifer softwoods. The only potential competitors with a considerable stock, namely Canada and the United States, are geographically distant and their production costs are probably higher.

In October 1989 discussions commenced in the Soviet Union regarding some form of economic independence for the Maritime Province in Siberia to enable it to deal directly and independently with such matters as timber exports. However, the concensus of opinion is that such level of independence will not be reached for some years.

North-East Asia, South-East Asia and Papua New Guinea

For the purpose of this report East Asia has been divided into North-East Asia (the timber-importers Hong Kong, Japan, Republic of Korea and Taiwan Province) and South-East Asia (the timber exporters Indonesia, Malaysia, Myanmar, Philippines, Thailand and Papua New Guinea).

The situation of Myanmar was presented in section A. Similarly that of Thailand which is no longer a timber-exporting country but is roughly self-sufficient in logs, sawn timber, plywood and veneer and will soon become a net importer.

Papua New Guinea is not yet a member of ASEAN. It has close political, social and economic affiliations with Australia and other smaller Melanesian islands (Fiji, Solomon Islands and Vanuatu). However, since Papua New Guinea is environmentally, climatically etc. akin to South-East Asia, it has been included in that subregion.

Siberia, as a North-East Asian exporter of coniferous timber is different from other North-East Asian countries and is being discussed separately.

Although Alaska may warrant separate consideration, it has been excluded from this survey, except where the United States are mentioned, of which it is politically an integral part.

The development of timber imports and exports over the period 1976-1988 by major importing or exporting countries in the South-East and North-East Asian regions is shown in figures III and IV.

III. OUTSIDE INFLUENCES

Like other industries, the timber industry is affected by some forces outside its sphere of control, with consequent repercussions on the timber shipping business. Three such major influences are local political decisions, the omnipresent problem of currency exchange rates, and environmental concerns.

Political decisions

It is obvious that political decisions such as to ban log exports, to tax exports of sawn timber etc. immediately have a financial impact on shipping, affecting the demand for vessels and the freight rates.

Exchange rates

Exchange rates normally fluctuate somewhat over a period of years or at worst weeks. Exporters and importers can usually adapt their plans, methods, scope, markets etc. to accommodate gradual fluctuations to a certain degree. With adverse fluctuations in exchange rates switches can be made to lower-value supplies, e.g. to cheaper species of logs etc. or from one major commodity or style to another. However, overnight decisions to revalue a currency can immediately wipe out whole export markets. Taiwan Province was in that position in 1988 when its Government revalued the local currency by 37.5 per cent against the United States dollar, thereby extinguishing the plywood export in the interest of the overall political good. As the United States were the main market for timber products from Taiwan Province, that move helped to reduce the trade imbalance but eliminated the commodity trade in which this survey is interested.

Environmental concerns

Quite apart from the state of flux caused by the transition in the timber exporting industry, completely new interests and motives may influence all aspects of the timber and paper industries. Environmental concerns is something that has never before - certainly not to such a degree - been brought to bear upon any major industry at any time.

To increase economical sources of tropical hardwoods, Japanese importers and end-users together with Brazilian interested parties are lobbying at Tokyo for the financing of a 800-km paved road to link hardwood forests in the western part of Brazil with the Peruvian Pacific coastal road system, thereby allowing Brazilian logs to be shipped ex Pacific ports to Japan, which is far cheaper than via the extended Amazon river system and Atlantic ports. Obviously this would open up vast areas of tropical virgin forest for commercial activity and further exacerbate Brazil's apparent environmental problems in the Amazon Basin. The first time that a United States President raised an ecological issue in international relations was in February 1989, when President Bush discussed this with the Japanese Prime Minister and obtained the Japanese agreement not to finance such an environmentally devastating project despite the benefits it could possibly bring to Brazil's economy.

In March 1989, the British Government sponsored an international meeting on the depletion of the ozone layer, and three other European Governments sponsored a conference, at Prime-Ministerial level, on the creation of an international body to draft and enforce environment regulations.

In July 1989 leaders of the Organisation for Economic Co-operation and Development (OECD) issued a communique in part devoted to "protecting the earth's ecological balance", and urged "to look at balancing long-term environmental costs against benefits from near-term economic growth".

In September 1989 over 100 members of the non-aligned group of nations called for "a productive dialogue with the developed world on protection of the environment".

This new sense of urgency and common cause concerning the environment is leading to unprecedented co-operation in some areas. Ecological degradation in any nation almost inevitably infringes on the quality of life in others', said recently a spokesman of the movement.

Particularly, increasing attention is being given by governments and the international community, to the conservation of forest resources and environmental aspects of forestry and the wood-processing industry in view of the current magnitude of deforestation and the resulting depredation of the natural resource base, particularly in fragile ecological situations.

International organizations as well share world-wide concern about the future of the tropical forest which is critical to a balanced world environment.

At its forty-fourth session held in December 1989, the General Assembly, in resolution 44/228, calling for a United Nations Conference on Environment and Development, stressed the need to promote in all countries a sustainable and ecologically rational development and indicated, among others, deforestation as one of the most important ecological problems for the preservation of the environment.

With the inclusion of non-govermental organizations in the International Tropical Timber Organization (ITTO), this non-industry interest of environmental protection will have direct influence on the industry for reasons outside of national or international politics, domestic or international economics, commercial forces, and even physical viability.

There is little experience with such a world-wide outside influence on industry. Thus, all forecasts concerning timber production, the development of the timber industry, exports and imports could be miles away from actual development over the next few years. Since shipping is influenced by all above-mentioned factors, forecasts of long-term shipping trends in the timber or paper industries at this juncture could prove extremely inaccurate. Reliable shipping forecasts will be possible only after ecological concerns will have translated into government policies in the countries concerned and their impact on the timber industry can be assessed.

IV. SHIPPING ROUTES

A. Patterns in wood trade

Most of the wood trade is:

from South-East Asia to North-East Asia
from South-East Asia to Europe
from West/Central Africa to Europe.

The less important trade between developed countries and NICs, namely:

from North-East Asia to the United States, west coast/east coast
from South-East Asia to the United States, west coast/east coast
from North America, west coast to North-East Asia
from United States, east coast to Europe
from United States, west coast to Europe

has been ignored for the purpose of this survey, although the movement from the Soviet Union (Siberia) to North-East Asia is included, because Siberian softwood exports are competing more and more with tropical hardwoods on the North-East Asian markets. For those movements that are of interest for this survey, a distinction has been made between logs, sawnwood and plywood:

Logs: from South-East Asia to North-East Asia
from West Africa to Europe.

Sawnwood: from South-East Asia to Europe.

Plywood: from North-East Asia to North-East Asia
from South-East Asia to North-East Asia
from South-East Asia to Europe.

Veneer moves in relatively small lots over most of these routes.

The history of the plywood subindustry is interesting. Until the mid-60s Japan was the major exporter and nearly all went to the United States. When the Japanese industry expanded, it absorbed most of the plywood and became too sophisticated and expensive to compete internationally; the Republic of Korea took over, until it too dropped out of the international export trade in the late 1970s, for the same reasons as Japan. For some time exports from Taiwan Province overlapped with those from the Republic of Korea, but eventually also Taiwan Province largely stopped international export in 1988. As of 1990, Indonesia is stepping in to fill the gap. Since Indonesia has a vast population which is restricting or slowing down a major increase in the standard of living, and because it is a timber-producing rather than a re-exporting economy with a relatively large reserve of stock, it can be assumed that the change of roles will slow down in future.

However, as Indonesia's export shifts from sawn timber to plywood others have the opportunity to step in as suppliers of sawn timber.

B. Maritime movements

Tables 2-8 and figures V-IX illustrate the maritime movements of wood and wood products.

V. ASIAN TIMBER SHIPPING

A. Period of transition

At present, timber shipping is in a period of transition. World-wide the shipping industry has been experiencing major problems for about two decades. In addition, timber exports and imports underwent major changes during recent years, i.e. since the First Consultation on the Wood and Wood-products Industry at Helsinki 1983, and more changes will take place over the next few years. All changes in international timber trade will, of course, affect the shipping of that timber.

B. Effects of the international shipping depression on freight rates and costs

International shipping - ship owning and ship operation - has been in a depression since 1974 with large amounts of excess tonnage in most shipping sectors, although, as of the late 1980s there has been a gradual return to a more balanced supply/demand situation. 1/

Much of the timber in the Far East is moving at freight rates that have changed little for 10 or 15 years. This is possible partly thanks to more efficient ship design and partly to improved fleet and ship management e.g. lower fuel consumption, use of lower-grade and cheaper fuels, reduced manning of vessels, improved staff training, well-founded decision-making etc. Part of this has also been accomplished by imaginative financing, creative accounting, subsidized shipbuilding, registration of ships under flags of convenience, and because unions have become more pliant and flexible as they have gradually understood owners' problems.

Similarly shore labour has become more flexible, better trained, better managed and more productive. In the labour-intensive stevedoring industry of one major high-labour-cost country, the cost to discharge logs, sawn timber, plywood etc. has not risen for nearly 10 years in terms of actual United States dollars per revenue tonne because productivity has increased and miscellaneous costs been saved, as wages have risen, natural inflation occurred over the years, and exchange rates changed unfavourably versus the United States dollar.

Logically this cannot go on forever, because there is a limit to cost reduction and productivity improvement in a labour-intensive business, to major financial assistance etc., and then freight costs will rise. While exact forecasts are not possible, it can be assumed that during the 1990s ocean transport costs may rise significantly.

C. Ships

One way to save operating costs is to increase ship size: a 20,000 DWT ship can, roughly speaking, carry twice the load of a 10,000 DWT ship, but without double the building or operating costs and with a similar crew size. However, as modern fleet units have increased in size, were furnished with delicate modern equipment etc., some of the indirect benefits of the ubiquitous little 6,000 DWT two-hatch single-deck geared logger, common throughout East Asia since the early fifties, have been lost. Logs may be booked on an f.i.o.

1/ More detailed information on main developments in world maritime transport on a year-to-year basis is contained in an annual publication by the UNCTAD secretariat, entitled Review of Maritime Transport [year].

basis, but how do they get loaded when the logs are on a beach and the ship is sitting one hundred metres offshore in the minimum depth of water possible? The vessel acts like a tractor and drags the logs into the water and out to the ship, using the ship's gear and crew. So the ship absorbs the indirect cost of the wear and tear to vessel and gear and any damage incurred.

This cannot be done with big and sophisticated ships but only with small, simply equipped loggers, with an experienced captain and crew. However, these vessels are all being phased out and replaced by bigger multi-purpose vessels suitable for more sophisticated cargo handling methods and locations. Once the 6,000 tonners will disappear, different transport and logistic arrangements and structures will be required, and freight rates for logs and timber may increase.

Timber shipments

In Asia the only remaining exporters of logs in quantity are East Malaysia and to a lesser extent Papua New Guinea.

As of 1 January 1990, Indonesia has virtually banned the export of sawn timber through export taxes, and the Malaysian Government is negotiating with the State Governments of Sabah and Sarawak to ban log exports in order to switch to value-added sawn timber exports.

The last plywood exports contracted before the major currency revaluation in Taiwan Province are soon coming to an end and it is expected that East Malaysia will switch from log to sawn timber exporting replacing Indonesia, and Indonesia from sawn timber to plywood exporting replacing Taiwan Province.

The log-importing countries will make an effort to secure the remaining sources of tropical harwood logs, and both exporting and importing countries will start changing their equipment and labour from one timber product to the other.

This will be a chance for additional suppliers of tropical hardwood logs, sawn timber and plywood to step into the breach for the next two years before the exporting and importing nations will have switched completely. It is the type of "window" that a country or an industry is rarely offered and if other developing countries (e.g. in West Africa) or economic suppliers of conifer logs, sawn timber, or plywood such as Chile, New Zealand or Soviet Union/ Siberia can quickly fill that gap, they may be able to secure a permanent market. One precondition for this to happen is that the shipping industry must become as efficient and competitive in those source areas as it has become in South-East Asia.

However, so far only the United States are gradually entering this transpacific market. Obviously they are having problems with competitive costs, but these may be gradually overcome, and then the United States will seize the markets apparently available to developing economies.

D. Facilities for loading and unloading at major ports

It has not been feasible for the present study to survey in depth the actual loading and discharging conditions at individual ports, the equipment used or available, the individual composition of costs, how and why these costs occur in each combination of ports, and how such necessary combinations can be rationalized in order to gain or retain trade. Whatever port efficiencies can be made will help to reduce overall shipping costs to the industry.

However, the situation prevailing at major ports may be described as follows. Apart from specialized discharge ports such as for woodchips, Japan receives logs and timber products at 54 locations (approximately 250 berths) in 30 of the registered 88 international ports on a regular basis, plus those timber shipments discharged at general cargo berths. But the 38 specific timber berths in Tokyo port and the five at nearby Yokohama would probably be representative of the Japanese cargo-handling facilities (see list in annex II). Similarly, European discharge ports have representative examples (Rotterdam, Hamburg, Le Havre and a port in the United Kingdom). Details about import berths in Northern Europe and the United Kingdom are contained in annexes III and IV. However, loading areas (stressing "areas", rather than "ports") are extremely numerous and even two adjacent points on the same coast could have vastly different hinterland cutting and delivery methods, distances and hence costs for logs. For sawn wood and plywood from scattered island-producers such as Indonesia, East Malaysia and the Philippines there are some small outports as well as few main ports, each with its own costings.

VI. WOOD SHIPMENTS

A. Shipments

An analysis of the carriage of timber products frequently reveals statistical discrepancies. In some developing countries information is fragmentary and in others totals do not include production from smaller groups or shipment by unscheduled vessels.

The final products of the wood industry are diverse, final utilization being sometimes at a low level of processing, other times at an advanced level. Sometimes one or two stages of processing are carried out in different countries. Logs from Malaysia are converted to sawn timber in Singapore, processed to plywood in Taiwan Province, and finally used for furniture production in the United States. The wood is thus shipped three times, which is fine for shipping companies but difficult to track through the statistics. Even when a proportion of the wood is retained for domestic use in each country along the trade routes, the processing adds value and usually also adds to shipping tonnage because more cubic space is required as value is added. Many re-exporters (e.g. Singapore and until 1989 Taiwan Province) who have little or no local commercial forests, keep some imported wood for the domestic market but re-export more in shipping terms than they import.

Whilst wood industry statistics would try to relate trade to the original production figures, the shipping industry is only interested in the quantity carried, even if the same cargo, in one form or another, is carried two or three times.

There are some 950 species of tropical hardwood termed "commercial species" and 840 termed "lesser-used" with only some 40 to 50 species moving internationally in any great quantity. To a shipowner or operator there is only one "species" of wood which moves in differing packaging:

(a) Loose, individual logs;

(b) Sawn timber in strapped and skidded bundles, flush one or both ends;

(c) Veneer in strapped and skidded bundles or crates;

(d) Plywood in strapped and skidded bundles or crates.

In liner trade, smaller quantities are frequently subdivided into:

(a) Sheets according to thickness, veneer, fibreboard, particleboard, wood panels etc.;

(b) Value-added products (one processing step up from plywood) which are a little more expensive to load, stow and discharge (mouldings, picture frames, doors, fretwork, joinery etc.).

Often commodities are further subdivided into: (a) KD furniture in pieces, cartoned; and (b) made-up furniture, which requires a high cubic space with freight being charged per cubic metre. The relatively high costs for sea freight and overland drayage will continue to limit international trade in made-up furniture until retail prices in the developed economies can accommodate such higher costs.

In addition, there is a "high quality" or "exotic" segment of trade - ebony, teak, balsa, sandalwood, and more recently mahogany - which move in much smaller quantities and sizes and are therefore in shipping terms "liner general cargo".

B. Packaging

Figures X-XII illustrate some common methods of packaging wood products.

C. Boards

While the production of particle board has increased phenominally, the international seaborne (non-coastal) trade was on average only 3.5 per cent of production, mainly because particle board is easy to manufacture and has a relatively low value per m^3 and per piece.

The production of fibre board has also considerably increased, and for similar reasons as mentioned above there has been little trade by sea. Additionally, production and use of fibre board have been concentrated in Europe.

Thus for international shipping purposes the major wood movements are restricted to the following:

(a) Logs;

(b) Sawn timber;

(c) Veneer;

(d) Plywood, including any particle board, fibre board and other panels;

(e) Mouldings, frames, joinery etc.;

(f) Final products such as KD and made-up furniture (including bamboo/rattan), jewellery boxes, camphor chests etc. (Doors are sometimes classified as "other panels", sometimes as "furniture".)

D. Shipping services

World-wide, single-trip charters are rare in the forest-products industry, as movements are normally contracted for an extended period of time, either by time-chartering or by using liner services or specialized sailings of similar frequency.

However, in the South-East Asian/North-East Asian log trade only some vessels are time-chartered while the majority are trip-chartered or single-trip-chartered repeated.

The following should clarify the terms used in the foregoing paragraphs:

(a) "Time-charters" are for a given period of time, with the charterer being responsible for getting the ship back to load each subsequent cargo, or planning in advance the ballast for the return trip;

(b) "Trip charters" are charters for a series of one-way trips at a negotiated rate, with the owner being responsible for getting the vessel back within the negotiated time for each voyage;

(c) "Single-trip charters repeated" are charters for one single voyage at a negotiated rate, after which either party may turn elsewhere. In that type of trade, however, the same owner and charterer may repeatedly fix the same vessel for similar single trips, but for each voyage the charter rate has to be renegotiated.

Log trade - South-East Asia/North-East Asia

During recent years the South-East Asian/North-East Asian log trade has been characterized by a surplus of vessels, with the majority of ships operating on single-trip and short-term charters. Freight rates are kept at the lowest possible level to the disadvantage of shipowners, but to the benefit of the timber industry at both ends.

The "single-trip charters repeated" system is perhaps the most prevalent in the South-East Asian/North-East Asian log trade. The vast majority of vessels, in fact until recent years the total bottoms in this area's log trade are some 500 x 6,000-7,000 DWT two-hatch single-deck geared loggers with 15-25 tonne derricks, often with only two single swinging derricks. During the 1980s these have been partly replaced by newly built 10,000-15,000 DWT three- and four-hatch log and timber carriers with 15-25 tonne gear, usually equipped with a 50-tonne jumbo and some with cranes. All vessels of both types are Japanese-built and virtually all were originally Japanese-owned; at present the ownership of the older, smaller vessels is the following: some 20 per cent Republic of Korea, 20 per cent Taiwan Province and 10 per cent other owners. Some retained the flags of their country of ownership but probably 90 per cent are sailing under the flag of Panama for convenience. Apart from a few Japanese officers and many officers from the Republic of Korea and Taiwan Province, nearly all are manned by non-ITF crews from China, Philippines, Republic of Korea, Taiwan Province and various other islands. Being sturdily built and simply mass-produced to withstand the rigours of log handling, the 6,000-tonners are the "jeeps of the sea" in the West Pacific with FOC/non-ITF combination, eliminating nearly all restrictions of flag and manning, maintenance and handling, they are able to operate in ways never envisaged by the original designers, and at an economic level of costs even below the level normally associated with such cheaply designed small vessels. Building this type of vessel has almost stopped and the majority will be replaced by modern, more sophisticated and bigger vessels during the coming six to eight years.

With some 200 load points in South-East Asia, few with good or even adequate facilities, some streamlining of loading ports must be achieved as the small ships are being replaced. At the same time many of the load points are being phased out which served small coastal supplier areas that are being logged out, at least in international commercial terms. The bigger suppliers operating from a larger hinterland will gradually utilize central and better equipped loadports to match the new, larger vessels.

Sawn timber and plywood - South-East Asia/North-East Asia

In the sawn-timber and plywood trades between South-East Asia and North-East Asia the cargoes tend to be in smaller parcels and move in liner sailings. However, conference and non-conference tariff rates are not considered binding in this trade and regular or parcel lots are normally moved at negotiated levels, usually 10-20 per cent below tariff and occasionally above tariff if space is limited. However, any discount negotiated may not necessarily be shown as reduced freight rate. Frequently the amount settled is transferred from one party to the other in different ways that are not evident from the shipping documents.

The vessels lifting these shipments are different conventional liners, or geared or gearless full container vessels in the 4,000-12,000 tonne range which in total provide a frequency higher than daily to most combinations of ports.

Sawn timber and plywood - South-East Asia/Europe

In the sawn-timber and plywood trades between South-East Asia and Europe shipments are much more orderly. The commodities are towards the lower end of the conference scale of freight rates and therefore frequently "cargoes of last resort". Thus tolerated outsiders operate either in liner service or with specialized timber sailings. In the case of Malaysian loaders, rubber - also one of the less attractive conference commodities - and timber/plywood are combined to maximize vessel's liftings/stowages to reach operators' targeted freight levels. Such a sailing is frequently called a "parcel service" accepting say 15,000-20,000 revenue tonnes per vessel from and to as few ports as possible, in this case ex three or four load ports to a maximum of three or four discharge ports, with a minimum booking of 1,000 tonnes per lot at negotiated rate levels within 5 per cent either way of the outsider's planned rates. These vessels are 15,000-25,000 tonne geared bulkers, often taking some liner commodities in containers on deck. They have an overall average frequency of about twice a week.

Apart from such "parcel services", the regular non-conference liner operators may lift up to half a shipload each sailing in their scheduled liner services. Most of these operators are from centrally planned economies (China, German Democratic Republic, Poland and Union of Soviet Socialist Republics). With vessels with a capacity of about 10,000 revenue tonnes they would load half of the available capacity with higher-rated general cargoes, plus some 500-1,000 revenue tonnes of Malaysian rubber and 4,000-4,500 revenue tonnes of timber and plywood. The individual bookings making up these tonnages would be mainly smaller lots than those lifted by the parcel carriers but bigger than the few small bookings with conference liners. Because these outsiders operate both inward and outward liner services, they offer a broad range of ports at both ends of the service covering many of the smaller European importing countries which import other general commodities at the same time. These vessels are 10,000-20,000 tonne liner vessels including a few roll-on/roll-off ships, with an overall average frequency of twice weekly.

The conference services are provided with 50,000-tonne high-speed gearless full container vessels and Scandinavian highly sophisticated, large roll-on/roll-off ships, in all providing almost daily frequency between major ports.

Japan and Far East/West Africa

In October 1989 a strong campaign has been waged by Far East shipowners to raise freight rates in trades with West Africa. Despite increasing costs in the conference liner trades, there had been no increase for five years as shipowners had attempted to satisfy demands to foster trade. However, the liner operators claimed that they were running at increasing losses for non-commercial reasons and could not accept continued losses. It may be expected that increases in conference tariff rates could come into effect in early 1990 despite political pressures. This would likely filter down to non-conference and non-liner trades to the detriment of potential West-African timber exports to North-East Asia.

E. Woodchips

In 1964 the first shipment of woodchips went from the United States to Japan; this is therefore a fairly new commodity trade.

The international trade is dominated by Japan. In 1987 Japan imported 13,783,000 m^3, representing 75 per cent of total international movements (see also figure XIV). Apart from cross-border and coastal movements in Europe, and cross-border movements in North America, the next biggest importer in 1987 was Taiwan Province with 593,000 m^3 or 3 per cent.

Omitting cross-border and coastal trades totalling about 25 per cent, the main exporters in 1987 were (see also figure XV):

	Cubic metres	Percentage
Australia	7,364,000	44
North America	3,035,000	18
New Zealand	700,000	4
Chile	670,000	4
Indonesia	663,000	4
Papua New Guinea	100,000	0.6
Malaysia	80,000	0.5

(There is a discrepancy in the official import/export statistics of some 3 per cent which is relatively small even if not really acceptable.)

Woodchips are both a special product requiring special-purpose vessels, and a low-value commodity necessitating lowest possible overheads. As purpose-built vessels are by definition costly, this is balanced by long-term (10-20 year) contracts and slow-speed/low-consumption engines. Vessels are usually built and contracted for the life of the supply of timber at a particular location. Thus, there is no competition on the shipping side of the business and freights and costs are in-house.

The next step, the processing of woodchips into paper pulp, relates to the paper industry and is not dealt with in this study.

F. Freight rates and costs

Despite conferences, neutral bodies, advertised tariffs, anti-corruption organizations, taxation auditing etc., throughout South-East and North-East Asia various systems are used to negotiate and settle freights from straight cash payments and rebates to transfer pricing. Listed below are the alleged "going" freight rates in the fourth quarter of 1989. Not only do they vary from ship to ship and port to port, but they also depend on shipper and consignee, quantities to be shipped and exchange rate fluctuations. They are not tariff rates but "going rates", i.e. those openly discounted to this level.

Logs ($US/m^3, FIQ)

	To Taiwan Province	To Republic of Korea	To Japan
From Sabah	16-18	23.5-24	22-25
From Sarawak	18-20	25-25.5	24-27
From Papua New Guinea	-	30-35	30-32
From New Zealand	-	25-30	27-34

Sawn timber and plywood ($US/m^3, berthterms)

	To Taiwan Province	To Japan and Republic of Korea	To Europe
From Indonesian mainports	20-25	30-32	50-60
From Indonesian outports	20-32	35-40	70-80
From Singapore	25-30	40-44	47-52
From Peninsular Malaysia	23-25	40	46-50
From East Malaysia	28 (by liner)	50 (by liner)	56-60

The rate from the Republic of Korea to the United States west coast is $US 50/m^3.

Additionally, there are confidential arrangements which cannot be considered here. Such arrangements vary from lot to lot, and depend on loadport and discharge port, on the currency acceptable and the country in which freights are paid.

Quoted and estimated net freight rates for South-East Asian logs, 1983 and 1989
($US/m^3, FIQ)

	1983		1989	
Country or area	Quoted rates	Estimated net rates	Quoted rates	Estimated net rates
Philippines/Japan	21.50	18.00	-	-
Sabah/Japan	21.00	18.00	22.00-25.00	19.80-22.50
Sarawak/Japan	23.50	20.00	24.00-27.00	21.00-24.30
Kalimantan/Japan	26.00	23.00	-	-
Papua New Guinea/Japan	28.00	21.00	30.00-32.00	24.00-26.00
New Zealand/Japan	-	-	27.00-34.00	-

All shipowners would aim for these net rates but are prepared to settle for 10 per cent below on a case-to-case basis, but not all the time. Experienced exporters or importers negotiating with shipping companies would have some method whereby they could hope to obtain up to 10 per cent discount with one or more carriers.

Various miscellaneous charges differ from country to country, e.g. documentation, supervision, handling, internal haulage, wharfage, storage, overtime, barging, fork lifting, craneage, hooking on and off, checkers, heavy lift and hard-work cargo premiums. A "fair average" of these costs is to be included in overall stevedoring charges.

In some countries shippers or consignees have business connections or tie-ins with stevedores and other wharf contractors resulting in lower in-house costs. Also, frequently additional costs arise for unforeseen reasons not included in these average costings.

Loading stevedoring of logs ($US, f.i.o.) and of sawn timber and plywood (berthterms)

Indonesian mainports	2-3/rev. tonne	+ 2-3/rev. tonne	= 4-6/rev. tonne
Indonesian outports	5-6/rev. tonne	+ 2-3/rev. tonne	= 7-9/rev. tonne
Singapore	3-4/m^3	+ 2-3/m^3	= 5-7/m^3
Peninsular Malaysia	2.25/50 ft^3	+ 2-3/50 ft^3	= 4.25-5.25/50 ft^3
Eastern Malaysia	4-5/50 ft^3	+ 2-3/50 ft^3	= 6-8/50 ft^3

Discharging stevedoring for South-East Asian logs ($US, f.i.o.), and sawn timber and plywood (berthterms)

Singapore	3-4/m^3	+ 2-3/m^3	= 5-7/m^3
Taiwan Province	about 2.50/rev. tonne	+ 2/rev. tonne	= about 4.50/rev. tonne
Republic of Korea	2.50/rev. tonne	+ 4/rev. tonne	= 6.50/rev. tonne
Japan, logs into ponds	7/40 ft^3	-	= 7/40 ft^3
logs to pier	8/40 ft^3	-	= 8/40 ft^3
Ex other areas, logs to pier	14/40 ft^3	-	= 14/40 ft^3

G. Sensitivity of maritime freight rates - supply and demand in shipping

The total volume of world seaborne trade has been increasing slightly each year over the 1980s, with the latest figures showing an annual increase (all commodities) of 0.8 per cent. During the same period, particularly over the second half of the 1980s, the world merchant fleet has declined, the recent average annual decrease being about 1.1 per cent. As of 1989, however, the world merchant fleet has shown a slight increase. This means, that there is a trend towards closing the gap between an over-large merchant fleet and the tonnage of trade moving. Thus, the surplus tonnage of vessels (laid up, or slow steaming, calculated proportionately) which was estimated at 29 per cent of the world merchant fleet in 1983, has been gradually decreasing to an estimated 9.8 per cent in 1989.

For shipowners and ship operators the matching of supply and demand remains a serious problem, and even with the gradual narrowing of the gap between ship tonnage offered and cargo tonnage available it is obvious from the figures that it will take a long time before supply and demand will be reasonably balanced. So far competition is keeping freight rates relatively low, but as the gap between supply and demand narrows, freights can be expected to slowly rise in real terms.

It has not been found feasible for the present study to provide a breakdown of the surplus vessels by type and size, but within the shipping industry there is a considerable trickle-down effect. When tankers are surplus, OBOs switch to grain etc.; grain/coal/ore gearless bulkers switch to smaller lots of

cargoes normally carried by geared tankers; and the smaller geared bulkers are chartered into liner-trade routes lifting the larger liner-type parcels such as sawn timber and plywood (e.g. from Indonesia and Malaysia to Europe, plywood from Asia to the United States). The development of the surplus of vessels, suitable for timber trade, over the period 1970-1987 is shown in figure XVI.

A high percentage of the small geared bulkers are major log carriers; others are tweendeckers suitable to enter into liner trades as carriers of larger liner parcels, semi-container vessels etc. These two classes are suitable for timber shipments from the developing economies of South-East Asia in which this survey is interested.

Less affected by the surplus and less competitively chartered are the same tweendeckers suitable for some logs, and timber and plywood carried in liner trades, the full liner vessels, in conventional, semi-container, roll-on/roll off, and full container style, all used in the liner timber trade between West Africa and Europe.

Thus, the types of vessels used in Asian timber trades have been more affected by competition and surplus tonnage than those in African timber trade. A return to more normal supply/demand conditions in world shipping may therefore result in a greater effect being felt in South-East Asian logs, a medium effect in the sawn timber moving from South-East Asia to Europe, and a lesser effect in shipment from West Africa to Europe.

H. Relation of shipping freights to value of timber

The relation of shipping freights to the f.o.b. or c.i.f price of wood and wood products is difficult to evaluate. To ship operators in the South-East Asian log trade, a log is a log no matter what species. Similarly, sawn timber is just that, perhaps with freight variations due to packaging, length etc. but at no time are freight rates applied according to species, apart from very few high-value exotic woods moving in small quantities.

The f.o.b. value of South-East Asian logs can range from $US 40 to $US 300 per m^3 depending on species and quality of the wood, and that of sawn timber from $US 120 to $US 1,200 per m^3. Even the relationship between the value of the log before and after sawing is not fixed. In some South-East Asian mills the sawing is relatively primitive and wasteful. About 50 per cent of volume of the log is lost in sawing, and the average value of the sawn product is about four times that of logs. Sawing of the same log in Japan is much more efficient, thanks to sophisticated equipment and skilled labour, so that less than 20 per cent of the log is lost. Furthermore, half of the waste is salvaged for other purposes, so that after sawing in Japan the logs' value is increased six to eight times.

I. Shipping freights relative to f.o.b value of wood

Although the value of individual timbers, both as logs or sawn, differs considerably, annual averages are used for the purpose of comparison. In 1976, the value of log exports from South-East Asia averaged $US 25-50 per m^3. In 1988 the average value had increased to $US 70-80 per m^3. While the species of naturally grown wood available for harvest may vary from year to year, it is reasonable to conclude that from 1976-1988 the f.o.b. value for South-East Asian logs has approximately doubled or increased by an average of $US 37 per m^3. This is not a great increase for a period of 12 years.

Over the same 12 years shipping freight costs have increased by only 10-20 per cent. In the trade from Sabah/Sarawak to Japan/Republic of Korea/ Taiwan Province (the only remaining log trade after 1976), this represents an increase of $US 2-5 per m^3. Shipping rates have therefore dropped considerably in real terms after allowing for inflation etc.

In 1976 the seafreight represented some 30-50 per cent of the f.o.b. value, whereas in 1988 the freight had dropped to 20-40 per cent of the f.o.b. value.

Because of the differing freight rates over distances plus the broad range of values amongst species, care should be taken that sea freight costs are viewed in proportion to f.o.b. values.

J. Value of shipments of timber and timber products

Figure XVII gives an overview of the value of timber and timber products shipped from South-East Asia, West Africa and Latin America to different destinations.

K. Quantity shipments of timber and timber products

Table 9 facilitates a comparison of the maritime movements of tropical hardwoods - in the form of (a) logs; (b) sawnwood; and (c) plywood and veneer - of different origin and to different destinations.

L. Sailing frequency

South-East Asia to North-East Asia - logs

The frequency of loadings is determined by the individual supply rates at each loadpoint. Most concessionaires can cut and deliver - weather permitting - about 3,000-4,000 m^3 to each vessel. With one week for loading and a few days between, the sailing frequency would be every 10-14 days. It is usual to collect at one or two additional loadpoints either smaller or late deliveries, or overflows from a previous vessel to reach a full load of 5,000-6,000 m^3 under and on deck per vessel. Approximately 15 loaded ships would sail each day from one or another log loading point.

South-East Asia to Europe - sawn timber

With liner-type services there is a continuous flow of vessels, and as different carriers are competing at main ports at both ends, they frequently are in port together. At smaller load ports, carriers will not call until the quantity to be lifted warrants a call, which results in irregular services.

West Africa to Europe - logs

The conference-liner service provides a continuity of calls, but even within the conference there is competition with greater frequency at main loadports and lesser frequency at smaller loadports.

The conference concept is to provide the most economical form of coverage for all commodities from and to all combinations of ports. Naturally, there are variations depending on cargo quantities, port conditions, port combinations and freight levels, but in general the loss-making shipments are balanced by the more profitable movements. Thus, instead of declining to lift unprofitable cargoes, conference members share these between themselves and cover

the losses with other cargoes. This tends to keep conference rates higher than some shippers expect and can lead to the introduction of outsiders who aim only at the profitable movements. For shippers supporting competitively priced outsiders there is an obvious saving in freight, however, at the cost of not covering less attractive commodities and ports and creating instability in the trade. In some trades both groups have reached a satisfactory solution, with the conference tolerating outsiders who in turn limit profitable cargoes - an arrangement which may work to the satisfaction of shippers, consignees and shipowners.

M. Charter parties and bills of lading

To recommend improved or ideal clauses or to suggest guidelines for legal documents in the wood and wood products' trade would require a separate in-depth investigation.

Expressions such as "weather working days" and "working hatch daily" frequently lead to differences in cost calculations. Being basically of British origin, or involving British documentation or business done at the Baltic Exchange in London, such terms may lead to differences of interpretation and hence calculation and end up in British case law. Thus, most legal shipping terms (owning, operation, chartering, carriage etc.) are in many cases contractually interpreted according to their definition by the British legal system. To be proficient and to maximize financial results therefore necessitates a constant upgrading by experience and learning of the most suitable systems to use, documentation, clausing and wording.

Within the Asian sphere the bulk of the movement is in logs. All log movements to Japan, virtually all to the Republic of Korea, and most of those to Taiwan Province are concluded on the basis of the Nanyozai Charter Party. The Japanese shipping exchange documentation specifically covers what is termed there "South Seas lumber trade".

N. Regulation and co-operation in shipping

The differences between shippers and ship operators for wood and wood products are those also usually found with trade in other commodities, namely:

(a) Infrequent calls at most convenient loading ports versus insufficient cargo to induce frequent calls at smaller ports;

(b) High over-all freight rates relative to the value of timber versus higher freight per shipping unit paid for higher-value commodities;

(c) Lack of co-operation between shippers and ship operators versus competitive nature of timber and shipping businesses.

In order to resolve such problems, different actions may be undertaken and are usually found in some combination in most trades:

(a) Regulatory control of both, timber industry and shipping business, or of one of them;

(b) Co-operation between the competitors, leading to rationalization and reducing wastage (through conferences in shipping and joint booking offices or similar groups of shippers' councils);

(c) Opening of one or both industries to complete competition.

Most countries have a number of laws and regulations applying to shipping which are generally designed to promote the orderly conduct of shipping operations, although co-operation and rationalization are seen differently in the trade between South-East Asia and Europe as compared to the West Africa to Europe trade.

O. Crewing costs

Figure XVIII shows the average annual crewing costs for ships under different national flags.

VII. TECHNOLOGY AID

In 1988 a Japanese aid programme to the Philippines was launched, whereby Japanese organizations survey safety standards - not only such obvious items as lifeboats, but also the vessel's structural design, maintenance and repair programmes, cargo stowage efficiency etc. and then provide the necessary assistance to correct, repair and refurnish needy vessels in Japanese yards.

For 1990 it is planned to expand this programme to include the fleets of developing African and Latin American countries.

It is uneconomical to position vessels in need of repair from West Africa, Europe or elsewhere in the Atlantic, even from the Indian Ocean, South Pacific or the west coast of the United States to Japan, even when the costs are subsidized. But for vessels trading to or from North-East Asia, such subsidized repair, maintenance, general upgrading and extension of the vessel's economic life would be a very attractive proposition, particularly as vessels carrying logs and timber in quantity become easily and quickly battered and surface damaged.

Annex I

MAIN TIMBER IMPORTING COMPANIES OF JAPAN, 1988

	Million m^3		Million m^3
North American logs		North American lumber	
Nichimen	1,134	Mitsubishi	498
Nissho Iwai	966	MacMillan	316
Marubeni	868	C. Itoh	296
Sumitomo Forestry	687	Nissho Iwai	261
Mitsubishi	657	Emachu	256
South-East Asia logs		South-East Asia lumber	
Marubeni	1,007	C. Itoh	103
Sumitomo Forestry	950	Mitsubishi	102
C. Itoh	793	Nissho Iwai	78
Nissho Iwai	787	Marubeni	76
Nichimen	774	Meiwa	66
Soviet species		Radiata pine	
Nichimen	550	Toyomenka	114
Nissho Iwai	497	Nichimen	100
Orient	371	Nissho Iwai	92
Mitsubishi	342	Marubeni	85
Marubeni	308	Sumitomo Forestry	74

Annex II

JAPANESE IMPORT BERTHS

Port	Berth	Max. DWT (Approx.)	Max. L.O.A. (m) (Approx.)	Max. Draft (m) (Approx.)	Comments
Akita	North Pier			7.5	Logs
	Ohama No. 1			10.0	Logs
	Mukaihama Jetties	5 0000	180	7.5	Logs
	Tohoku Seishi berth	46 000	210	10.0	Chips
Hachinohe	Mitsubishi Wharf	50 000	390	10.0	Woodchip berth
Hakata	Mokuzai Wharf	10 000	150	7.5	Logs
Hiroshima	Hatsukaichi Wharf 1 Dolphins			10-12.0	
Hososhima	Shirahama Wharf No. 10	23 000		10.0	Max. draft may require tidal assistance
Ishinomaki	Nakajima Wharves 2/3	28 000	185	10.0	Total length 370 m.
	Minami Hama No. 1		165	10.0	Handles chip carriers
Iwakuni	Sanyo-Kokusai Pulp/Logs Pier	15 000	150	7.5	
	Sanyo-Kokusai Chips Pier	40 000	230	11.5	
Kanda	Matsuyama Log Berth	15 000	185	10.0	Similar vessels at dolphin
Kisarazu	Lumber dolphin			10.0	
Kobe	Various berths			9-12.0	
Kushiro	West Pier 1/4	40 000	210	10.0	3 woodchip distributors (1 x 440 tph, 2 x 1,100 tph)
Maizuru	Ohgimi Dolphin	15 000	155	9.5	

Port	Berth	Max. DWT (Approx.)	Max. L.O.A. (m) (Approx.)	Max. Draft (m) (Approx.)	Comments
Matsuyama	Imazu Zaimoko Log Wharf	16 000		10.0	
	Yurawan Log anchorage			15.0	
	Umaiso Log anchorage			12.5	
Minamata	Hyakken Anchorage	40 000	180	10.5	
Miyako	Lumber Port			9.0	
Nagoya	West No. 3			7.5	Log berth
	West No. 4			10.0	Timber berth
Nagasaki	Log Pier	25 000		10.0	
Naoetsu	Lumber Pier	15 000		9.0	
Niigata	Lumber Wharf			9.5	
Oita	Sumiyoshi No. 1	15 000	160	9.1	Vessels of 20,000 dwt and 180 m. L.o.a.
	Sumiyoshi No. 2	15 000	160	9.2	accommodated on draft of 8.5 m.
Onahama	Fujiwara Pier 1/4		130-180	7.5-10.0	
Osaka	Southport Wharves (3)		210-230	12.0	
Sakaide	Hayashide A	30 000	240	10.5	
Shimizu	Fujimi 3/4	2 x 10,000		9.0	Chips berth
	Fujimi 6/7	2 x 10 000	160	9.0	
	Okitsu 2/3	2 x 15 000	180	10.0	

Port	Berth	Max. DWT (Approx.)	Max. L.O.A. (m) (Approx.)	Max. Draft (m) (Approx.)	Comments
Tagonoura	Chuo Wharves 1/2	2 x 10 000	200	9.0	
	Center Wharf	40 000			Used by Star Shipping vessels
Tanabe		35 000		10.0	
Tokyo	Odaiba - 13 Gochi			10.0	
	- 15 Gochi	25 000		10.0	720 m. Length lumber berth
	Buoys 9/22	15 000	160	8.0	
	Buoyks 23/26	25 000	170	9.5	
	Dolphins M1/3; M10/11	25 000	170	10.0	14 dolphins used by loggers
Tomakomai	South Pier 1	15 000	185	9.1	Pulp
	South Pier 2	15 000	185	9.1	Pulp 1 x 30 t. gantry crane
	South Pier 3	30 000	185	10.1	
	Central North Pier 1	15 000	185	9.0	Logs/timber
	Mokuzai Koku				
	Logs Dolphin - No. 1	15 000		9.2	Logs/timber
	- No. 2	15 000		9.2	Logs/timber
	Yufutsu Pier 1	30 000	230	10.8	Chip berth
Wakamatsu	Hibikinada Dolphin Wharf		170-200	9.0	Logs. (3 wharves) New berths planned
Yokohama	Mitsui Pier (Honmoku)	35 000	180	11.0	
	Suzushiga Pier 1		280	11.5	
	Kanazawa Timber Pier	15 000	180	12.0	Also 2 buoy berths for similar vessels

In addition, timber/lumber cargoes are likely to be worked via general purpose berths at all Japan's principal ports.

Annex III

NORTH EUROPEAN IMPORT BERTHS

COUNTRY	PORT	TERMINAL	MAX. LOA(m)	MAX. DRAFT(m)	COMMENTS
France	Boulogne	Quai de l'Europe	230.0	10.5	12 cranes (3-20t.) plus 1 private covered gantry crane (35t).
		Ro-Ro berth	145.0	6.0	
		Quai Amiral Huguet	125.0	5.0	Internal basin with locks.
					Total traffic in 1987 - woodpulp (160,000 tonnes); paper (82,000 tonnes), timber (26,000 tonnes). Expected increase in 1988 - 20%.
	Le Havre	Quai de l'Atlantique	300.0	12.0	Container facilities. Most imports are containerised. In 1987 timber imports - mainly sawnwoods - totalled 70,400 tonnes (90% in containers). The corresponding figures for pulp and paper were 12,100 tonnes (99%) and 50,200 tonnes (58.5% containerised; 40.5% Ro-Ro). In addition, over 130,000 tonnes of papers and cartons were loaded.
		Quai de l'Europe	300.0	12.0	
		Quai Bougainville	300.0	12.0	
		Quai de Garonne		7.0	Handles logs/lumber worked in the traditional mode. Mobile cranes (upto 30t.) available.
					The Port of Le Havre has plans to develop a timber handling facility at the northern end of Quai Bougainville. The scheme involves a 6ha. stacking area, a railway track and 10t. cranes. The quay would be open to vessels drawing a maximum of 12.0 metres.
	Nantes	Quai Chevire Amont		8.5*	300m. total quay length. Facility reportedly used for timber, paper and containers. Cranage of upto 15t.
					* May be greater with tidal assistance.
	Rouen	Bassin aux Bois At Quai Neuf		9.0	1,200m. total quay length with 8 moorings. Reportedly a dedicated forest products terminal. Timber packages also handled at general cargo berths.
Belgium	Antwerp	Vrasene terminal (Varant-Westerlund)			Private quay behind the Scheldt locks. 350m. total quay length plus 60m. Ro-Ro ramp. Facility can simultaneously handle 2 Ro-Ro vessels and 1 side port vessel. In 1988 throughput is anticipated at 330,000 tonnes (including 240,000 tonnes of paper). 1989 expectations are for 400,000 tonnes.
					The facility serves the terminals and distribution systems of Varant (a subsidiary of Finnpap) and the Belgian Westerlund group.
		Westerlund terminal		15.2	Westerlund Churchill Dock - No.414. 200m. quay length. Specialised gantry crane for forest products (40t.) inc. pulp spreader and paper roll core probes. In total, Westerlund's annual forest products throughput (both terminals) is in excess of 1.0 million tonnes/year.
		Hessenatie terminals		15.0	Churchill dock South terminal - Quays 400-412. Total quay length 1.2km. Ro-Ro linkspan at Quay 410 (60 x 30m.). Cranes of 20-28t. available.
					Vrasene dock terminal - Quays 1213-1221. Due to be operational in April 1989. Total quay length 970m., draft 15.0m.
					In 1987, Hessenatie's forest products throughput totalled 634,000 tonnes. Of this the main components were woodpulp (328,000 tonnes) and timber/lumber (135,000 tonnes).
		Katoen Natie terminal			Delwaide dock. Being developed near Quay 728 (adjacent to Seaport terminal)

COUNTRY	PORT	TERMINAL	MAX. LOA(m)	MAX. DRAFT(m)	COMMENTS
	(Antwerp continued)	Seaport Terminals		13.5	Churchill dock - Multipurpose terminal. Cranes upto 32t.
				15.5	Delwalde dock - Multipurpose/neobulk terminal. Wharves 732-740. Specialised equipment for handling forest products, woodpulp, kraft linerboard, paper, newsprint, plywood, timber and logs. Cranes upto 68t.
				10.6	5th harbour dock - General cargo terminal. Able to handle timber cargoes. Cranes upto 27t.
					Tonnage handled understood to be around 400,000 tonnes/year.
					Kaloen Natie has taken over Seaport Terminals N.V. It is understood that the merged group has plans to seek a concession at Vrasene Dock. The plan would involve a 1200m. total quay length development (plus 65m. Ro-Ro ramp) open to vessels on a maximum draft of 12.8 metres. The group foresee traffic in 1993 reaching 1.0 million tonnes.
					* Forest products may also be handled at facilities controlled by Gylsen Stevedoring.
	Ghent	Grootdok - Quay 29/30/31		12.2	Total quay length 500m. Cranes 4 x 15t. Forest products warehouses.
		- Quay 30/35		12.2	Total quay length 250m. Cranes 4 x 15t. Log handling
		Rigakaai - Quay 38/39		7.0	Total quay length 300m. Cranes 5t. Timber handling
		Sifferdok - Quay 103/104		12.2	Total quay length 300m. Cranes 4 x 10t, 1 x 40t. Timber handling
		- Quay 98		12.2	Total quay length 250m. Cranes 4 x 10t, 1 x 40t. Logs handling
					Total imports in 1987 were around 572,500 tonnes. The main component was cellulose (pulp) at 314,000 tonnes. Paper traffic was 182,000 tonnes.
Netherlands	Rotterdam	Seaport Terminals		12.6	Multi-purpose terminal located at Brittanniehaven. 2 Ro-Ro ramps. 1 x 50t. mobile crane. 1 x 70t. gantry crane.
		Quick Dispatch (O.V. Stevedore Company Quick Dispatch)		10-11.0	Multi-purpose terminal at Prinses Beatrixhaven. Handles pulp, paper, newsprint, kraft linerboard etc. plus bundled timber/ lumber. Claimed throughput 650,000 tonnes/year. Cranes of upto 45t.
		Multi-Terminals Waalhaven		10.5	Pier 2 terminal. Handles conventional and Ro-Ro vessels.
		Spoorhaven Stevedoring & Warehousing		10.5	Waalhaven Pier 1. Total quay length 537m. Cranes upto 40t. General and neo-bulk facility.
		Muller-Thomsen Rotterdam O.V.		10.6	Terminal located at Prinses Beatrixhaven, specialising in forest products, neo-bulks and general/unitised cargoes. Total quay length 2000m. Cranes upto 67t.
					* In addition forest products are understood to be handled at facilities operated by Stuwadoors en Controlebedrijf J. Oosterom & Zoon O.V. and by Dutch Stevedoring Company O.V.
					In terms of timber volumes, Rotterdam accepts around 1 million tonnes/year by sea. Of this about 400,000 tonnes/year is transit cargo.
Federal Republic of Germany	Vlissingen	Container terminal		13.0	Handled 204,000 tonnes of sawnwood, timber and board during 1987.
	Bremen	Holz und Fabrikenhafen		7.0	J.H. Bachmann, J. Muller, Karl Gross facility - 550m. quay length. 5 cranes. Facility handles grain, forest products and general cargo.

COUNTRY	PORT	TERMINAL	MAX. LOA(m)	MAX. DRAFT(m)	COMMENTS
	Bremen (continued)	Oremen Industriehafen	210.0	9.4	Kohlenhafen - varied purpose berths operated by Gebr. Rechling Seehafen VGH. Cargoes handled include coal, coke, logs and general cargo. Cranes of 18t. for log handling.
	Hamburg	Cellpap Terminal Hamburg GMBH		7.5-11.5	Forest products and paper terminal. 3 quays of between 210-230 m. length. Vessels of upto 45,000 dwt are accommodated. Cranes upto 30t.
		HHLA - Forest Products Terminal (Dradenau Basin)		12.0	Forest products terminal originally set up in collaboration with Svenska Cellulosa but substantially enlarged in 1980. Ro-Ro facility (120t.). Cranes upto 12t. Quay length 330m. Annual throughput around 550,000 tonnes.
		HHLA-Holzmuller Seehafenbetrieb		13.0	700m. total quay length. Cranes upto 70t. Varied usage including forest products, timber and paper.
		Pohl & Co. - Peute terminal		4.5	Upstream, draft restricted terminal mainly served by coasters from Scandinavia/Baltic. 300m. quay length. 1 x 10t. crane.
		Reiherstieg - Holzlager AG - Reiherstieg berth		4.5	Total quay length 350m. 6 x 5-15t. cranes.
		KG Sud-West Terminal		12.0	Ro-Ro terminal (32m. ramp). Cranes upto 45t.
		Svenska Terminal (Dradenau)		12.5	Quay length 325m. Cranes 12.5-36t. 2 Ro-Ro bridges. Handles all forest products.
		Uniforest Terminal GMBH (Dradenau)		12.5	Quay length 325m. Cranes 12.5-36t. 2 Ro-Ro bridges. Handles all forest products.
					During 1987 wood and wood products traffic through Hamburg was close to 400,000 tonnes (of which around 100,000 tonnes was transit cargo). Pulp and paper generated 1.9 million tonnes of traffic (of which 700,000 tonnes was transit cargo).
Ireland	Dublin	Alexandra Quay/Ocean Pier. Berths 32-39	200.0	10.2	Max. vessel dwt about 30,000 tonnes.
					Berths 19-25 (North Wall Extension) are being considered as a site for a new purpose built forest products terminal with the emphasis on paper cargoes.
					In 1987, notable import totals were timber (101,000 tonnes) and paper/board (112,000 tonnes).

Annex IV

IMPORT BERTHS IN THE UNITED KINGDOM

PORT	BERTH/TERMINAL	MAX LOA(m)	MAX DRAFT(m)	COMMENTS
Aberdeen	Regent Quay East (2 berths)		9.0	Berth length 254m. Berths used mainly for timber and pulp
Ayr			6.2	Timber cargoes handled.
Belfast				Served by European services (e.g. Baltic-Ireland Line from Mantyluoto and Helsinki-Hamina range-also serves Waterpoint; Scotline from Varberg - also serves Wicklow and Greenore) and long haul services (e.g. Booth SS from Amazon ports, Orisa Line from S. America and Seaboard Shipping from W. Canada).
Blyth	Wimbourne Quay	140.0	6.7 (L.A.T.)	Berth with Ro-Ro pontoon and bridge crane. Purpose built for forest Products traffic Sto-Ro facilities.
	South Harbour			
	-Berth 1	140.0	7.0 (L.A.T.)	Berth with Ro-Ro pontoon.
	-Berth 2		8.7 (L.A.T.)	General berth, 10t. crane.
				Principal traffic is forest products from Finland. Anticipated pulp and paper traffic in 1988 is 325,000 tonnes.
Bristol	Royal Edward Dock (Avonmouth)	209.7*	9.9*	* Max. vessel size determined by Royal Edward Dock.
	-'R'/'S' berths			441m. quay length, 11x3t. cranes.
	-'W'/'X' berths			348m. quay length, 10x3-5t. cranes.
	-West Wharf 1			165m. quay length, 5x5t, 1x10t cranes.
	-'T' berth			165m. quay length.
				The Royal Edward Dock discharges hardwoods, including sawn timber and plywood products from the Far East landed by Continental Pacific Line. Also, logs and timber form part of the monthly cargo landed by UKWAL. UKWAL uses West Wharf 1.
	Royal Portbury Dock	289.5	11-13.7	
	-Gordano Quay; Berths 1/2			Purpose built common-user facility handling softwood products. 575m. quay length. 6x45t. gantry cranes. Lines calling include Gearbulk and Canadian Transport.
				Current annual throughput is: Avonmouth hardwoods - 120,000 tonnes sawn timber; 80,000 tonnes plywood.
				Portbury softwoods - 210,000 tonnes sawn timber, 120,000 tonnes pulp, 30,000 tonnes board products.
Cardiff	Queen Alexandra Dock	252.0	9.9	Entry governed by dimensions of the sea lock. 304m. quay described as used for reception and storage of packaged and other timber.
	Roath Dock	182.0	7.9	Limitations imposed by the inner Lock. Berth for reception of packaged and other timber.
				Norbulk and Norasia services (from Philippines, Indonesia, etc.) call at Cardiff.
Clyde	Glasgow			
	-King George V Dock		7.5	Facility reported to receive general cargo and timber.
	Greenock			
	-Clydeport Deepwater Terminal			First cargo discharged in November 1988 (7,000 cu. m. of Chilean pine from a 38,000 dwt bulk carrier). Terminal originally conceived for container traffic but now being developed as a multi-purpose facility.
Dundee	Camperdam Timber berths		5.5	739m. quay length. Restriction on entrance width.

PORT	BERTH/TERMINAL	MAX LOA(m)	MAX DRAFT(m)	COMMENTS
Felixstowe	Dock Basin	106.7	6.4	Several liner services with forest products (mainly newsprint, paper, kraft linerboard, board products and pulp) included in their product mix reportedly call at Felixstowe's containerised or Ro-Ro facilities. These are thought to include Finnanglia Ferries, Fred Olsen, Stena Tor Line, Nile Dutch, Atlanticargo and Blue Star Line.
	No.3 Ro-Ro berth	137.0	7.0	
	No.4 Ro-Ro berth	213.0	9.5	
Forth Ports				
-Grangemouth	No. 7 Berth, Grange Dock North (FP Terminal)		7.9	180m. quay length, 6t. cranes. FLTS with newsprint and pulp clamps.
-Leith	Imperial Dock South	200.0	9.2	330m. quay length. 6-10t. cranes. Ro-Ro and sideport vessels can be handled.
				Vessels serving WCNA trades (e.g. FPCI, Gearbulk) are known to call at Leith. Other services, linked to Grangemouth, are understood to include Ahlmark Line, Oy Finn-terminals AB Kotka, Highland Line, Scotline, J.P. Strom and Atlanticargo.
Humber Ports				
-Grimsby/ Immingham				Limited volumes of timber handled at Grimsby. Main traffic at Immingham is paper, board and timber from Scandinavia and West Africa handled by Ro-Ro vessels. Volumes are described as "vast". In 1989 Tor Line/Exxtor and Stora Forest Products are to commence a regular Sweden-Immingham newsprint service handling over 100,000 tonnes/year. The Exxtor berth at Immingham currently accommodates the Ro-Ro service of OT Africa Line.
-Howdendyke			5.1	Max. vessel size 3,000 dwt. Private port handling forest products and neo-bulks. Regular services are said to include Oy Finnterminals AB Kotka, Intergen Lines and Willie Lines.
-Hull	King George and Queen Elizabeth Dock	196.0	9.2-10.4 (Depending on tide)	Max. vessel size equates to a bulk carrier of approx. 30,000 dwt. In addition to packaged lumber/timber vessel facilities there are 5 Ro-Ro berths. The Meyer group operates a major storage terminal.
				Main services include Finnanglia Ferries (paper, board, timber, etc), Ro-Ro ex-Finland; Ahlmark Line (packaged timber) ex-Sweden; Orient Bulk Line (hardwood, plywood) ex-S.E. Asia; Alianca Line (plywood, parana pine) ex-Brazil; GRC Africa Line (hardwood and logs) ex-W. Africa. Hull also receives packaged timber from the USSR and Finland and lumber ex-ECNA and Chile.
				Approximate annual throughput is 125,000 tonnes of paper and boards plus perhaps 175-185,000 tonnes of lumber and packaged timber.
Ipswich	South West Quay/ Orwell Quay	80.7	5.5	Port handles modest tonnages of paper and packaged timber. The port, however, has a sizeable Ro-Ro trade with near Europe.
	Cliff Quay	140.0	7.7	
Liverpool	Royal Seaforth Timber Terminal		12.8	Timber terminal encompasses Berths 37-40. Respective berth lengths are 183,183,213 and 213m. Berth 39 has 4x10t. plus 1x44t. cranes.
				Regular timber and forest products services include Anglo Soviet (ex-USSR), ACL (ex-ECNA), Orisa (ex-ECSA), Canada Maritime (ex-E.Canada), FPCI (ex-WCNA), Gearbulk (ex-WCNA), Navi Bulgare (ex-Bulgaria), PanOcean (ex-Far East), Sanko (ex-Far East), UKWAL and Willie Lines (ex-Portugal).
				Overall, annual throughput is currently in excess of 422,000 tonnes.
London	Tilbury - Berths 42/44/46		11.3	The Tilbury terminal incorporates three adjacent berths operated by 42 Berth Tilbury Ltd, Interforest Terminals Ltd. (44) and Seaboard Pioneer Terminals (46). Adjacent combi berth (40) may also be used for forest products. Long haul services include Seaboard Shipping Services, Gearbulk, Alianca, Blue Star, Cont'inental Pacific Line, Combo Line, FPCI, Lloyd Brasileiro, MISC, Transol and Troll Carriers.

PORT	BERTH/TERMINAL	MAX LOA(m)	MAX DRAFT(m)	COMMENTS
London (Cont'd)				During 1988 throughput at Tilbury's forest products berths is expected to reach 1.3 million tonnes. By 1991, the expectation is 2.0 million tonnes. Claims for current traffic include 300,000 tonnes/year at Berth 46.
	Private Wharves:			Specialises in newsprint and other forest products.
	Convoys Wharf (Deptford)		7.0	One berth plus Linkspan and pontoon for Ro/Ro vessels. Terminal throughput is around 530,000 tonnes/year (over half from Finland). Facility is owned by News International but handles other company products - e.g. Finnpap (Varma Services) operates an import/distribution operation.
	Denton Wharf (Gravesend)		10.0	Reportedly handles Portuguese softwoods.
	Erith Deep Wharf		6.4	Berth length 183m. 5x7.5t cranes. Specialises in forest products handling. Operator, Purfleet Deep Wharf & Storage Co, is subsidiary of Associated Newspapers. Terminal has recently been chosen as the paper/board import hub for Enso-Gutzeit Oy. Shipments for Enso, via Dore Line, are reportedly 80,000 tonnes/year.
	Northfleet (Scott North-fleet Terminal)			187m. quay length. Accepts coasters through to 32,000 dwt bulk carriers discharging pulp from Scandinavia and WCNA. 1987 throughput of 136,000 tonnes.
	Phoenix Wharf (Rainham)		5.8	Handles forest products. Vessel of 7.3m d. accepted "safely aground at LW". Ro-Ro facilities also available.
	Pinns & Limmer Wharves (Barking Creek)		5.5	Specialises in forest products and neo-bulks.
	Purfleet Deep Wharf		8.0	Shoreside gantry crane (40t) and Ro/Ro facilities available. Operator as per Erith Deep. Forest products and unitised/Ro-Ro specialisation.
Medway Ports				
- Sheerness	Berths 1/2/3	210-230.0	11.0	All three berths are used for forest products though No.2 is the main facility. Berth 1/2 have Ro/Ro pontoons. Throughput in 1987 was 360,000 tonnes (major components being kraftliner 27%, sawn timber 25.5%, newsprint 20% and pulp 12%). Gearbulk service vessels (ex-Brazil/Chile) call at Sheerness.
- Rochester	Crown Wharf		7.5	165m. quay length. Handles forest products and neo-bulks.
- Ridham Dock			8.5	May be used by some near-sea services.
- Chatham	Berth 8			Berth length 168m. 1x5t. crane. Forest Products and Ro-Ro terminal.
Montrose		143.0	6.5	Reportedly handles all types of forest products. Storage area for paper products.
Newport				
South Dock (North Side/4-5)		243.8	10.5	Max. vessel size (39,239 dwt) governed by lock dimensions.
North Dock (MDM Forest Products Ltd. terminal)			8.2	North Dock entry governed by passageway between North and South Docks.
				Main cargoes are far East hardwood and Canadian softwood. 1987 throughput was 450,000 tonnes. Services calling include Harbulk/Harasia (ex-Far East), Canadian Transport and FPCI (ex-Canada).
Shoreham			5.5-6.5	Served by several near-sea operators (e.g. Ares Line, Conbotnia, Finncarriers/ Saimaa Service, Oy Finnterminals AB Kalka, Intergen Lines, Schelp Lines, Spliethoffs, Sumai Line, Sussex Line, Tor Line) plus UWL Line (ex-W. Africa) and Dankrag (ex-Brazil).
Sunderland	Corporation Quay		8.8	232m. quay length. 2x35t, 1x10t, 1x5t. cranes.
	Hendon Dock Complex		9.4	207m. quay length. 3x6t. cranes. Vessels upto 8,000 dwt.
				Sunderland regularly accepts pulp, timber and paper cargoes from Scandinavia and the rest of Europe.

PORT	BERTH/TERMINAL	MAX LOA(m)	MAX DRAFT(m)	COMMENTS
Tees and Hartlepool				
- Tees	No. 1/No. 2 Quays		7.6 (+ tidal allowance)	Within Tees Dock there are five general purpose berths which also handle forest products. These berths are between 182-223m. long with 10.9m. LAT alongside. Cranes of 6-32.5t. Tees Dock also has a linkspan Ro-Ro facility. Forest Products (ex-B. Columbia) using Hosac Ro-Ro vessels feature as part of the regular Pacific Commerce service to Middlesbrough. 1987 throughput on the Tees was 58,000 tonnes, mainly ex-Canada.
- Hartlepool	Victoria Harbour Deepwater berth		7.9 (Some restrictions imposed by entrance Channel)	300m. quay length with 9.5m. depth alongside. 4x10t. cranes. Ro-Ro pontoon and linkspan. Forest products traffic in 1987 totalled 456,000 tonnes (394,000 tonnes ex-Scandinavia). Regular forest products services include Combi Shipping, Leffler Line, Finnterminals, Finnish Paper & Board Services (includes Transfennica and Lamco Paper), Press Papers, Westvaco (ex-USA), Irving Pulp & Paper (ex-Canada) and Anglo-Soviet (ex-USSR).
Tyne Ports				
-Tyne Dock				
(South Shields)	NW Quay/Factory Quay		7-8.0	NW Quay is 243m. long 5x5-10t. cranes. Factory Quay is 196m. long 2x3t. cranes.
-Albert Edward Dock				
(North Shields)	Warehouse Quay/E. Dock Wall		7-8.0	Warehouse Quay is 356m. long, 7x6-30t. cranes. Wall berth is 162m. long, 3x5t. cranes.
	Riverside Quays		5.5-7.0	Tyne Commission Quay is 335m. long. 1x40t, 4x3-6t. cranes. 7.1m. depth. Tyne Commission Quay Extension - 118m. long, 6.2m. depth, 2x6t. cranes. Whitehall Point Jetty - 90m. long, 5.5m. depth. In addition four Ro-Ro berths are available. Traffic in 1987 amounted to 91,000 tonnes of timber and 202,000 tonnes of paper and wood products.

Annex V

STANDARD GENERAL CONVERSION FACTORS FOR ROUNDWOOD AND PROCESSED WOOD

Product	Unit	Solid volume				Roundwood equivalent	
		Cubic metres	Cubic feet	Average weight in metric tons	Cubic metres per metric ton	Cubic metres	Cubic feet
ROUNDWOOD							
Sawlogs							
Coniferous	(1 000 board feet	4,53	160	3,171			
	(M3	1	35,315	0,700	1,43		
Broadleaved	(1 000 board feet	4,53	160	3,624			
	(M3	1	35,315	0,800	1,25		
Tropical	M3	1	35,315	0,730	1,37		
Pulpwood	Cord - Corde	2,55	90,0	1,7212	1,48		
Pitprops	Fathom	4,28	151,1	3,103	1,38		
Fuelwood	Cord - Corde	2,12	74,9	1,537	1,38		
Coniferous	Stere - Stère	0,70	24,7	0,4375	1,60		
Broadleaved	Stere - Stère	0,65	23	0,4875	1,33		
PROCESSED WOOD							
Sawnwood							
Coniferous	(Standard	4,672	165	2,570			
	(M3	1	35,315	0,550	1,82	1,67	59
Broadleaved	M3	1	35,315	0,700	1,43	1,82	64
Sleepers	M3	1	35,315	0,780	1,28	1,82	64
Plywood							
per 1 mm. thickness	1 000 m2	1	35,315	0,650	1,54	2,3	81
per 1/8 in. thickness	1 000 sq. ft.	0,295	10,417				
Veneer sheets							
per 1 mm. thickness	1 000 m2	1	35,315	0,750	1,33	1,9	67
per 1/10 in. thickness	1 000 sq. ft.	0,236	8,33				
Fibreboard							
Hardboard	1 000 cu. ft.	28,32	1 000	26,90			
per 1 mm. thickness	1 000 m2	1	35,315	0,950	1,053		
per 1/8 in. thickness	1 000 sq. ft.	0,295	10,417	0,280			
Insulating board	1 000 cu. ft.	28,32	1 000	7,08			
per 1 mm. thickness	1 000 m2	1	35,315	0,250	4		
per 1/8 in. thickness	1 000 sq. ft.	0,295	10,417	0,074			
Particle board							
per 1 mm. thickness	1 000 m2	1	35,315	0,650	1,54		
per 1/8 in. thickness	1 000 sq. ft.	0,295	10,417	0,192			

Table 1. Examples of statistical problems

A. Philippine log exports to Japan versus Japanese log imports from the Philippines
(Official government statistics)

	1984	1985	1986	1987
Philippine exports	603,700m^3	301,000m^3	199,600m^3	6,500m^3
Japanese imports	903,000m^3	558,500m^3	284,400m^3	41,600m^3

B. Papua New Guinea log exports to Japan versus Japanese log imports from Papua New Guinea
(Official government statistics)

	1984	1985	1986	1987
Papua New Guinea exports	678,900m^3	696,500m^3	732,700m^3	866,600m^3
Japanese imports	573,000m^3	734,100m^3	774,600m^3	948,600m^3

Source: Data provided by consultant.

Table 2. Destination of international maritime movements of tropical hardwoods,[a/] 1986

Japan	15,800,000 m^3
Europe	16,100,000 m^3
Canada and USA	5,000,000 m^3
Other developed countries	400,000 m^3
	37,300,000 m^3
China, Hong Kong, Taiwan Province and Rep. of Korea	15,400,000 m^3
Other developing countries	2,400,000 m^3
	17,800,000 m^3

Source: Data provided by consultant.

a/ Logs, sawnwood, plywood and further processed wood.

Table 3. Comparative tropical hardwood imports, by type of product, in m^3 of sea freight, 1986
(EEC versus Japan)

	EEC	Japan
Logs	4,090,000	12,110,000
Sawn wood	4,220,000	830,000
Veneer	330,000	210,000
Plywood	1,440,000	570,000
Pulp	negligible	330,000

Table 4. Comparative tropical hardwood imports by sea, in roundwood equivalents, 1986
(EEC versus Japan)

EEC	Japan
15,720,000 m^3	15,710,000 m^3

Source: Data provided by consultant.

Table 5. Origin of tropical hardwood imports, in United States dollars, c.i.f., 1986
(EEC versus Japan)

	EEC	Japan
Africa	909,000,000	23,000,000
S.E. Asia	1,164,000,000	1,810,000,000
Latin America	302,000,000	78,000,000

Table 6. Timber shipments of South-East Asian timber producers and exporters

	Malaysia 1989*	Indonesia 1988**	Singapore 1987***	Philippines 1987	Papua New Guinea 1987
Logs	16,800,000		16,000	200,000	1,442,000
Sawn timber	4,280,000	2,719,000	997,000	633,000	
Plywood	788,000	6,211,000	739,500	260,000	
Veneer	254,000	36,000	25,000	60,000	

Source: Data provided by consultant.

*Projected from figures for a half year.

**Expressed in kilos and converted to estimated m^3.

***Some reexported as imported, others exported after further processing.

Table 7. Tropical sawn hardwood importers, 1987
(Developed countries only)

	m^3
Canada	935,000
United States	1,137,000
Belgium/Luxemburg	596,000
France	574,000
Federal Republic of Germany	885,000
Italy	1,351,000
Netherlands	969,000
Spain	634,000
United Kingdom	947,000
Australia	233,000

Source: Data provided by consultant.

Table 8. Tropical plywood importers, 1987

	m^3
Canada	227,000
United States	2,359,000
Taiwan Province	572,000
Hong Kong	448,000
Japan	1,808,000
Singapore	412,000
Saudi Arabia	310,000
Egypt	208,000
Belgium/Luxembourg	283,000
France	254,000
Federal Republic of Germany	571,000
Netherlands	549,000
United Kingdom	1,271,000

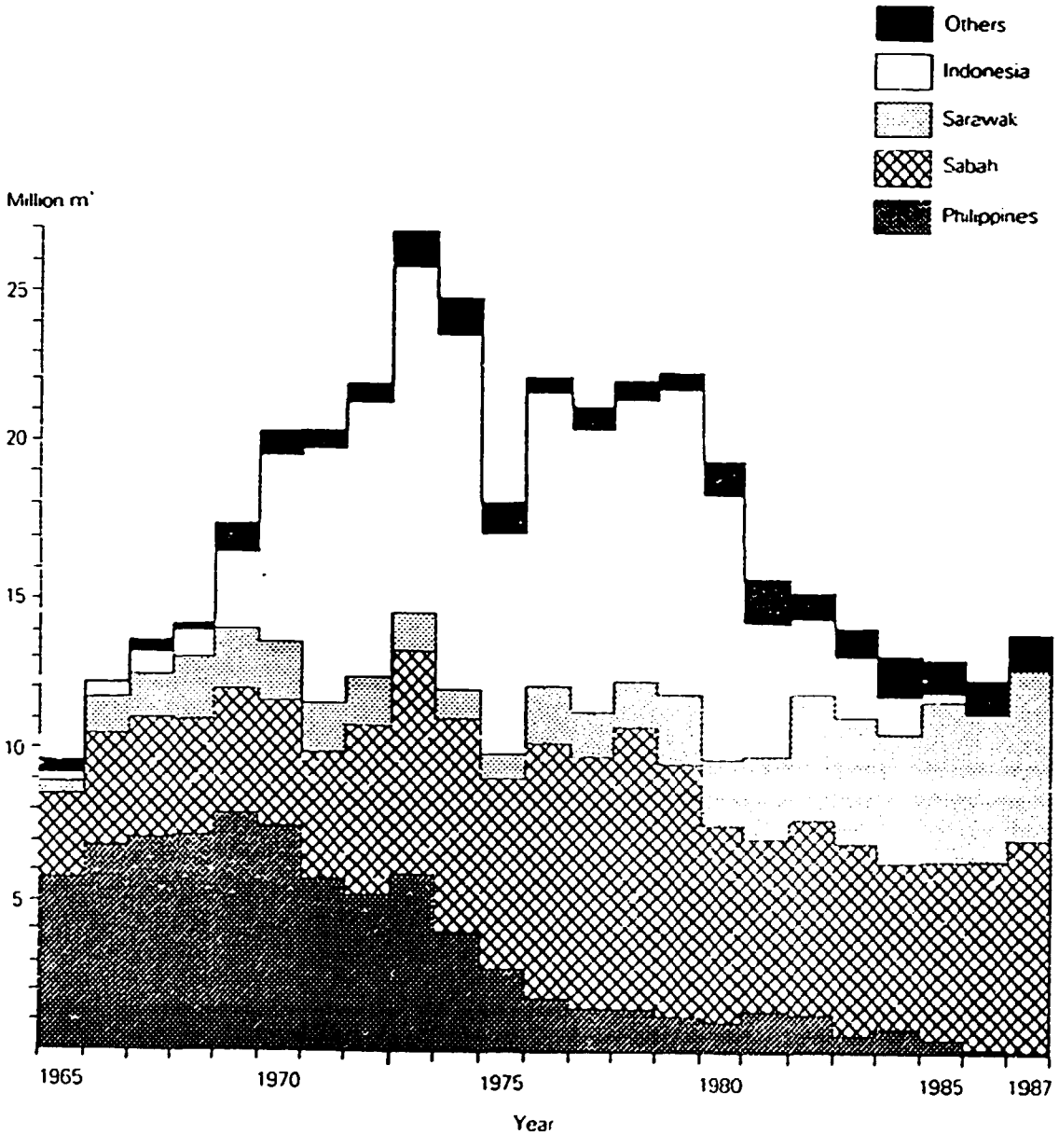
Source: Data provided by consultant.

Table 9. Quantity of shipments (in m^3) by product and shipping route, 1988

		Logs	Sawn wood	Plywood and veneer
SE Asia to	Japan	12,300,000	700,000	880,000
	NE Asia	7,500,000	600,000	1,400,000
	Middle East	500,000	200,000	500,000
	SE Asia	-	1,300,000	700,000
	Europe	-	2,000,000	1,000,000
	Australia	-	200,000	-
	N America	-	-	1,600,000
	Rest of World	600,000	1,700,000	400,000
W Africa to	Europe	3,700,000	600,000	200,000
	Rest of World	100,000	200,000	100,000
Latin America to	N America	-	300,000	100,000
	Other LA	-	-	100,000
	Europe	-	100,000	100,000
	Rest of World	-	100,000	negligible

Source: Data provided by consultant.

Figure I. Japanese imports of tropical hardwoods, by origin, 1965-1987

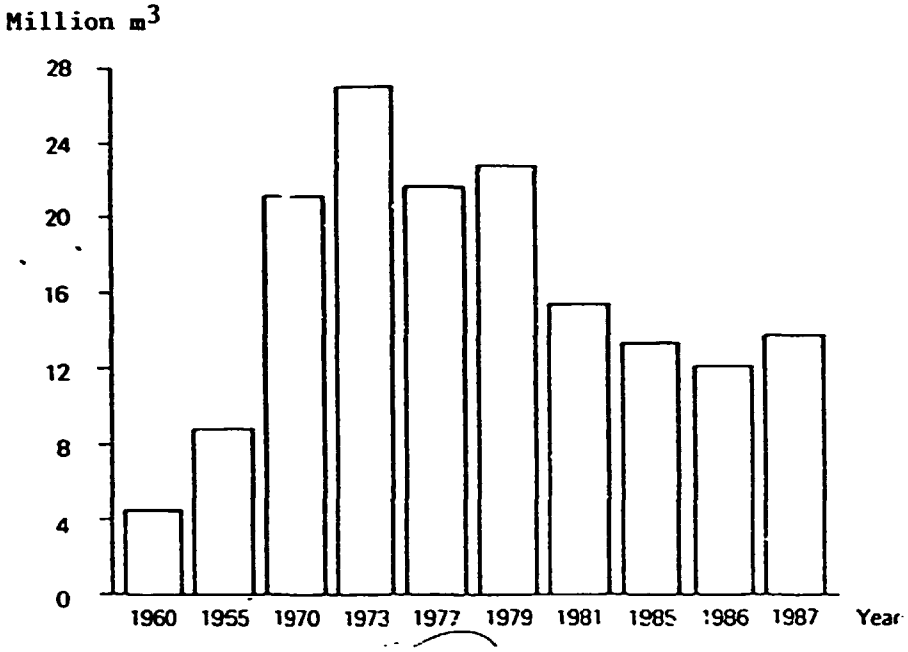


Source: Data provided by consultant.

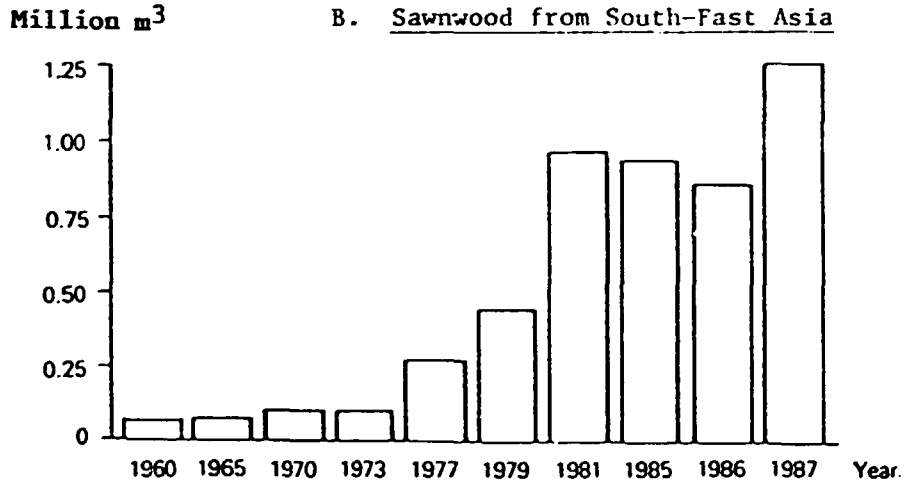
Note: "Others" includes: Gabon, Papua New Guinea, Peninsular Malaysia, Solomon Islands, Myanmar etc.

Figure II. Evolution of Japanese tropical timber product imports, by type of product, 1960-1987

A. Logs from South-East Asia



B. Sawnwood from South-East Asia



C. Plywood imports and exports

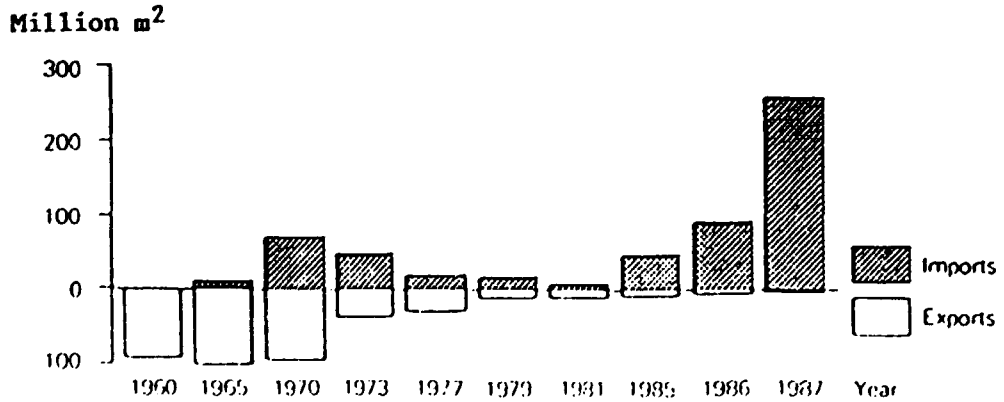


Figure III. Historical record of current major South-East Asian timber exporters, 1976–1988

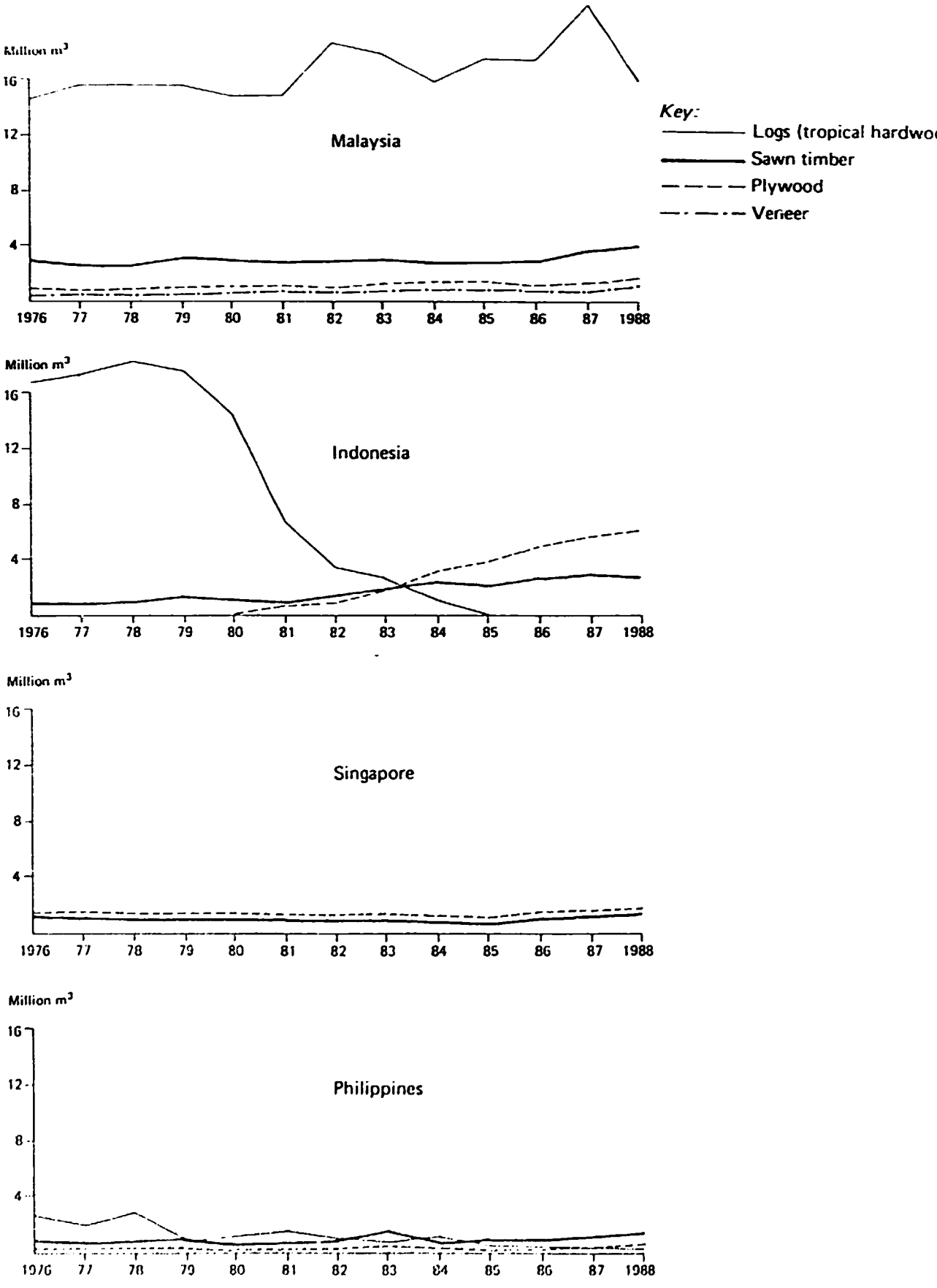
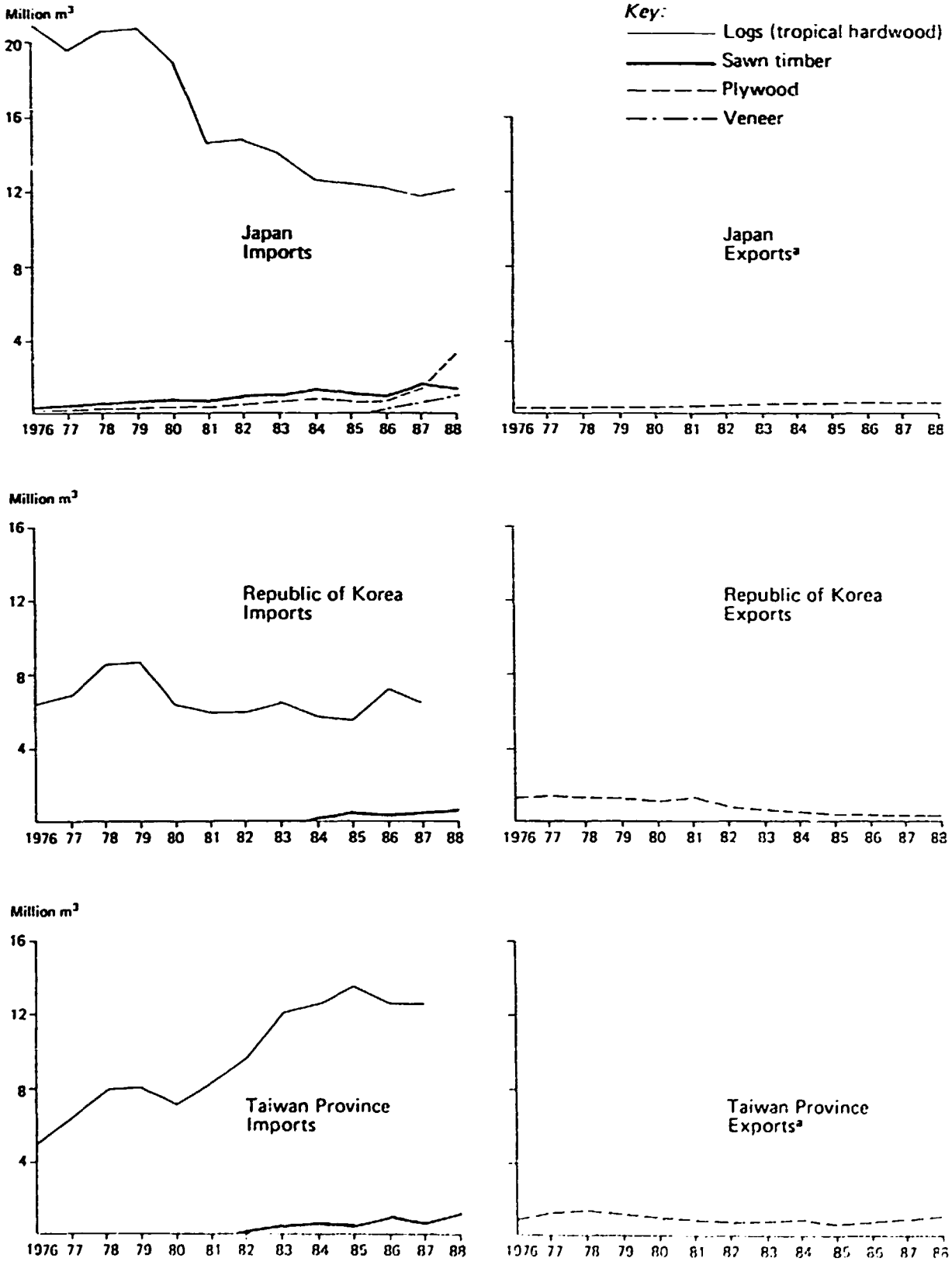


Figure IV. Historical record of North-East Asian timber importers and exporters, 1976-1988

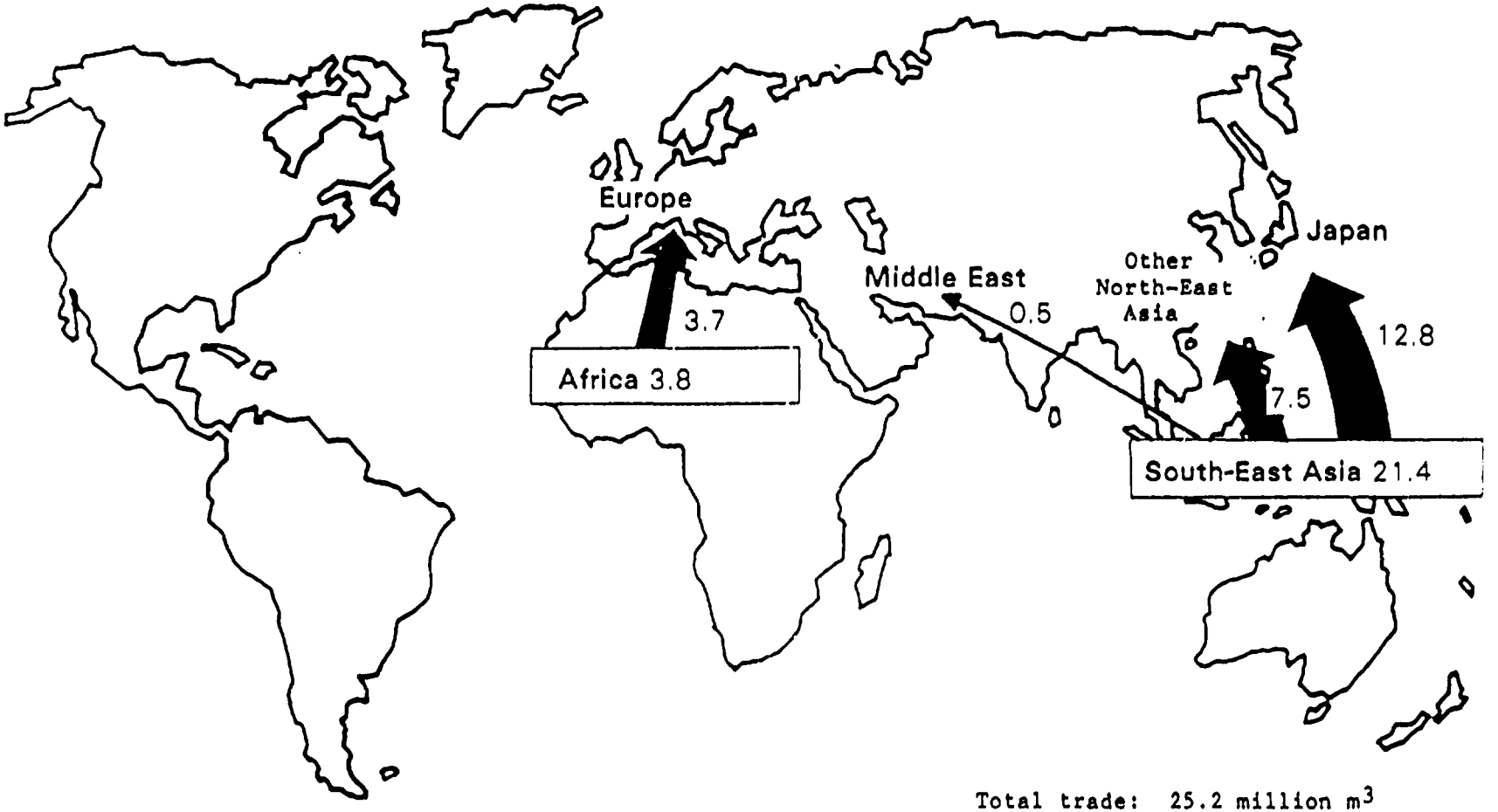


Source: Data provided by consultant.

Note: There are discrepancies between various statistics available. These graphs represent a fair description of the various quantities moving.

a/ Exports of other timber products are of insignificant quantity.

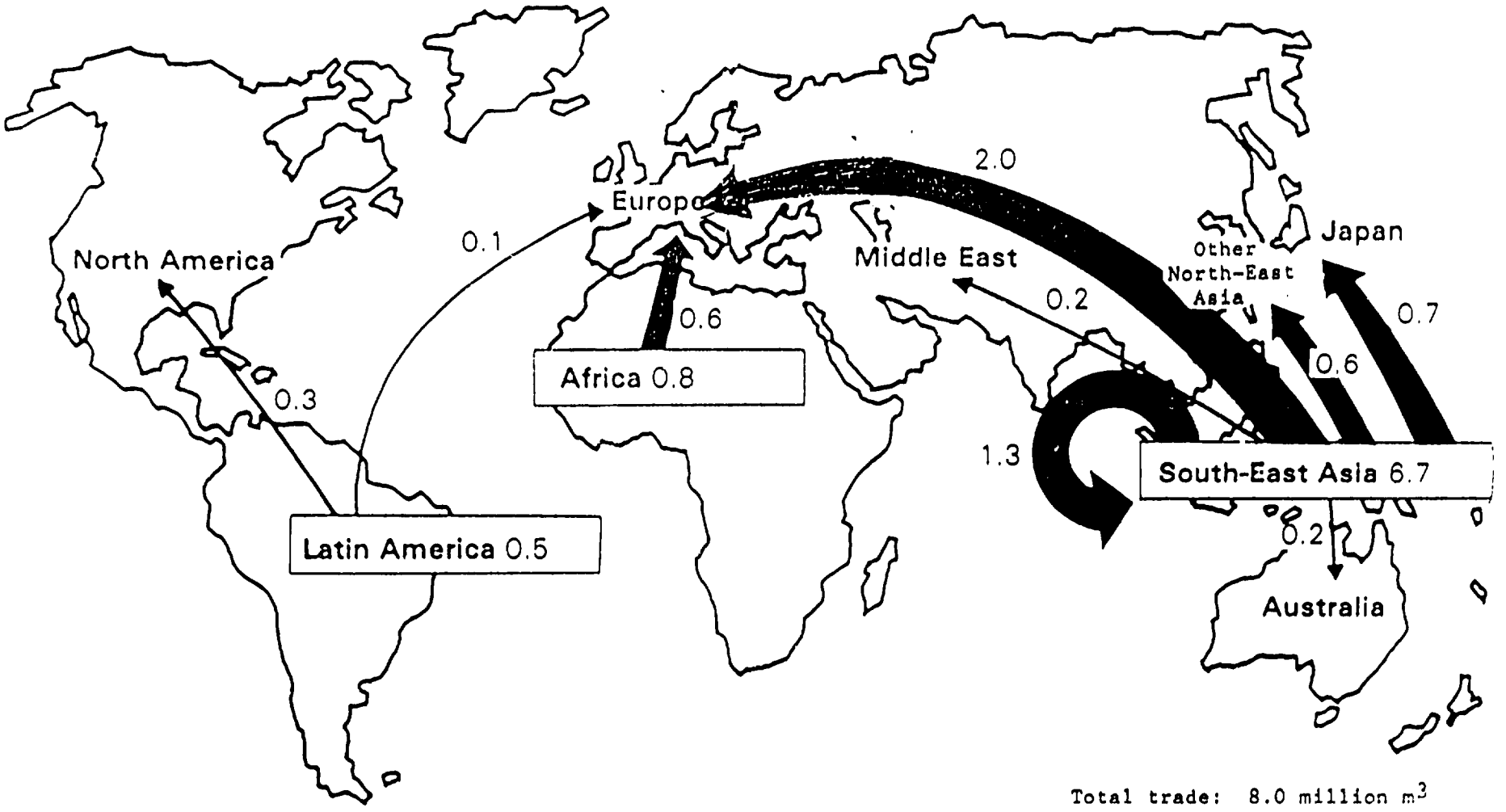
Figure V. Maritime trade in tropical hardwood logs, 1988
(Million m^3)



Total trade: 25.2 million m^3

Source: Data provided by consultant.

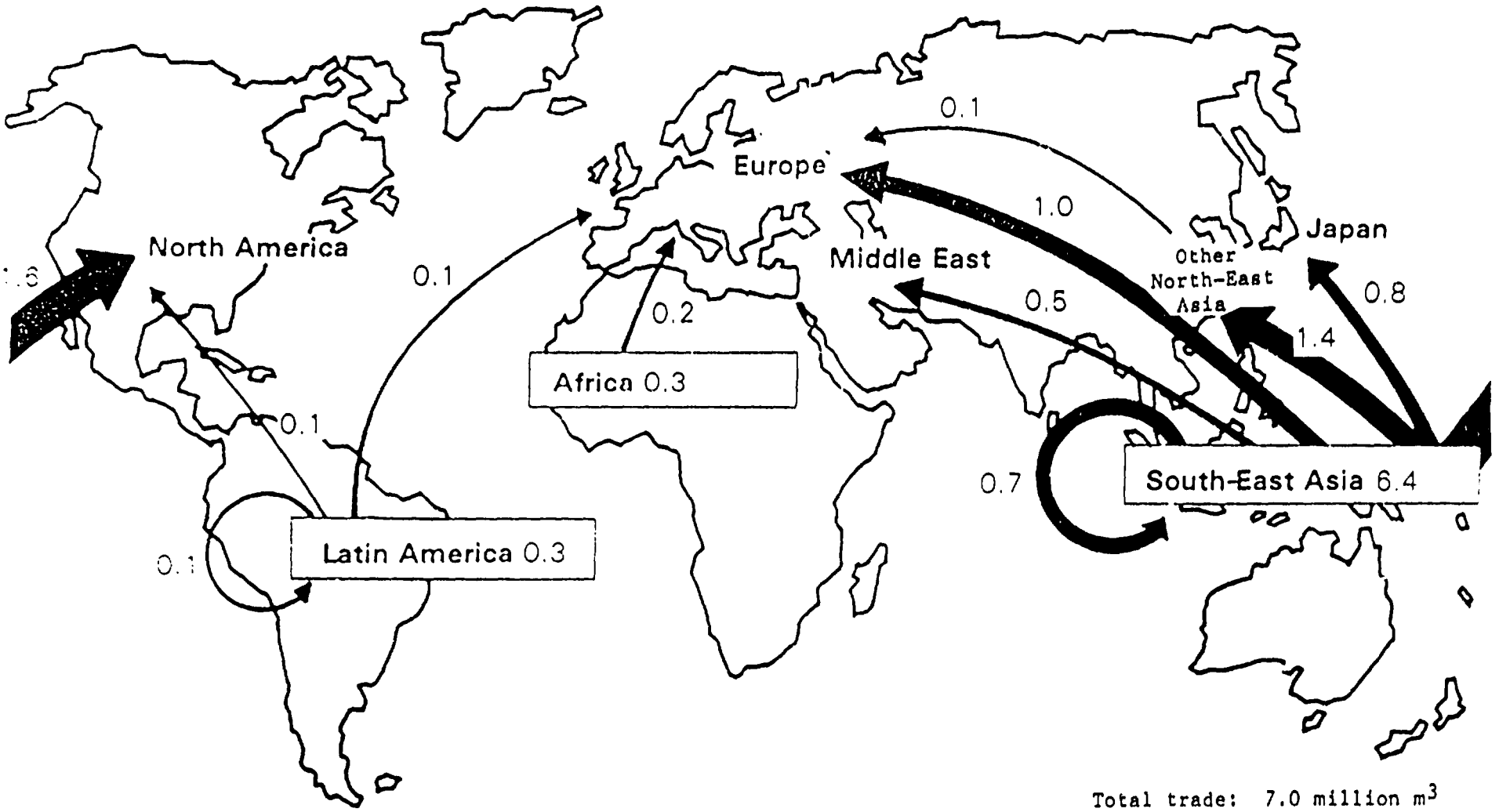
Figure VI. Maritime trade in tropical sawn hardwood, 1988
(Million m^3)



Total trade: 8.0 million m^3

Source: Data provided by consultant,

Figure VII. Maritime trade in tropical plywood and veneers, 1988
(Million m^3)



Total trade: 7.0 million m^3

Source: Data provided by consultant.

Figure VIII. Maritime shipments of timber (all kinds) as percentage of total production (including domestic fuelwood), 1986

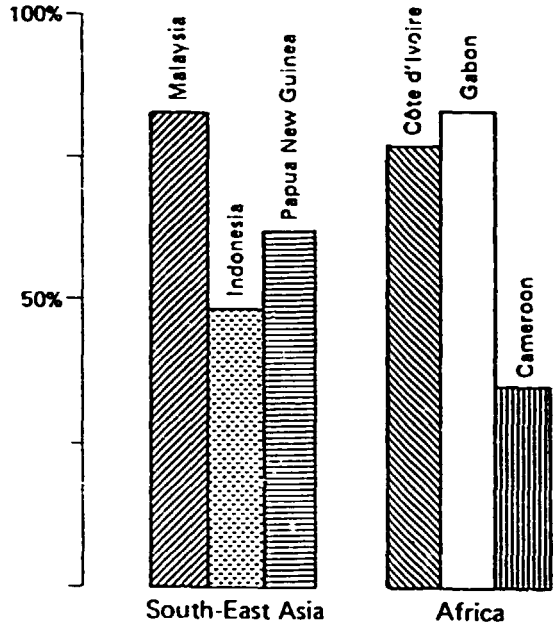


Figure IX. Maritime shipments of timber (all kinds) as percentage of total production (excluding domestic fuelwood), 1986

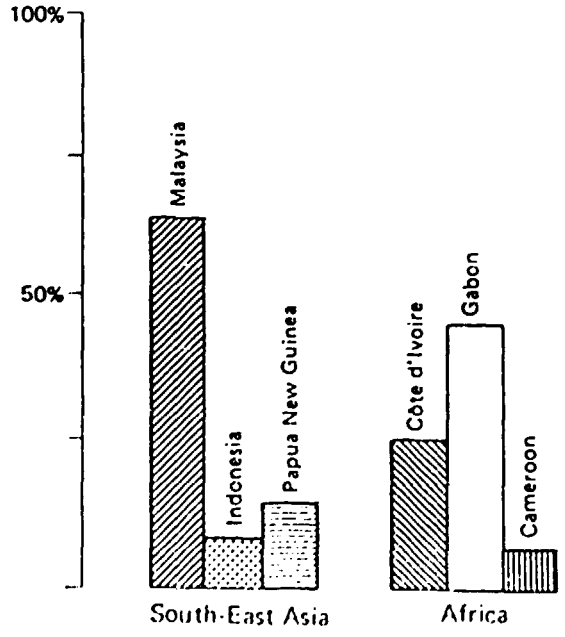
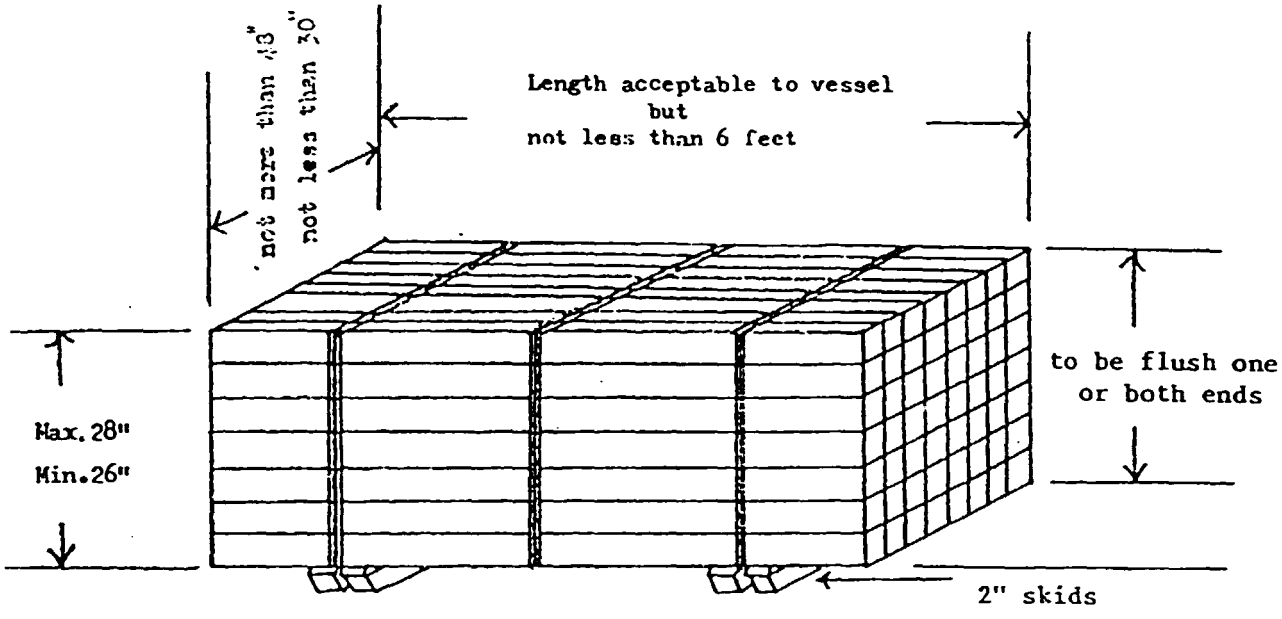


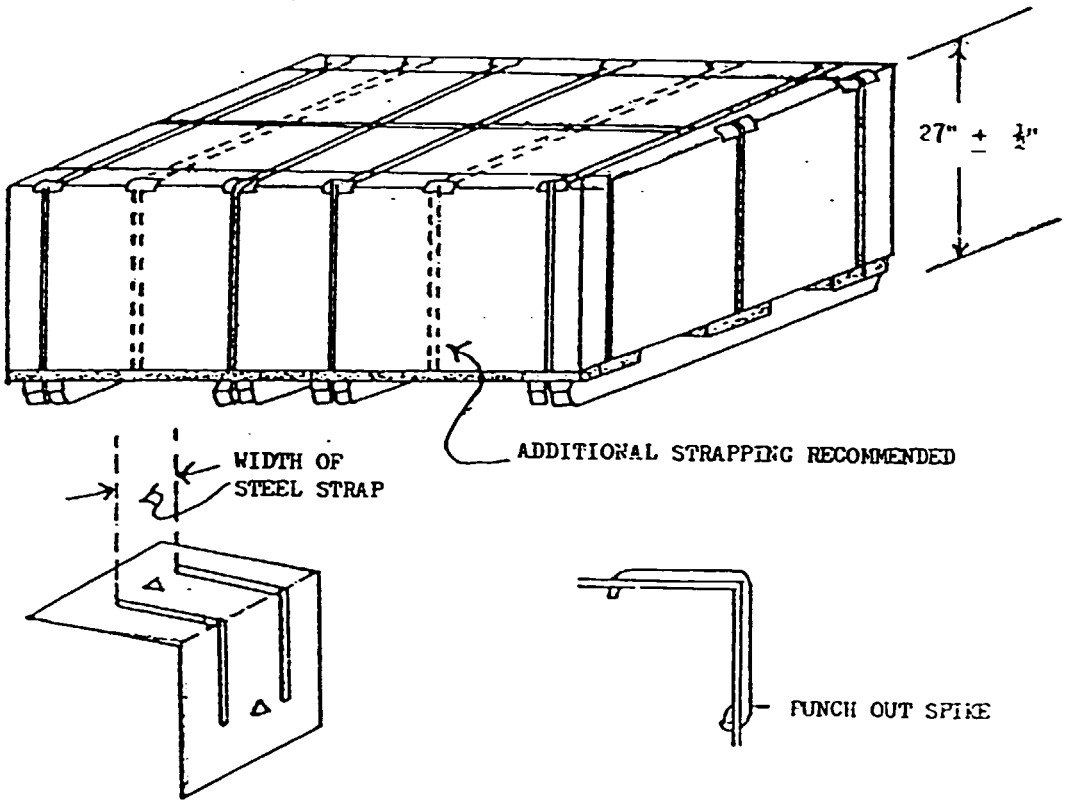
Figure X. Lumber bundling



Notes: 1. Number of straps and skids depend on length of cargo and should ensure integrity of bundling.

2. Skids must have a notch as runway for steel straps.

Figure XI. Plywood crating



DETAIL CORNER PROTECTOR
(METAL STAMPING)

Notes: 1. Corner protectors allow maximum tightening of strapping.

2. Do not use punky or log centre material for skids or pallet boards. This may be a way to recover wood from the log but it is not the proper material for sturdy crating.

3. Strapping material thinner than 0.028" prevents proper holding of seals as the tendency is to shear the strapping material during the sealing process.

4. Two straps, in addition to the minimum of four as shown, are highly recommended for all shippers.

Plywood sheets come in standard sizes, 8 x 4 ft and 6 x 3 ft being the most common. When banded together into bundles, waste timber is used to protect the edges making the package size slightly greater than the original dimensions. The larger 8-ft boards thus cannot readily be fitted into a standard ISO container with an 8 x 8 ft cross-section. They will typically be prestrung and shipped as break-bulk cargo.

Figure XI. (continued)

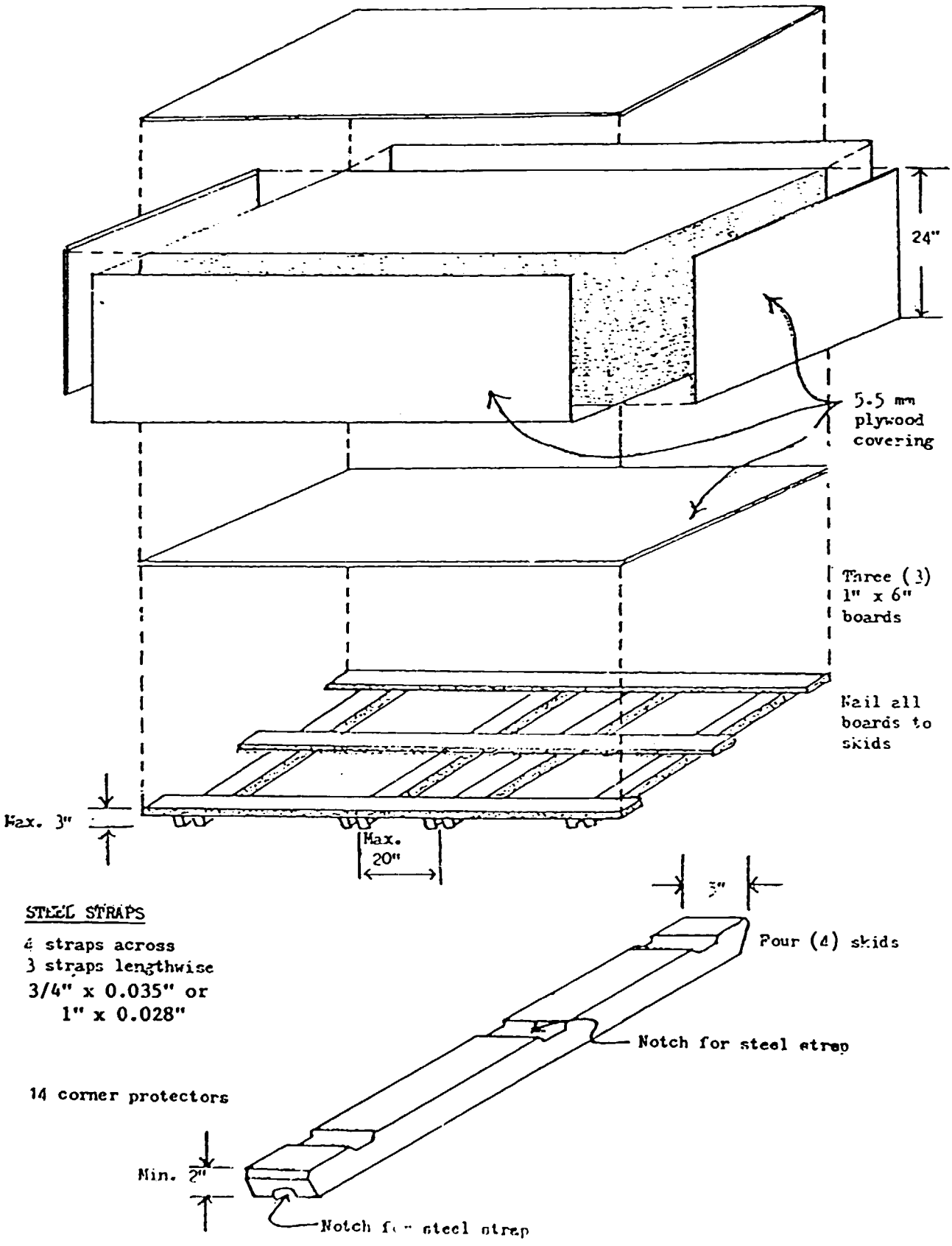
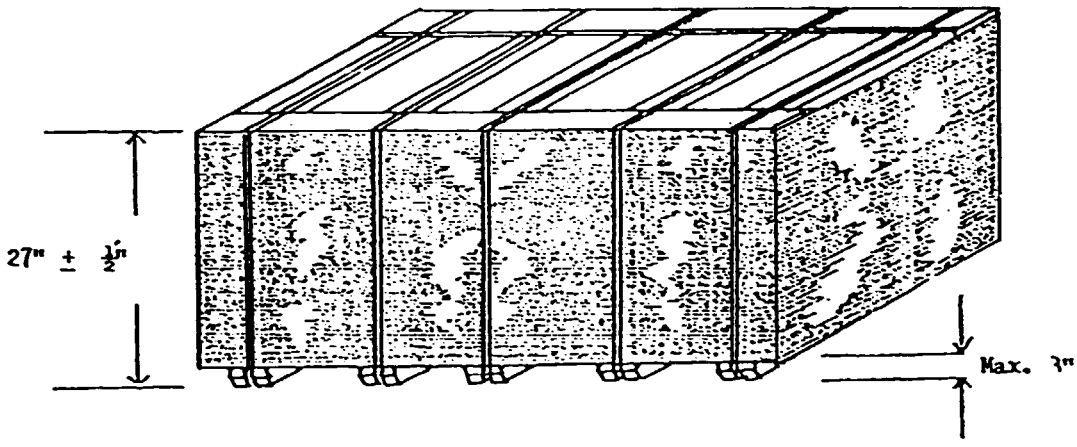


Figure XII. Corestock packaging (low-value plywood, bundled and skidded, but uncrated)



Notes: 1. The height of the package including skids and pallet boards must be a uniform 27 inches. Packages with a height of not more than 27 1/2 inches and not less than 26 1/2 inches shall be accepted as 27 inches.

2. The skids which are nailed to the pallet boards and attached to the bottom of the crate to facilitate handling by forklifts, shall not be less than 2 inches in height. The combined height of pallet boards and skids should not exceed 3 inches. Any excess will be assessed as freight.

   (a) Both ends of the skids should have a 90 degree angle cut in them;

   (b) A notch must be made on the bottom of the skids for the steel straps.

3. Five (5) steel straps of 3/4" x 0.035", or 1" x 0.028" must be placed across the crate. These straps should be placed around both the crate and skids to ensure the integrity of the package and to make the skids more a part of the crate.

4. The following are highly recommended:

   (a) Bottom cover sheets;

   (b) An inner liner of good grade polyethelene sheet covering top and all four skids.

Figure XIII. Packaging of rafters, doorstiles, door jambs, legs and headers

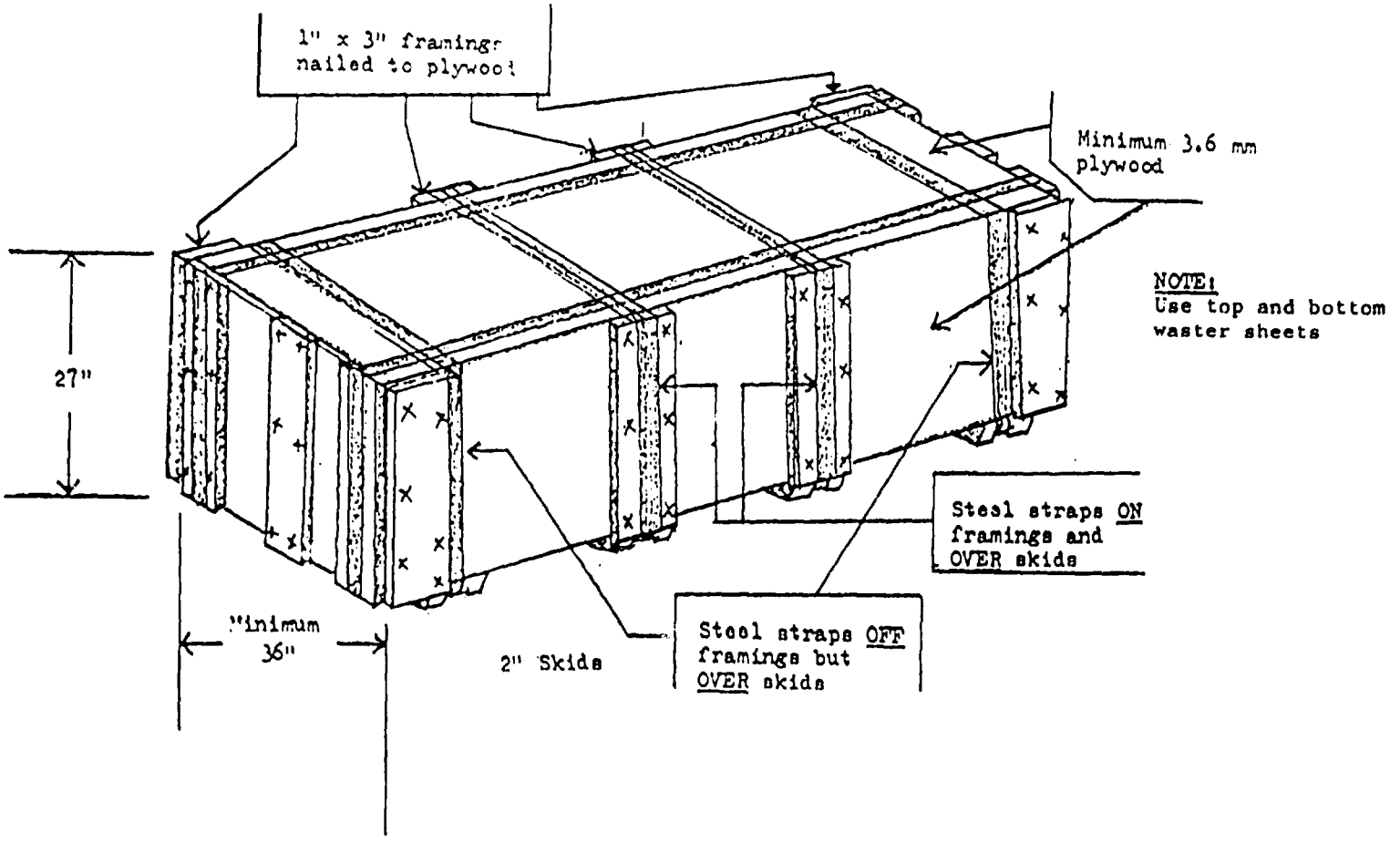


Figure XIV. Japanese woodchip imports, 1964-1988

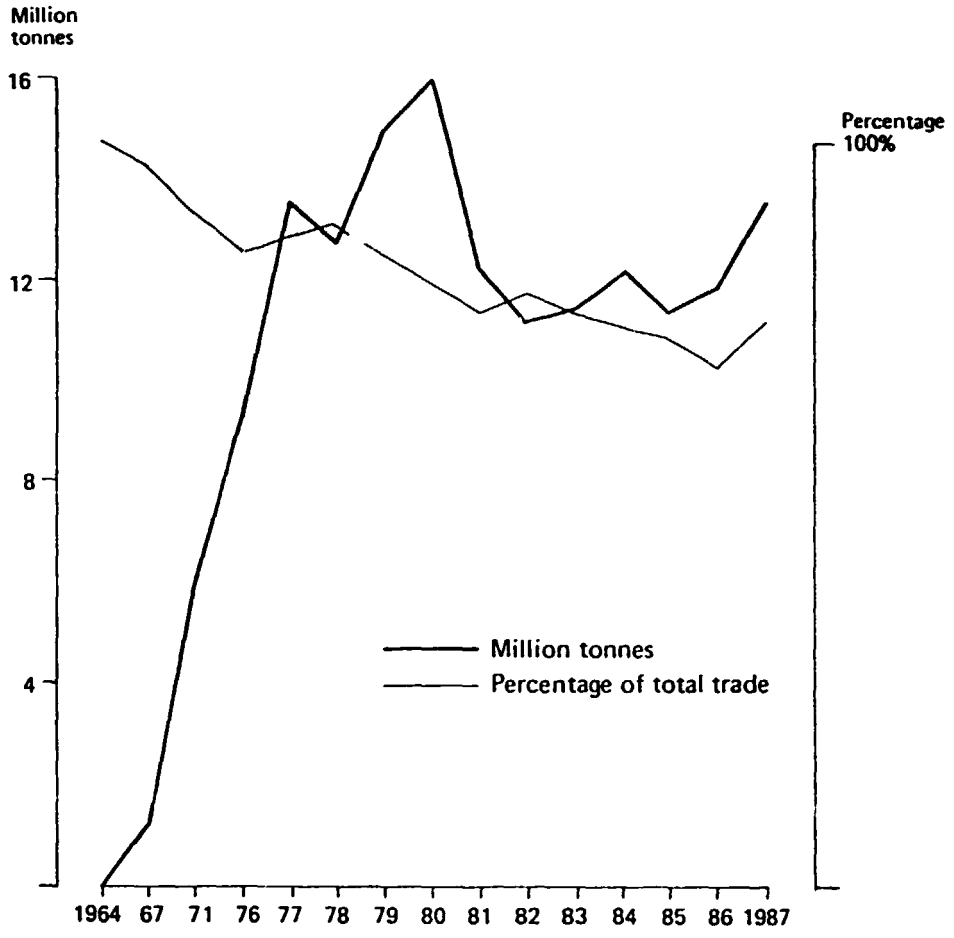


Figure XV. Woodchip trade, 1987

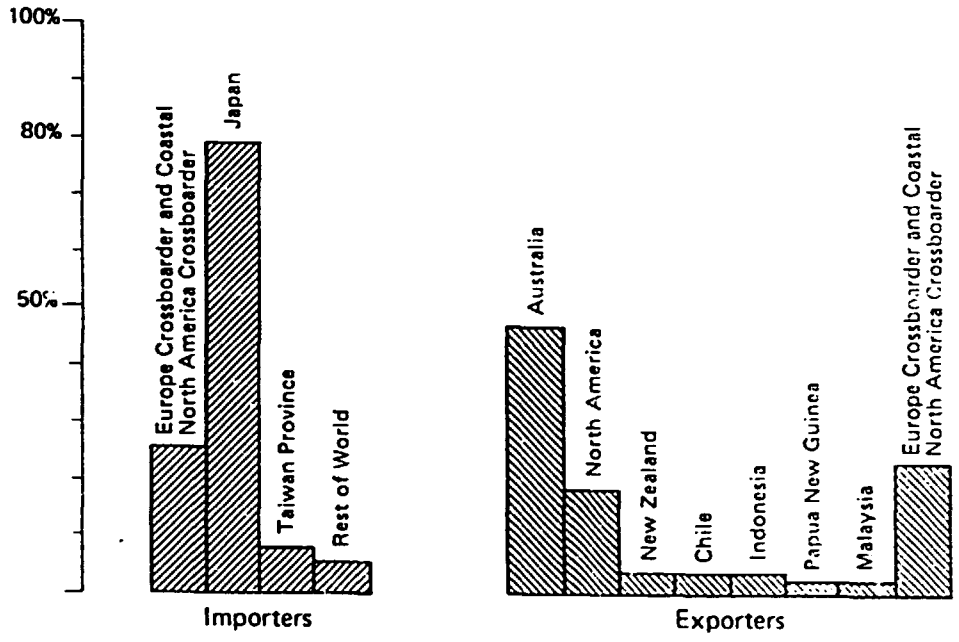
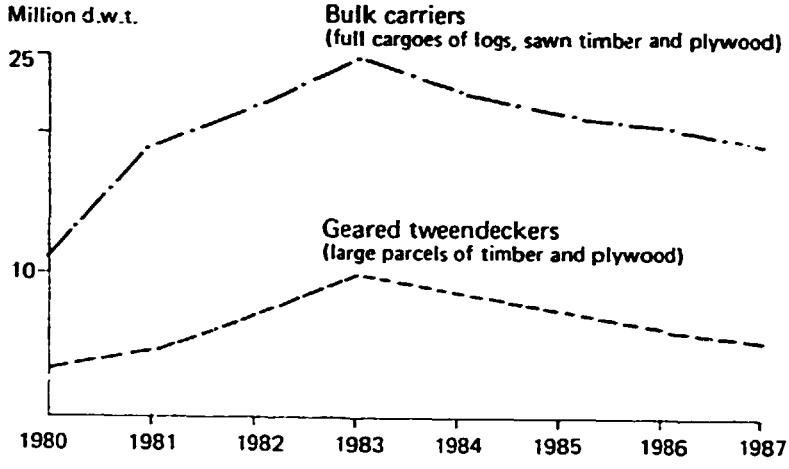


Figure XVI. Surplus vessels, by type suitable for timber trade

A. Surplus vessels of which a reasonable number are suitable for carrying full cargoes of logs, sawn timber, plywood, and large parcels of timber and plywood (S-E Asia to N-E Asia and to Europe)



B. Surplus vessels of which a reasonable number are suitable for carrying parcels of timber and plywood, some logs etc., and of liner cargoes (West Africa to Europe)

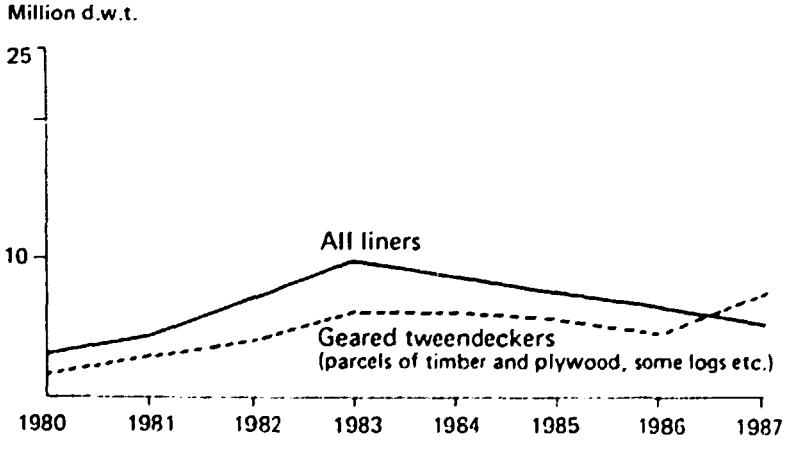
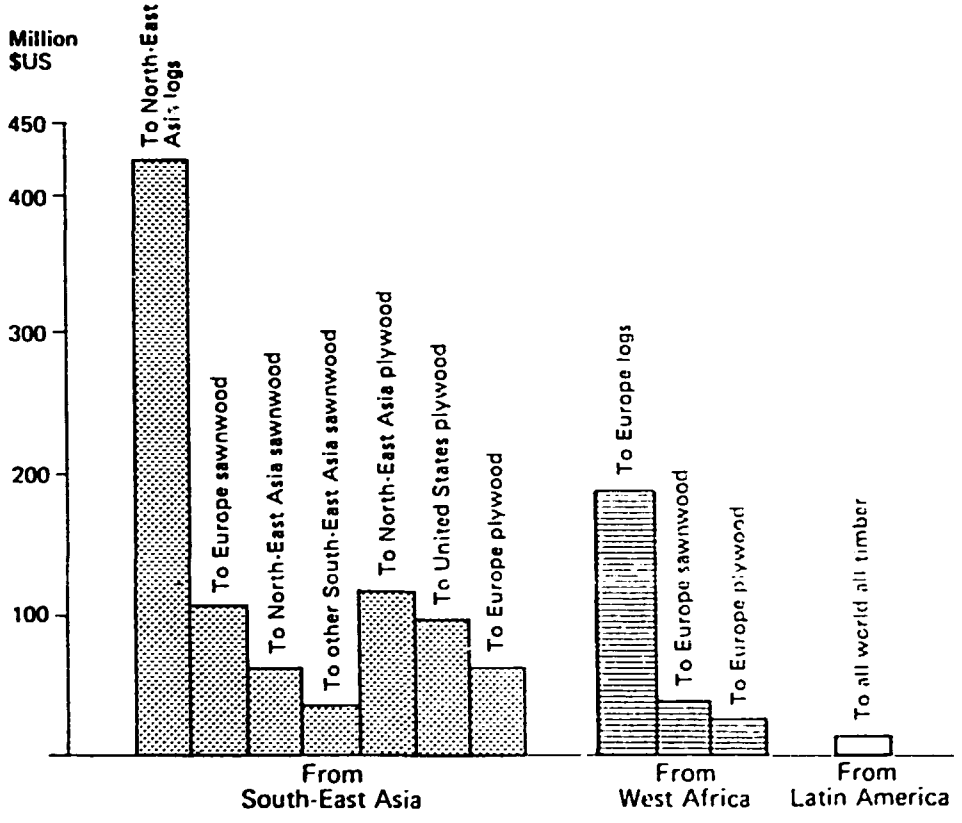
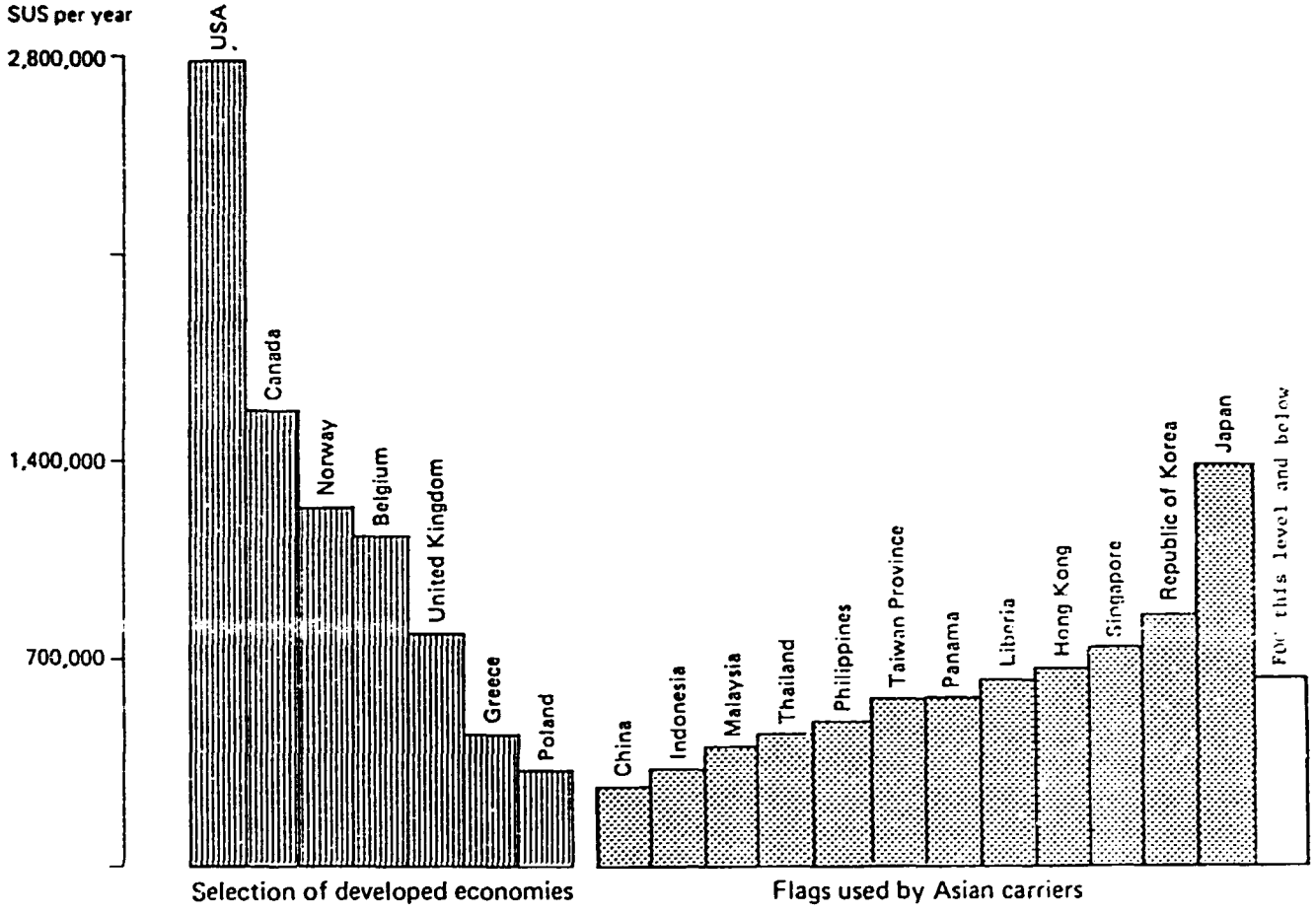


Figure XVII. Value of shipments (in $US) by product and shipping route, 1988



Source: Data provided by consultant.

Figure XVIII. Average annual crewing costs for ships under different national flags



Source: Data provided by consultant.

Note: There are variations in costs under many flags and of course in crew numbers and ranks between and ages of vessels.

PART TWO. MARITIME TRANSPORT OF WOOD AND WOOD PRODUCTS IN AFRICA

Prepared by
Jean-Claude Kouassi*

INTRODUCTION

The export of wood and derived products by a producer country requires felling and conversion, pre-shipment along forest tracks and inland conveyance routes (for example, river and/or road and/or rail), several loading and unloading operations, administrative operations associated with dispatch to a port, shipment by sea and, at the destination, post-shipment operations (dispatch from the port, handling and inland transport).

Hence there is a dire need to study, for the case of the African countries producing rough timber (logs) and wood products - which have already been facing significant difficulties involving the competitivity of their products on the international market - the conditions and costs involved in transporting their wood and wood products, and to ascertain the impact of such costs on the export prices and competitivity of African wood and wood products, with a view to making recommendations aimed at improving the quality and performance, on the international market, of African wood and products derived from it.

This study, which has been made at the request of the United Nations Industrial Development Organization (UNIDO), will seek in particular to:

(a) Give a brief account of the world wood market;

(b) Analyse the trade in wood between Africa and the rest of the world;

(c) Examine the principal marketing routes inside the country and those used for export;

(d) Study the organization of transport of wood and wood products: transport by road, rail and river, packaging, storage and handling, transit, and shipment by sea;

(e) Determine the costs of marketing wood and wood products on the domestic market and for export: domestic price, price f.o.b. and price c.i.f.;

(f) Consider the sensitivity of wood and wood products relative to sea freightage, to other costs associated with shipment by sea and to factors connected with wood marketing;

(g) Propose a set of recommendations on the organization of the trade in wood in terms of transport, packaging, shipment by sea, transit and handling.

But these recommendations should deal, first and foremost, with the level and structure of freightage, the level and structure of other costs associated with shipment by sea, as well as other factors (action by the State, rates of

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exchange, etc.) having a direct or indirect effect on the cost of marketing wood and wood products.

The field work has only been able to cover, within the limits of the budget and deadlines fixed for the study, the countries of Cameroon, Congo, Côte d'Ivoire and Gabon. A visit to countries such as Central African Republic (a landlocked country), Ghana and Liberia would certainly have made it possible to refine the analysis made in this report.

There were also budgetary constraints and time-limits which prevented the consultant from making a more thorough investigation of the prevalence of certain practices noted among logging companies and exporters as well as among shipping lines and auxiliary carriers.

The survey itself was made among logging companies, wood exporters and wood marketing offices, overland and river forwarders, shipping lines and auxiliary carriers, as well as among the administrations and semi-public companies responsible for international trade in wood and derived products.

I. TRADE IN WOOD AND DERIVED PRODUCTS BETWEEN AFRICA AND THE REST OF THE WORLD

A. General information on the international market

Despite a trend towards recession which began early on in the present decade in the wood and wood product sector, wood remains, with an annual turnover of the order of 50,000 million French francs (or more than $US 8,000 million), 1/ the fifth most important product in world trade.

The annual value of international trade in tropical rough timber and derived products (sawn wood, plywood and veneers) is more than $US 6,000 million. Between 1985 and 1987 the value rose by an average of 26 per cent per year.

In terms of volume, the world wood and wood product market is estimated at about 60 million m^3.

The share of exports of tropical broad-leaf timber logs on this market fell from 28.5 million m^3 in 1987 to 22.9 million m^3 in 1988, thus showing a drop of 19.5 per cent. 2/ The estimates for 1989 place these exports at 23.8 million m^3.

Exports of sawn timber of tropical origin by producer countries, having been calculated at 9.1 million m^3 in 1987 and 9.3 million m^3 in 1988, should reach 10.1 million m^3 in 1989.

1/ See Timber Trade Journals/ATO Information, No. 9, July-August 1986.

2/ International Council for Tropical Timber, sixth session, Abidjan, May 1989, draft statement on the state of the market.

Tropical plywood has seen a steady increase in exports (6.86 million m^3 in 1987 and 7.38 million m^3 in 1988), which can be expected to continue in 1989: 7.7 million m^3 is the estimated figure.

Examination of the international demand for tropical wood shows that Asia consumes approximately 51 per cent, as against only 28 per cent for Europe, about 1 per cent for the United States, and 12 per cent for the rest of the world.

The supply of tropical wood and wood products shows that 83 per cent comes from Asia, 13 per cent from Africa and 4 per cent from South America.

However, the present reserves of tropical timber in the world occur in South America in the proportion of 57 per cent, as against only 25 per cent in Africa 3/ and 18 per cent in Asia.

B. Importance of wood in the African economies

In the absence of information on the African continent, we will try here to cite a few examples:

In 1985, exports of wood and wood products from Côte d'Ivoire were reported to the Government of that country as being worth about 111,000 million CFA francs, and the value added of the logging sector (25 enterprises) was estimated to be 3,000 million CFA francs. Despite a dramatic drop in the export of rough timber, wood is still the third export product of the country.

In Côte d'Ivoire the wood sector employs close on 30,000 persons. 4/

In Cameroon, the wood sector, which provides employment for more than 10,000 persons, represents approximately 11 per cent of the total value of the exports (other than oil) and 5 per cent of the country's gross domestic product. 5/

It should be noted that Cameroon exports 2.3 per cent of the tropical timber traded in the world and accounts for 14.8 per cent of the wood exports from the African continent. In Gabon wood takes second place among the country's exports and provides more than 20,000 jobs.

Ghana exports 1 per cent of the total tropical timber traded in the world. Wood occupies third place in the country's exports after cocoa and ores.

The wood industry provides employment for about 70,000 persons.

3/ This figure corresponds to the proportion of the timber reserves of countries belonging to ATO (African Timber Organization).

4/ Structure and trends in freightage for rough timber and derived products in the maritime trade of Côte d'Ivoire, IDREM, May 1989.

5/ Study of cost of transport and other associated costs for tropical wood in Cameroon, CNCC, SOFREMER, June 1985.

C. Species, products and countries involved

In 1986, Cameroon, the Congo, Côte d'Ivoire, Gabon, Liberia and the Central African Republic exported their wood and derived products mainly to the EEC.

Thus, out of 3,126,058 m^3 of rough timber exported by all these countries together:

- 84 per cent, or 2,621,677 m^3, were bought by the European countries, of which 2,157,077 m^3 went to the EEC alone;

- 6 per cent was intended for the Asian countries;

- The remaining 6 per cent went to other African countries.

Likewise, in terms of sawn timber, of an overall volume of 557,510 m^3 exported (disregarding Liberia), Europe took 74 per cent, as opposed to 5.5 per cent for Asia and 7.5 per cent for the importing African countries.

As far as veneers are concerned, the export figures were 150,560 m^3 (disregarding Liberia), the main clients being Europe (74 per cent) and the wood-importing African countries (10 per cent).

Finally, with regard to plywood, the exports for the year were assessed at 35,030 m^3. Europe accounted for 48 per cent of these and the wood-importing African countries 36 per cent. 6/

In Côte d'Ivoire, although there are several species of wood, the rough timber for which there is most demand remains niangon, framire, koto, tali and to a lesser extent mahogany, sipo, makore and assamela, which have been victims of over-exploitation for two decades.

With regard to sawn timber, samba (ayous) and iroko are currently at least 70 per cent of the overall wood exports.

In 1985, Côte d'Ivoire exported 1,394,000 m^3 of wood, of which 869,000 m^3 was rough timber (logs), 301,000 m^3 sawn wood, 48,000 m^3 veneers and 5,000 m^3 plywood. Factories for the third level of wood conversion are gradually being set up there.

Over the same period, Cameroon exported approximately 600,000 m^3 of rough timber and 80,000 tonnes of worked wood. The exports of wood and derived products in this country relate to ekki (azobe), sapelli and ayous (57 per cent). Ten other species are annually marketed in quantities greater than 5,000 tonnes. Among the latter we find mahogany, bubinga, dibetou, doussie, iroko, moabi and sipo.

Gabon basically exports rough timber, a certain amount of plywood and very little veneer. These exports are comprised of 70 per cent okoume and 30 per cent other types of wood, among which ozigo takes preference.

6/ Study of the shipment by sea of forestry products (supplementary study) in the Member States of FAO/ATO, January/February 1989.

Other species of wood are mahogany, kevazingo, doussie, moabi, douka, wendje, paorosa, ebony, sapelli, niangon, dibetou, iroko, tali, tiama, bosse and bahia.

In 1985, the Congo exported 508,000 m^3 of wood and wood products (only sawn timber and veneers), represented mainly by okoume and limba.

Among the wood species exported by the Congo we can name: bahia, accuminata, afromosia, bilinga, bosse, dibetou, douka, doussie, iroko, faro, moabi, paorosa, sapelli, sipo, tali, tiama and wendje.

In Ghana, iroko and obeche represent 45 per cent of the exported volume. Ofram and asanfona are also found there. For the next five years it is planned to enter the export market with avodire, danta, dahoma, esa and albizia. Ghana exports rough timber, sawn wood, veneers and several third level conversion products.

D. Prospects for the export of African wood and wood products

After South America, Africa takes second place in the world reserves of tropical wood with about 25 per cent of the latter.

1. Rough timber

The African continent remains the principal supplier of rough timber for Europe: 97 per cent of the EEC imports in 1987, as against 95 per cent in 1986. This growth is basically due to the halt in the export of rough timber by the African countries.

Hence for rough timber the prospects are very good. However, it should be noted that:

- Certain African countries, usually those with a high population density such as Côte d'Ivoire and, to a lesser extent, Cameroon, have decided to limit their exports of rough timber in order to set up their own wood conversion plants and protect them and/or make up for the decrease in forestry resources and/or guarantee supply for their own national market.

As a result, it is primarily the countries with considerable stocks of trees and a low population density, such as Gabon and the Congo, which continue to feed the rough timber export market.

2. Sawn timber

The market prospects seem equally good for sawn timber and singularly good for dried wood or wood sawn to an exact size.

3. Veneers

The market seems equally open for peeled veneers, the manufacture of which does not need either large investment or specially skilled manpower. On the other hand, sliced veneers, which call for greater resources and more advanced local expertise, may make more limited headway.

4. Plywood

With regard to plywood, leaving aside several homogeneous species such as okoume, the prospects appear somewhat limited. Indeed, the characteristic

features of each species as regards peeling, drying, shrinkage and gluing are disadvantages in the case of the African forests, which are rather heterogeneous.

Furthermore, African plywood has a much higher cost price than Asian plywood.

Moreover, the wood conversion plants in Africa work with much longer deadlines than those of their counterparts in Asia or Europe.

What is more, there are very few species that cannot be replaced by coniferous wood and wood-derived panels, especially as regards the inner layers of the plywood.

Finally, there appears to be an ever more marked preference, particularly on the European market, for clear wood.

5. More elaborate products

The manufacture of unit furniture, for example frame furniture, will be carried out on an even smaller scale due to:

(a) Quality requirements imposed by the European and Asian consumers;

(b) Longer delivery times required by the African wood-conversion plants which are less well-equipped;

(c) Poor financial coverage (limited resources), more especially in the case of the treasuries of those countries;

(d) Lack of flexibility in the response of the African wood-conversion factories to trends in taste and to the latest models.

II. THE MAIN MARKETING ROUTES FOR WOOD AND WOOD PRODUCTS FROM THE AFRICAN COAST

A. Analysis by geographical area

1. The main selling routes

According to an ATO study, they can be summed up as follows: 7/

Rough timber (logs)

Route from South Asia to North Asia

Rough timber coming from 75-100 points of origin is regrouped at a very small number of ports (1-3) and loaded onto logging freighters with a capacity of 5,000-7,000 m^3, when operating on a full load. The rough timber is loaded while the ship is anchored from rafts or barges and unloaded at a small number of ports (1-3). The cargo is usually bought by one single importer and

7/ Study of the shipment by sea of forestry products from Member States of ATO, April 1988.

the sale is made f.o.b. The return journey is made empty. On this market rough timber from Africa hardly accounted for 1 per cent of the total imports in 1985.

North America to Japan

Logging ships holding 18,000-25,000 m^3 are used for transport. The loading is carried out only at two ports alongside the quay and from rafts and barges when the ship is riding at anchor. Unloading is carried out at a maximum of three ports and the return journey is made empty. The cargo is basically made up of soft wood.

West African coast to Europe

In 1985, the countries of the West African coast provided 97 per cent of the tropical woods needed by the European countries in the form of rough timber.

The shipment of rough timber is usually provided by conventional ships which load at 4-7 ports and unload in Europe in the same number of ports. Since the cargoes are not usually regrouped, they represent a much smaller volume (a few hundred to a few thousand cubic metres).

The shipping lines, which also transport other merchandise in the same vessels in order to make calling at ports more cost-effective, cannot usually load up in bad weather, at low tide or during the night.

Worked wood: sawn timber, plywood and veneers

British Columbia (Canada) to Japan and British Colombia to Europe

This relates basically to the shipment of soft wood by specialized vessels with a capacity of 35,000-50,000 m^3, with the possibility of carrying freight on the return journey.

South-East Asia to the EEC

The cargoes are 95 per cent in the form of bundles and pallets and 5 per cent in containers. They contain sizeable batches transshipped via Singapore and come basically from the Phillipines, Indonesia and Malaysia.

West African coast to the EEC

In 1985, Africa accounted for some 18 per cent of the worked wood sold on the European market. The cargoes are usually carried by roll-on/roll-off ships or by "conbulkers" (converted bulk carriers) or by completely cellular vessels and, more and more rarely, by conventional ships (first and foremost those belonging to the national shipping lines of the countries of the subregion).

2. Marketing of wood and wood products from Africa

Exports of rough timber from Africa per country (see table 1)

Between 1985 and 1987 African exports of rough timber were at a low level and dropped from 4,595,000 m^3 to 3,967,000 m^3.

With approximately 30 per cent of African exports in 1987, Gabon occupies first place among exporters, followed by Côte d'Ivoire (617,000 m^3) and Cameroon (442,000 m^3).

It is to be noted, however, that over the same period the production of rough timber was dominated mainly by Cameroon, with 12,447,000 m^3 in 1987.

It is followed by Côte d'Ivoire, with 11,792,000 m^3, Gabon with 9,884,000 m^3 and Liberia with 5,640,000 m^3.

In 1987, out of a total value of $US 415,674,000 for all African exports, Gabon grossed more than 25 per cent ($US 112 million). Côte d'Ivoire occupied second place with $US 81 million, followed by Congo ($US 54 million) and Cameroon ($US 47 million).

It should be noted at this point that the respective shares of Asia and Europe in the value of rough timber exports in 1987 were $US 1,842.8 million and $US 1,503 million.

Exports of sawn wood from Africa by exporter countries (see table 2).

African sawn timber both in manufacture and export showed a rise between 1985 and 1987.

However, the production of the continent in 1987 did not attain one tenth of that of Europe (83,301,000 m^3), which itself is much lower than the production of Asia - 103,000,000 m^3.

The biggest producers of sawn timber in Africa are, in order of magnitude: Côte d'Ivoire (775,000 m^3), Cameroon (565,000 m^3), Ghana and Liberia (about 310,000 m^3).

With regard to African exports, Côte d'Ivoire accounts for virtually half of them, with 460,000 m^3. Then comes Ghana (173,000 m^3) and Cameroon (63,000 m^3).

It should be pointed out that Africa exports only one twenty-fifth of the European share of sawn timber and approximately one tenth of that of Asia.

In terms of value, the sawn wood brings in approximately $US 212 million, of which more than 50 per cent goes to Côte d'Ivoire alone, i.e. $US 122 million.

Ghana, Cameroon and Congo occupy, respectively, the second, third and fourth places with $US 30.5, 14.8 and 11.5 million.

Export of African veneers per exporting country (see table 3)

In 1987, Africa produced 573,000 m^3 of veneers, i.e. barely half the production of Asia and less than a third of the European production.

Nevertheless, African production has shown a constant uptrend since 1985.

Côte d'Ivoire is in the lead with almost a quarter of the veneers (166,000 m^3), followed by Gabon (97,000 m^3) and Cameroon (63,000 m^3).

African exports amount to 195,000 m^3, the principal exporting countries being Côte d'Ivoire (75,000 m^3), Congo (43,000 m^3) and Ghana (21,000 m^3).

In terms of value the export of veneers brings in $US 73 million for Africa, of which 28.4 million goes to Côte d'Ivoire, 15.6 million to Congo and 11.2 million to Cameroon.

The export of plywood from Africa per exporter country (see table 4)

From 1985 to 1987 the production of African plywood underwent a slight increase, rising from 584,000 m^3 to 624,000 m^3. However, production is still a long way below that of Europe (3.1 million m^3) and still lower than that of Asia (19.5 million m^3).

Gabon shows the highest production (131,000 m^3), as against only 45,000 m^3 in the case of Côte d'Ivoire and 25,000 m^3 for Ghana.

Gabon is also at the top of the list of African exporters: 46,000 m^3, as against 23,000 m^3 for Côte d'Ivoire.

In terms of value, Gabon received $US 14.8 million, as against 13.5 million in the case of Côte d'Ivoire.

3. Imports of African wood per importer country

Rough timber (see table 5)

France, Italy and Federal Republic of Germany are, in order of magnitude, the greatest importers of African rough timber, the figures being, respectively, 882,560, 516,370 and 371,550 m^3. Japan takes fourth place with 248,830 m^3.

France is turning to Gabon and Liberia for more than two thirds of its requirements.

Italy purchases first and foremost in Côte d'Ivoire and Cameroon, 58 per cent of its rough timber supplies being of African origin.

The Federal Republic of Germany buys at least one third of its needs from Ghana, after which come Cameroon and Liberia, though a long way behind.

Japan gets 87 per cent of its rough timber imports from Gabon.

Sawn wood (see table 5)

In order of magnitude the biggest clients of the African countries are: Italy, with 142,520 m^3, United Kingdom, with 124,790 m^3, and France, with 117,360 m^3. The share imported by the United States of America and Japan is negligible: 9,090 and 50 m^3, respectively.

Italy and France buy their African sawn timber almost exclusively in Côte d'Ivoire: 84 and 82 per cent, respectively.

The United Kingdom, for its part, stocks up to the extent of 50 per cent on the Ghana market and 25 per cent on the Côte d'Ivoire market, or in other words 75 per cent from the two countries.

The small amounts imported by the United States and Japan stem basically from Côte d'Ivoire.

Veneers (see table 6)

The Federal Republic of Germany, Italy and France are the biggest importers of African veneers.

The Federal Republic of Germany is turning to Côte d'Ivoire for more than half of its needs and to the Congo for about 20 per cent of them. Ghana comes next.

Italy supplies itself with African veneers to the extent of 65 per cent from Cameroon. The second and third places go to Côte d'Ivoire (about 20 per cent of the imports) and to the Congo.

On the French market, the Congo leads with 38 per cent, followed by Côte d'Ivoire (30 per cent) and Cameroon.

Just as for sawn timber, the United States and Japan, which import only a negligible quantity of African veneers, buy from Côte d'Ivoire.

Plywood (see table 6)

The small amounts of plywood ordered from the African market go basically to France, followed at a considerable distance by the Federal Republic of Germany and Italy.

Gabon provides France with 80 per cent of its needs for African plywood. The two other countries supplying France are Cameroon and Côte d'Ivoire.

Gabon also provides 61 and 73 per cent, respectively, of the German and Italian market needs. Cameroon and Côte d'Ivoire come next, but a long way behind.

It should be noted that the Asian countries do not import African plywood. We should also point out that the tiny share imported by the United States of America is obtained solely from Côte d'Ivoire: 12,000 m^3.

B. Structure of the sector

1. Logging companies

These are usually made up of nationals of the countries concerned or are industrial woodworking companies. Generally speaking, these companies deliver their product at the beach price to exporter companies or directly to the industrial companies for local conversion of the wood.

2. Export companies

In the Congo the marketing of rough timber is [illegible]poly run by the Congolese Timber Agency (OCB).

In Gabon, except for okoume and ozigo, the marketing of which is a State monopoly practised by the Gabonese National Timber Company (SNBG), the export of rough timber is free.

In most of the other countries of the West African coast, the export sector is usually in the hands of European companies. In Africa, the exporter usually sells f.a.s. (free alongside ship) or f.o.b. (free on board), though much more rarely c.f. (cost and freight). The bulk of the exports go to Europe. Some countries, like Côte d'Ivoire, apply a quota policy.

3. Import companies

These are importers/distributors who buy the wood and wood products for resale at the destination to small size factories and cottage industries, or else importers/end-users who themselves convert the merchandise into semi-finished and/or finished products.

According to the import country in question, some merchants may work for themselves and act as brokers or agents for third parties (importer/distributors or importers/end-users).

It should be pointed out that some companies, particularly French ones, apply vertical integration: they discharge the functions of loggers, on-the-spot industrial processing companies, exporters and importers/distributors or importers/end-users in Europe.

It should also be noted that it ensues from this form of organization that:

(a) Marketing is usually and almost exclusively performed by companies based in Europe which alone draw up and approve contracts, settle disputes, pay freightage, follow market trends, and liaise with banks and clients;

(b) Companies set up in African countries producing wood and derived products therefore act only as executive exporters.

C. System of ordering and price fixing machinery

There are no long-term contracts binding the logging companies and the exporters. Hence the latter buy in bulk, the batches running from several hundred to several thousand cubic metres at a time, and in each transaction there is negotiation of the producer's purchase price.

It is for this reason the international exchange rates for each product which determine the purchase price for the logging company or for the industrial plant/exporter who decides to sell or postpone the sale of his product according to cost price. Indeed, the purchase price proposed by the exporter may leave an insignificant mark up for the producer or even be below the latter's cost price.

These price fluctuations are usually stronger on the rough timber market. They are made worse by the fact that, depending on the African country in question, only 5-25 per cent of the species proposed are unique products for which it is difficult to imagine replacement.

Furthermore, the fact that purchasers have a chance to obtain right away anywhere in the world, using telex or telefax, the volumes of species available, the proposed prices, the level of sea freightage and the delivery dates, increases speculation and the sensitivity of the purchase price of African wood and wood products to the international economic environment.

III. COST OF TRANSPORTING WOOD AND WOOD PRODUCTS FROM THE WEST AFRICAN COAST

A. Organization of the transport

1. Inland transport

Road transport is the normal system in Côte d'Ivoire and, to a lesser extent, Cameroon.

From the logging sites to the break-bulk yards

Shipment of the rough timber or sawn wood from the logging sites to the break-bulk yards is provided by tractors travelling along tracks cleared and maintained by the logging companies. This type of transport is performed entirely at their own expense by the logging companies because of the reluctance of public transport to operate on forest tracks.

Road transport from the logging sites to the break-bulk yards is an excess cost factor, especially in the equatorial forest areas where the clearing and maintenance of tracks is almost impossible during the rainy season.

In the break-bulk yards the rough timber from different logging sites is sorted and the sawn wood is marked and cut to size.

From the break-bulk yards to the factories and ports

The break-bulk yards are usually set up near the most important trunk roads and at normally accessible sites.

The logs are generally carried by tractors with trailers - 5-axle type (1, 2, 2) - loaded with an average of 30 m^3 of wood.

Transport to the wood-conversion plants is basically made at the companies' own expense (80-90 per cent), recourse to public transport thus being limited to sporadic needs.

Carriage to the ports is provided to the extent of 40 or 50 per cent by public transport, the remainder of the carrying capacity belonging to the logging companies.

In the Central African countries, the transport of rough timber by road is convenient only for four or five months of the year, since the rainy seasons often require the construction of rain barriers or considerable maintenance and repair work; these are all matters which prolong the normal deadlines for removing the wood and derived products and make the cost of transport more burdensome.

The converted wood is usually dispatched to the ports either loose or in containers. This transport is usually provided more than 50 per cent by the companies' own resources using tractors with trailers for the purpose. The useful load usually varies between 20 and 28 tonnes.

Container transport involves the use of containers loaded with about 7 tonnes.

An improvement in the road network used for evacuating the wood and derived products would make it possible to cut down the producer's cost price by reducing the maintenance costs, increasing the turnover of trucks and improving competition between carriers.

Transport by rail

This basically exists in Cameroon, Congo and Gabon, where it supplements conveyance by road or river within the context of intermodal transport.

In the Congo it replaces the river routes for removing the wood and wood products, other than those of the south (including those of the Central

African Republic), from Brazzaville to Pointe Noire. In Cameroon, it replaces the road transport when removing cargoes from the centre, centre-south and east. In Gabon, it provides carriage for all the wood coming from the area of influence on the Franceville-Owendo axis.

The pricing of wood and wood products is carried out in accordance with complex formulae which integrate the distance travelled, the tariff category of the product and the load per truck. This pricing system favours the poorer woods and penalizes the richer woods; hence a system of price balancing is applied.

The Cameroon railways, and more especially the Congolese railways, are criticized for the poor availablity of sorting machinery at stations, the unavailability of railway trucks and the slowness of dispatch, which detracts from the freshness and quality of the wood and creates financial difficulties for the logging companies with poor financial resources. As an illustration of this point, we need only mention that the Congolese railways (CFCO) attain an evacuation rate of no more than 20,000-25,000 m^3 per month.

The shipping companies criticize the Gabonese railways (OCTRA) for their high level of tariffs.

Transport by river

This is upstream of railway transport, particularly in the Congo.

It ensures the evacuation of wood and wood products in the zone of attraction of Port-Gentil in Gabon. The wood is transported by raft, barge or by loose floating.

The river transport companies usually possess barges, pusher boats and mini-pusher boats.

The difficulties associated with river transport relate to the frequent sanding up of the river ports (particularly in Brazzaville), lack of maintenance of the equipment, which affects availability, mandatory stoppage of navigation during the dry season for three to five months because of inadequate draught, as well as problems involving the liability of the river carrier in the event of dispute, accident or loss of cargo.

2. Handling

This is done in the case of international transport first at the break-bulk point, then in the timber yard and finally when taking the cargo aboard.

Handling at the load break-bulk point (in the case of international transport)

This involves unloading the wood and wood products from rafts, flat-bottomed boats or barges so as to load them onto freight cars.

At this stage we feel that we should draw attention to the lack of equipment and the physical difficulties encountered in handling merchandise: lack of sorting equipment at stations, poor state of repair of the hoisting devices, lack of freight cars, frequent silting up of ports, frequent derailings and so forth.

Handling in the timber yards

The logging companies in charge of the timber yards are usually responsible for:

(a) Unloading the railway cars or articulated trucks, or even the barges and rafts;

(b) Stacking the wood: this operation involves grouping the logs in accordance with the departure of different batches and the batch destination as seen from the markings. The operation is also applicable to worked wood;

(c) Restacking: the shippers put the wood back onto the trailers or flat-bottomed boats and haul it to the embarkation area;

(d) Bringing the wood up to the embarkation perimeter in order for it to be taken over, directly onto the ship (sous-palan) in the case of wood brought up by floating or on barges, and from the perimeter in the case of wood to be loaded from the quayside.

Handling at the timber yards is highly sensitive to the water level (in the case of river transport), rate of delivery to the timber yard by road transport vehicles, the railway and river shipping companies, the number of the bills of ladings which determine the speed of the division into batches, and so forth.

This type of handling is also sensitive to the availability of the handling or hauling equipment, the efficiency of such equipment and the organization of the work (whether or not there is a chance of working extra hours or at night if the ship rotation schedule requires it).

Handling in port

This draws its importance from the f at it governs both the time spent by the ship in the port and the cost the call.

The handling rates vary with the physical conditions of the port (sheltered port or one exposed to tides and winds, port in deep water or estuary port, port with numerous quays, platforms and hangars or a port with a summary infrastructure etc.), the degree to which the port is equipped (container bridges, cranes, etc.), the hours of work (24 hours a day, including holidays, or 8 hours a day with no chance of working at night or on holidays), the size of the batches to be loaded, the packaging of the product (banded bundles, containers, bulk material, etc., and the extent to which the lightermen and dockers are equipped (loaders, cranes, hoists, etc.).

In accordance with these criteria, ports and roadsteads in the countries concerned can be classed as follows:

Côte d'Ivoire:	Abidjan San Pedro	Excellent port conditions.
Cameroon:	Douala	Good port conditions despite tidal effects.
	Campo Kribi	Mediocre conditions for loading in roadsteads.

Gabon:	Owendo Port-Gentil	Good port conditions, despite the strong night currents and the under-equipped state of the ports.
Congo:	Port Pointe Noire	Quite good port conditions, despite the under-equipped state of the port and the fact that it does not have a single entry for trucks.
Ghana:	Tema	Good port conditions.
	Takoradi	Mediocre loading conditions.
Liberia:	Buchanan	Good port conditions.
	Cap Palmas Sinoe	Mediocre loading conditions.

The handling costs are first influenced by the felling of the trees, i.e., whether it is standardized or not, and then by the cost of the dockers. The cost of handling is finally influenced by the fact that African ports only use on-board equipment, by the handling rates and by the frequency with which the ship calls at the ports. In effect, a ship which calls at between four and seven ports will have much higher handling costs than one putting in at one or two ports and that applies to both loading and unloading.

3. Packaging of wood and wood products

Rough timber is usually loaded loose. It should be noted, however, that rounds of eucalyptus (Congo) or teak (Côte d'Ivoire) are banded with metal hoops, highly resistant steel wire or nylon straps.

Sawn wood is loaded in the form of bundles 1-1.4 m^3 in volume. They are generally shorter than 4 metres and the sawn wood is theoretically separated by blocks of wood 8 mm thick maximum. In actual fact these blocks are often more than 15 mm thick.

The bundles of sawn wood are banded with metal hoops, steel wire that is highly resistant or nylon straps.

The bundles are usually fitted with spacers at the bottom to allow for insertion of the prongs of the handling devices.

It is usually only the sliced and peeled wood, plywood and certain dried sawn wood that is protected from bad weather by polyvinyl sheeting.

Worked wood (sawn wood, veneers, plywood, etc.) is sometimes conveyed in containers. Except for non-dried sawn wood, worked wood may be transported in standard containers. Some batches are conveyed in flat rack containers which have the advantage of making it easier to empty them and fill them, especially when the lateral walls are hinged. Moreover, hinged lateral walls, in the case of the ship returning home empty, make it possible to stack eight units within the space taken up by one. The location of the flat rack containers involves an excess cost which is "resorbed", as they say nowadays in professional circles, due to the lower cost of the discharge handling at the port of final destination. The banding of wood that is still damp involves, again, some excess cost because of the fact that the wood shrinks as it dries. As a result the bands slip and the spacers fall out and are damaged,

or else break. The inefficient banding sometimes makes it necessary to put new bands on before the loading onto the ship: the cost of the operation amounts to about 1,000 CFA francs/m^3 in Côte d'Ivoire.

The filling of the containers on the quayside or even ex-factory often means that the loading capacity of the container is not fully utilized, although the practice of billing for the quantity actually loaded has given place to box billing (à la boîte) which leads to the payment of dead freight. Furthermore, it is generally accepted that the filling rates obtained with 40 ft. containers (which are not normally used on the West African coast) are better than what is possible with the 20 ft. containers.

4. Transport by sea

Ships used on the West African coast for transporting rough timber and wood products

Rough timber (logs)

This is usually transported by:

Logging freighters

These are specially designed to convey rough timber in the hold and, if there is room, also on the deck. For this purpose they have solid hatchway and stanchion covers. They are fitted with derricks capable of lifting 10 tonnes and cranes with a hoisting capacity of normally 15-20 tonnes. Some cranes can even lift 30 tonnes.

These freighters have between two and five holds. The smallest of them carry 5,000-6,000 DWT (dead-weight tonnage) and the largest go up to 15,000 DWT. They can carry sawn wood on the deck. Logging freighters can also transport bulk materials (clinker, sand, gravel, cement, etc.), but not general merchandise.

Multi-purpose ships

These carry rough timber but usually give preference to cargoes of normal merchandise, in view of the fact that the loading and unloading of rough timber often damages the ship. On the West African coast they have a DWT of 13,000-16,000. Apart from rough timber, they can load up with sawn wood.

Multi-purpose ships can carry veneer and plywood in the hold, but that sometimes forces them to use one complete hold for the purpose.

Conbulkers (converted bulk carriers)

These are ships specially designed for the routes from the West African coast to Western Europe.

They carry both rough timber and bulk products as well as containers and appear particularly suitable for a broad range of cargo. They have a deadweight tonnage of 23,000, five or six holds and up to six cranes. They can carry as much as 32,000 m^3 of wood and also transport derived wood products in containers.

Ships of State trading companies of European countries

These are not, a priori, well adapted to conveying rough timber since they are usually built with 'tween decks. These ships of ancient design load up with smaller amounts to offset their handicap.

Sawn wood, veneers and plywood

These can be carried by multi-purpose ships with the constraints described below. As already mentioned, they can also be transported by conbulkers. But they are not usually transported by:

Roll-on/roll-off ships

These horizontal handling ships permit direct, easier access for loading and unloading wood products, especially green or dried sawn wood. They can also load both bundles and containers under optimal conditions, especially when the rigging is to the fore.

It should be noted, however, that the roll-on/roll-off ships are expensive to buy and that from the point of view of handling, it seems somewhat risky to load bolsters at more than five heights: starting from that height delicate products such as staves and veneers may be damaged.

Container ships

These seem especially well-suited to transporting the most delicate wood products, such as plywood, veneers and staves. They are not at all suitable for carrying green sawn wood. Container ships can easily stock containers to eight or nine levels.

Nevertheless, it should be pointed out that containers with built-in shelf divisions cost much more, although they might seem best suited to conveying wood products: they are 10-20 per cent more expensive than other containers. We should also mention that exporters of processed wood products, because of their inability to ensure proper loading, often pay an excess cost of 20-30 per cent, when charges relate to a fixed price per container, as against the cost when the billing is for the volume actually carried.

Shipping companies serving the trade in wood and wood products on the West African coast

African shipping lines

These are usually State-run national concerns and companies with a mixed economy: SITRAM (Côte d'Ivoire), CAMSHIP (Cameroon), SONATRAM (Gabon) and the Black Star Line (Ghana).

It should be noted, however, that there are also private concerns such as SIVOMAR (Côte d'Ivoire). These are regular shipping lines and members of the maritime conferences which serve the foreign trade of their respective countries. They usually possess several ships of their own (normally between two and five) and charter others, if needed.

For carrying wood and wood products they normally employ multi-purpose ships of 13,000-16,000 DWT. They are used to carry both rough timber and sawn wood as well as veneers and plywood.

Their presence is based on the maritime relationships between the countries with which they have signed bilateral agreements or traffic agreements based on the application of certain provisions of the code of conduct agreed on by maritime conferences.

Shipping companies of the developed countries

These lines are, among others, for the carriage of wood and wood products: the shipping lines conventionally called "North-South" such as the Delmas-Vieljeux Commercial Shipping Company (SNCDV - France) or the Belgian Shipping Company (CMB), or else SCADOA. They are medium-sized European concerns, but possess more and more sophisticated shipping equipment: integrated, container ships, conbulkers and roll-on/roll-off ships. With the exception of SCADOA, they have a fleet of ships suitable for carrying rough timber (logs) and all classes of converted wood. Thanks to the experience gained during the colonial period, in Africa they apply shipping relationships that are personalized and normally considered to be the best protected and therefore the most remunerative.

They are usually members of Euro-African maritime conferences, within which they play a primary role.

The large European concerns, such as Nedlloyd

These have the benefit of many years in the practice of the profession and of having an international network. They possess sophisticated ships, but more of them than the North-South lines: among others container ships and conbulkers.

They are usually members of maritime conferences serving the foreign trade of Africa. They have a capacity for carrying both rough timber and derived wood products. They have been set up to have dealings with third parties as well as for the foreign trade of their own countries.

Large independent companies such as the Maersk Line

These do not take any part in maritime conferences, nor are they part of any consortia. They take very little part or none at all in the carriage of wood products and usually consider the practices of maritime conferences and African concerns as hindering free access to cargo and competition.

Independent state trading companies in the developed countries (among them the USSR)

These usually possess, in their trade relationships with Africa, small conventional ships fitted with 'tween decks, hence poorly adapted to loading wood and wood products. They normally carry cargoes in limited quantities, and undesirable cargoes or merchandise for which the ports where they load or unload are not frequented by vessels of the maritime conference companies.

Different categories of carriers of wood and wood products

Shipping companies which are members of maritime conferences

These usually carry between 70 and 75 per cent of the rough timber and wood products.

The share of the national African companies such as SITRAM (Côte d'Ivoire) and CAMSHIP (Cameroon) can be estimated as the following for 1986 and 1987:

Trade with France

Company	Rough timber (Percentage)	Sawn wood (Percentage)
SITRAM		
1986	42.5	26.0
1987	51.8	23.0
CAMSHIP		
1986	19.6	7.0
1987	26.7	13.7

Trade with Italy

Company	Rough timber (Percentage)	Sawn wood (Percentage)
SITRAM		
1986	42.0	31.0
1987	51.0	32.9
CAMSHIP		
1986	30.5	78.4
1987	36.7	93.0

Trade with Spain

Company	Rough timber (Percentage)	Sawn wood (Percentage)
SITRAM and SIVOMAR		
1986	47.6	41.3
1987	49.3	43.9
CAMSHIP		
1986	23.0	0.3
1987	37.0	11.6

The conferences concerned with trade in wood and wood products from Africa are basically:

(a) United Kingdom West Africa Lines (UKWAL);

(b) Continent West Africa (COWAC), which is subdivided into COWAC NORD (from Antwerp to the Baltic) and COWAC SUD (Atlantic ports of France, Spain and Portugal);

(c) Mediterranean Europe West Africa Conference (MEWAC).

It should be pointed out here that the trade in rough timber has undergone a certain restructuring over the last few years with the formation of the "Timber Club".

The Timber Club operates in the form of a pooling agreement (booking of hold space and container space) concluded between some of the African and European companies who are members of the maritime conferences and who have decided to pool their shipping in order to streamline and improve the quality of their services, as well as to reduce the excess tonnage available for the transport of rough timber.

Non-conference companies

These carry from 25 to 30 per cent of the wood and wood products from Africa, despite their limited access to cargo under rule 40/40/20 applied by certain countries on the West African coast (Côte d'Ivoire, Gabon and Ghana).

They transport the merchandise both for themselves as well as for African National companies.

The special case of chartered ships

This practice on the West African coast only applies to loads attaining at least 1,500 or 2,000 m^3 with one dispatch. In view of the small quantities normally sent by the African exporters and risks of paying for dead freight or penalties for being late, the practice of chartering is rather rare on the West African coast. It is only applied to a few cargoes sent to Japan, and then in the form of trip chartering.

B. Cost of transport

1. Price free on board (f.o.b.)

This is mainly composed of the cost price ex logging site or ex factory, inland transport charges, timber yard handling and storage prices, cost of operations by the forwarders, duties and taxes and, if necessary, quota charges.

Price f.o.b. for rough timber

Cost price ex logging site

Since 1986, this price has been about 16,000 CFA francs for niangon in Côte d'Ivoire, 10,000 CFA francs for tali, 10,500 CFA francs for framire and koto, in the case of logging sites located approximately 250 kilometres from Abidjan.

Over the same period in Cameroon, it has been 12,000 CFA francs on average for sapelli, sipo, doussie, ekki and ayous, since these wood species come from the central and central-southern part of the country by road and then by rail. The logging site cost price in Cameroon averages between 10,000 and 18,000 CFA francs.

In the Congo this price for rough timber averaged 12,000-25,000 CFA francs.

In Gabon rough timber is usually sold ex logging site at between 15,000 and 25,000 CFA francs on average.

Inland transport price

This is estimated at between 6,500 and 10,000 CFA francs in Côte d'Ivoire for a distance of 250-300 km.

The figure varies between 12,000 and 17,000 CFA francs in Gabon.

It ranges between 7,000 and 24,000 CFA francs in Cameroon, according to the area from which the wood comes.

In the Congo, the wood from the south is transported by road at a cost estimated at between 10,000 and 14,000 CFA francs. Wood from other regions which requires domestic waterways and then the railway cost between 18,000 and 28,000 CFA francs in terms of inland transport.

Beach price

This is the sum of the cost price ex logging site and the inland transport price.

In Gabon this price varies between 40,000 and 45,000 CFA francs for dibetou, and is 80,000 CFA francs for doussie, 40,000 CFA francs for iroko and 40,000 CFA francs for kevazingo.

In the Congo the beach price of okoume lies between 40,000 and 44,000 CFA francs. It is fixed at 25,000-42,000 CFA francs for mahogany. It is about 30,000 for bosse, 29,000 for dibetou, 35,000 for doussie and 38,000 CFA francs for iroko.

In Côte d'Ivoire this price amounts to 24,000-32,000 CFA francs for niangon, 20,000 for tali, 17,000 for framire and koto, 20,000 for samba (ayous), and from 18,500 and 2°,000 CFA francs for sapelli.

In Cameroon, the beach price of ayous lies between 23,000 and 37,000 CFA francs and that of sapelli between 31,000 and 42,000 CFA francs.

Other f.o.b. charges

Tables 7 and 8 show the breakdown for a batch of frake of 30 m^3 and a batch of niangon of 114 m^3 dispatched from San Pedro in Côte d'Ivoire.

The gross margin for the exporter ranges from 12,500 to 14,000 CFA francs. The f.o.b. charges range between 9,500 and 21,500 CFA francs. In this connection it should be noted that in Côte d'Ivoire the export of rough timber is heavily taxed. In the Congo, rough timber involves the payment of duties and taxes, as shown below, which contain all the other f.o.b. charges at a level between 14,000 and 18,000 CFA francs.

SOCOMAB (timber yard)	2,400 CFA francs/m^3
Overall costs	3,100 " " "
OCB authorized margin	2,000 " " "

Export taxes	From 1% to 4.5% of the f.o.b. value, depending on the species
SIDOC (customs data processing)	160 CFA francs/m^3
Loading permit	35 " " "
Stabilization fund levy	1% of the f.o.b. value of the wood
Statistical tax	20 CFA francs/m^3
Roadway venicle tax	75 " " "
Lighterage charges	995 " " "
Port tax	690 " " "

In Cameroon the other f.o.b. costs for rough timber range from 6,500 to 18,000 CFA francs (see table 9).

f.o.b. price

In Côte d'Ivoire it is about 40,000 CFA francs for frake and 67,500 for niangon.

In Cameroon, it is fixed at about 30,000 for ekki, 31,000 for ayous (samba), 47,000 for sapelli and sipo and 50,500 CFA francs for doussie.

In the Congo, the f.o.b. prices are fixed at about 55,000 for okoumi and limba, 45,000 for dibetou, 50,000 for bosse, 83,000 for doussie-bip, 51,000 for iroko and 87,000 CFA francs for sapelli.

In Gabon, the f.o.b. prices are about 75,000 CFA francs for mahogany, 60,000 for bosse, 45,000 for dibetou, 67,500 for iroko, 115,000 for kevazingo, and 90,000 CFA francs for tali.

f.o.b. prices of sawn wood

Cost price ex factory

This is about 57,000 CFA francs for sawn iroko wood and 103,018 for sawn sipo wood at San Pedro in Côte d'Ivoire.

In Cameroon it averages 70,000 CFA francs for sapelli, sipo, doussie, ekki and ayous.

Inland transport costs

In Cameroon these vary between 4,000 CFA francs/m^3 (in the coastal region) and 18,000 CFA francs/m^3 (in the central and central-southern part).

In Côte d'Ivoire, they amount to 5,500 CFA francs/m^3 for iroko or sipo sawn wood.

Other f.o.b. charges

These range from 7,500 CFA francs for iroko to 11,500 for sipo in Côte d'Ivoire.

In Cameroon, the other f.o.b. charges are assessed at a level between 6,500 CFA francs for Ekki and 7,000 for Ayous to 14,000 CFA francs for sipo and sapelli.

f.o.b. price

In Côte d'Ivoire, this is about 70,000 CFA francs for sawn iroko wood and 120,000 for sipo.

In Cameroon, the f.o.b. price ranges from 94,000 CFA francs for ekki and ayous to 108,000 for doussie, passing through 101,000 CFA francs for sapelli and sipo.

2. Sea freightage

General machinery for fixing freight rates

Sea freightage is the shipper's selling price for the service of transporting merchandise by sea from the loading port to the port of discharge. The price paid for the shipment of goods is based on several criteria in accordance with a number of components.

In all, there are 27 factors which usually enter into the picture when determining freightage, among them:

(1) Nature of the load
(2) Volume of the load
(3) Availability of the load
(4) Risk of average
(5) Risk of theft
(6) Value of the merchandise
(7) Type of packaging
(8) Warehousing
(9) Weight/volume ratio
(10) Difficulty of hoisting
(11) Special length
(12) Competition with merchandise of other origin
(13) Competition of other routes
(14) Distance
(15) Handling charges
(16) Lighterage charges (when barges are used)
(17) Special delivery
(18) Competition with other carriers
(19) Direct management costs
(20) Fixed costs
(21) Insurance
(22) Port facilities
(23) Port regulations
(24) Port dues
(25) Tolls
(26) Geographical location of ports
(27) Opportunities for return freight

It is quite clear, when reading this list, that a large number of the 27 factors are difficult to quantify and are therefore open to subjective interpretation by the maritime conferences and the companies responsible for working out basic rates. The large number of rates and hidden rebates accorded to certain shippers are characteristic features of the basic structure of maritime freightage, which can only increase the difficulty of determining the rates applied within any accuracy.

Structure of freightage for rough timber (logs)

The freightage for logs has been classified. Tax is levied according to the species, which are divided into three categories. The criterion is the density of the wood.

Category 1 - density 0.7 tonnes per m^3;

Category 2 - density between 0.7 and 0.88 tonnes per m^3;

Category 3 - density 0.88 tonnes per m^3.

Given the fact that the exports are made f.o.b. (the amount of the freightage is paid by the importer at the destination), knowledge of the freight rates

actually applied may escape the shipper councils and some of the shipping operators.

Structure of freightage for converted wood

The principal logging products that are converted are sawn wood, billets ("plots"), railway sleepers, veneers and plywood.

The freight rate for billets is classified in three categories, just as for rough timber. The freightage varies according to whether the batches are braced (tringlés) or not and whether they have equal ends or not.

In the case of sawn wood, the freightage varies according to whether it is in the form of bundles (one or two paired faces), whether braced or not, or loose.

Thus, as far as Côte d'Ivoire is concerned, sea freight rates are established as follows:

Braced wood with ledges:

Less than 8 mm:	basic rate plus 10 per cent;
8–15 mm:	basic rate plus 20 per cent;
More than 15 mm:	the space requirement outside the runners is multiplied by the base rate.

Bunker adjustment and currency adjustment factors (see tables 10 and 11)

Bunker adjustment factor

The bunker adjustment factor (BAF) is extra freightage that the maritime conferences charge to permit their member companies to offset increases in bunker charges.

It represents, as an application of the principle of "neither gain nor loss", variation in the cost level coming under the heading of "bunkers" for all the shipping lines of a given conference.

Independent accountants who audit the results of the shipping line voyages, including the level of the bunker charges and also follow up each month the trend in the cost of fuel expressed in United States dollars, supported by the ships refuelling in a given area, i.e. MEWAC, COWAC or UKWAL. They also follow the currency excnange rates for the tariffs in relation to the United States dollar. They deduce the BAF, which may be positive or negative.

If it is positive, it involves for the shipper an increase in freight rates. If it is negative, the freightage paid by the shipping agent is reduced.

We should stress, finally, that the amount of the BAF only changes if the variation reaches a 2 per cent threshold. This threshold is intended to make the constant change in bunker prices less sensitive to trading.

Currency adjustment factor

The currency adjustment factor (CAF) limits the gains or losses following on fluctuations in currency experienced by the maritime conferences. Independent accountants who audit the results of maritime conference voyages weight the currency used up by the shipping lines for their outlay on the basis of those results. In this way they monitor the fluctuations in the currency in relation to the currency of the conference tariffs and deduce from them the CAF, which is fixed on a monthly basis.

In order to make the variations in currency values less sensitive to trading, the amount of the CAF is changed only when the 2 per cent threshold is crossed.

Difference between the billing methods used by the conferences serving trade in African wood and wood products

The COWAC NORD and COWAC SUD freightage shows distortions. The same applies between COWAC SUD and MEWAC.

These differences in freight rates are basically linked to the billing methods.

- The COWAC NORD rate covers all the costs "from the quayside of an African port to the quayside of the unloading port" (direct delivery to the ship at the African port to direct delivery from the ship at the European port);

- The COWAC SUD rate covers the costs "from the quayside of an African port to the ships' holds at the port of arrival" (direct delivery at the African port to aboard ship at the European port);

- The MEWAC rate covers all costs "from the quayside of an African port to the ships' holds at the port of arrival".

To illustrate this point, we need only indicate that for two ports close to each other, for example Antwerp and Dunkirk, which are located in COWAC NORD and COWAC SUD, respectively, the freightage for rough timber (category 1 of the OIC rating) is 20,230 CFA francs for the connection Abidjan-Antwerp and 13,450 CFA francs for Abidjan-Dunkirk.

Similarly, the freightage for logs in category 1 is 13,450 CFA francs/m^3 for the connection Abidjan-Rouen (COWAC SUD) and 13,250 CFA francs for Abidjan-Marseilles (MEWAC).

Furthermore, we note the existence of distortions in the freightage within the same conference (the case of sawn wood inside MEWAC), where the Abidjan-Italy freightage is 16,000 CFA francs and 13,000 CFA francs between Abidjan and Marseilles.

Historical background to the freightage applied on the West African coast

By choosing 1978 as the reference year we can summarize the readjustment of the freightage (base rate) for the MEWAC Conference (see table 12).

The MEWAC tariff, following the charges of the other conferences serving the foreign trade of the West African coast, is marked by an imbalance between the freight rate for North-South trade and for the South-North trade. Indeed,

preferential rates are applied to certain categories of products exported by the countries of the West African coast. Wood and wood products are in this category of products which are said to be sensitive to freightage.

This practice has produced a considerable gap between the tariffs of the MEWAC Conference for general merchandise and those for wood and wood products. For example, in 1988, the freight rate for general merchandise was 180.58, as against 143.96 for rough timber (i.e. a difference of 36.62 points in favour of rough timber) and 138.52 for wood products (or a difference of 42.06 points).

Furthermore, as shown in tables 13 and 14, between 1986 and now no increase in base freightage has been granted to COWAC NORD or to UKWAL.

Over the same period the BAF and CAF levels dropped considerably.

In MEWAC the BAF ranged between 11 and 19.8 per cent in 1986 and between 11.7 and 13.8 per cent in 1987, before settling at 11.7 per cent in 1988, as against a higher fork varying between 21.4 and 28.5 per cent in 1985.

From 7.7 per cent in 1985, the CAF in MEWAC dropped to 3 per cent in 1986, 0.9 per cent in 1987, and then to -1.9 per cent in 1988.

We see the same trends in COWAC NORD and COWAC SUD (see table 11).

Hence "all in" freightage in MEWAC and COWAC was fixed in 1988 at about 7 per cent below the level attained in October 1986 (see tables 15 and 16) as far as wood and wood products were concerned.

Cargo sharing and freightage on the West African coast

On the West African coast the application of freightage rates seems to differ with the country and with the degree to which each country applies the system of cargo sharing of the shipping line, according to the rule known as 40/40/20.

It should be made clear, in order to explain this phenomenon more clearly, that on the West African coast there is a regional negotiation committee on freightage, which is an offshoot of the Union of African Shippers' Council (UCCA) and which negotiates, with the maritime conferences on behalf of all the 25 member countries of the Ministerial Conference of West and Central African States, the tariffs for shipment by sea which are in effect on the West African coast.

However, in practice we observe major distortions. For example, in Cameroon where they apply a system of reserving cargoes for the shipment of wood and wood products, most of the shipping lines, including the Cameroon Shipping Line (CAMSHIP), apply a flat rate and grant shipping agents reductions as high as 40 per cent below the official rates decided on by the maritime conferences.

The same applies to the Congo, which does not have any national shipping lines, but which still applies the so-called 40/40/20 rule. The shipping lines grant reductions of 30-40 per cent.

In Gabon, where the cargo sharing system is still integrated into a cargo reservation scheme, excepting the National Sea Transport Company (SONATRAM),

the other maritime carriers grant reductions of 30-40 per cent. The freightage in force is close to the rates applied by the non-conference shippers.

In Ghana, it is also possible to grant rebates despite the application of the cargo sharing system. The rates usually agreed on are in line with those of the non-conference shipping lines.

In Liberia, where the cargo sharing system does not exist, the rebates may attain 40-50 per cent. The freightage applied is the same as that applied by the non-conference shipping lines.

In Côte d'Ivoire, where there is, in addition to the application of cargo sharing, a system for checking the application and justification of freightage, the rebates do not exceed 10-15 per cent. Hence the Côte d'Ivoire shipper pays more for his rough timber and wood products to be carried by sea.

To sum up, we should stress that apart from Côte d'Ivoire and, to a lesser extent, Cameroon, the freightage applied for conveyance by sea of wood and wood products by the shipping lines serving the foreign trade of the countries of the African west coast is usually 30-40 per cent below the threshold fixed by the maritime conferences. It is at the same level, in current practice, as the rates granted by the non-conference shippers to the African shipping agents (see table 17).

Modes of sale and freightage level

The choice of carrier and the control of the shipment contract are usually determined by the type of sales contract concluded between the exporter and importer.

In principle, the exporter can choose the carrier and has control of the shipping contract when he sells c.i.f. (cost, insurance and freight) or c.f. (cost and freight).

The opposite scheme applies when the exporter sells f.o.b. (free on board), i.e. the merchandise is delivered directly to the ship, or f.a.s. (free alongside ship).

On the West African coast the exporter usually sells the rough timber and wood products alongside ship, i.e., f.a.s. However, in current jargon, they still speak of sale f.o.b.

In the event of a sale f.a.s. or f.o.b., since the importer is in charge of transport, the freightage is generally paid at the destination. Hence it is the importer who benefits from hidden rebates of 30-40 per cent that the shipowners grant to the shipper on sea freightage. But this information is usually kept confidential by the importer since the logging site cost price (for logs) and ex-factory cost price (for worked wood) are usually fixed by the exporter after deduction has been made for the freight paid, the other f.o.b. charges plus the cost of inland transport. This method of fixing the market price of wood and wood products seems therefore to penalize production and the producer more than the importer. It also seems to be less and less acceptable to the shipping companies who are members of the maritime conferences. As proof, MAWAC has just decided, unilaterally, following the freeze on freightage decided on by the Committee for the Negotiation of Freightage for the countries of the West African coast at Abuja (Nigeria) in October 1989 that a supplement of 40 FF per cubic metre would be levied on rough timber starting as from 27 November 1989 (see the announcement in the annex).

It should be noted, furthermore, that according to the timber experts, wood and wood products originating from Africa can only stand a freightage rate in the fork between $US 40 and 60 per cubic metre. Beyond that threshold the wood coming from regions that are a long way from the port or are poorly served by the inland transport infrastructure and equipment cannot be exported any more.

Wood and wood products which it is desired to promote suffer the same fate.

A ceiling of $US 40 seems to be rarely achieved, as shown by tables 18, 19, 20 and 21, from which it can be seen that the costs lie generally between $US 45 and 85 per m^3 in COWAC NORD and COWAC SUD. Conversely, a ceiling of $US 60 is often reached.

3. C.i.f. prices and the sensitivity of wood and wood products to sea freightage

The c.i.f. prices of rough timber and wood products can be broken down as follows:

- Cost price ex logging site or ex factory;
- Domestic transport (road, rail, river);
- The various f.o.b. charges:
  - transit, handling, timber yard and quota charges;
  - duties and taxes;
- Commission (if any) for the middlemen;
- Sea freightage;
- Marine insurance.

The different parameters listed above vary in importance with the category and quality of the rough timber or wood product concerned.

For example, as regards domestic transport, it should be noted that the tariffs change with the quality of the wood, distance, mode of transport, use or not of several modes of transport and so forth. Evidence of this are the costs shown, according to country, in developments bearing on domestic transport.

In the same way, the freightage varies with the category and quality of the wood, the ship's destination (COWAC NORD COWAC SUD or MEWAC), the size of the loaded batches, whether there is or there is not a system for checking the level of rebates, and so on. These restrictions force us to resort to a mean freightage which, moreover, does not take the rebates into account.

Furthermore, as far as marine insurance is concerned, it should be pointed out that rough timber is insured under "FAP SAUF" (free of particular average unless). The insurance may thus be limited to major events such as common accidents, the need to jettison logs for the safety of the ship, non-delivery of some of the timber, etc.

Sawn wood is also insured "FAP SAUF", except for fragile sawn wood which is shipped in boxes.

The different examples given above are conducive in the following instances to the use of mean costs and to carefully determined species, both for rough timber and sawn wood.

Since no data are available, we will confine these examples to Côte d'Ivoire and Cameroon.

Sensitivity of rough timber (logs) to sea freight

In Côte d'Ivoire we will single out for the analysis four rough timber species considered representative of the market. They are niangon, framire, koto and tali.

We will also consider an average c.i.f. Europe price and an average freightage for 1986, the 1986 rates being similar to those of October 1989.

We would also point out that the present model applies to a logging site situated 250 or 300 kilometres away from the port of Abidjan and to transport involving only a good quality road.

On this basis the breakdown of the average c.i.f. is given in tables 22 and 23. The breakdown shows that the sea freightage accounts for 28.5 per cent of the c.i.f. value for niangon. This percentage is fixed, in the case of the three other species, at 39.4 per cent for tali, 31.5 per cent for koto and 27.5 per cent for framire (for which the lowest freight level has been selected).

In Cameroon, the application of identical freightage rates (20,044 CFA francs for red woods such as sarelli and 15,700 CFA francs for white woods of the ayous type) would give us, according to the amassed data, the following percentages in the c.f. value for the rough timber:

34.4 per cent in the c.f. value of ayous from the east and 26.5 per cent for ayous from the south-east of Cameroon;

30.3 per cent in the c.f. value of sapelli rough timber originating from the east and 26.5 per cent for the south-east of Cameroon.

Sensitivity of sawn wood to freightage

The application here of the basic hypotheses which have been used for estimating sea freightage in the c.i.f. and c.f. value of rough timber enable us to select for Côte d'Ivoire sawn samba and iroko wood, which represents 70 per cent of the market sales.

In addition, let us make the assumption of a plant set up near the port of Abidjan and another one located at a distance of 200 or 250 km from that port.

The available data show that the freightage accoun s for 23.8 per cent of the c.i.f. price of samba from the plant near the port, and 23 per cent for samba produced 200 or 250 km away from it. Similarly, freightage accounts for 19.5 per cent of the c.i.f. price for iroko from the plant near the port and 21.6 per cent for a distance of 200 or 250 km from Abidjan.

With respect to the east of Cameroon, the data place the percentage of freight in the c.f. for sapelli sawn wood at 15.7 per cent. This figure is 15.5 per cent for sipo, 14.8 per cent for doussie, 16.6 per cent for ekki and 16.5 per cent for ayous (samba).

Comments

These data show clearly that given equal freightage the share of the latter is smaller in the c.f. and c.i.f. value of products for which the cost-price ex factory is high: 68,000 to 70,000 CFA francs for sawn wood from Côte d'Ivoire.

The figures show, following the same logic, that the proportion of freightage is lower in the c.f. and c.i.f. cost-price for sawn wood than for rough timber: 26.5-39.4 per cent for rough timber, as against 14.8-23.9 per cent for sawn wood.

The percentages shown here mean that the share of freightage in the price of wood and wood products remains very high, despite the freeze on freightage rates on the West African coast and despite the classification of wood and wood products as a category of sensitive merchandize. As an illustration of this point, we need only recall that the sea freightage accounts for only 4-6 per cent in the structure of the c.i.f. price of cocoa or coffee coming from Cameroon and Côte d'Ivoire. However, it should be mentioned that this difference stems basically from the large gap between the cost-price of wood ex logging site or ex factory and the producer's purchase price for coffee or cocoa. In effect, the average cost of freightage per tonne of cocoa is 20,640 CFA francs. It is 22,710 CFA francs for coffee. In absolute terms, these freight levels are identical, or greater than those selected for calculating the structure of the c.i.f. price of wood in the form of logs and sawn timber.

4. C.f. or c.i.f. prices and the sensitivity of wood and wood products to other costs associated with transport by sea

Cost of domestic transport

Rough timber

In Côte d'Ivoire this price in the case of rough timber is 8,000 CFA francs/m^3 for niangon and tali and 6,500 CFA francs/m^3 for framire and koto in log form.

It should be remembered that these prices are among the lowest on the West African coast on account of the quality of the road infrastructure in Côte d'Ivoire and the use of a single mode of overland carriage, namely, roads.

The prices represent, however, 11.5 per cent of the c.i.f. price of niangon logs. For rough timber of other species, they are 11.4 per cent for framire, 11.9 per cent for koto and 18.5 per cent for tali.

In Cameroon, inland conveyance accounts for 110-161 per cent of the cost-price ex logging site for rough timber coming from the centre or the centre-south (according to the species).

This rate is estimated as 164-268 per cent for wood transported from the south-east of Cameroon.

Compared to the c.f. prices of rough timber of the ayous type, the cost of inland transport comes to about 32.45 per cent for wood from the east of the country and 42.13 per cent for wood from the south-east.

Relative to the c.f. prices of red wood logs of the sapelli type, the cost of inland transport is 36.49 per cent for wood from the east and 32.9 per cent for wood from the south-east of Cameroon.

It should be noted that these regions are preferred to the coastal region of Cameroon since they use two or three different modes of inland transport at a cost ranging from 14,300 to 25,900 CFA francs per m^3 of rough timber, depending on the species and distance. For details on inland transportation costs see tables 24-26.

Sawn wood

In Côte d'Ivoire the transport of this wood by road costs between 800 and 5,200 CFA francs per m^3 of samba, depending on whether the factory is near to or 200 km away from the port of Abidjan. For iroko sawn wood the cost varies between 800 and 6,500 CFA francs per m^3, if the same criteria are applied.

In terms of percentage, this represents 1-6.4 per cent of the c.i.f. price of samba and 0.8-7.2 per cent of the c.i.f. price of iroko.

In Cameroon the cost of carrying sawn wood within the country is approximately 17,790 CFA francs for wood coming from the centre and centre-south and between 21,930 and 22,320 francs for wood from the east of the country. In terms of percentage compared with the c.f. price of sawn wood, the share of domestic transport from the region of East Cameroon is 17.6 per cent for sapelli, 17.7 per cent for sipo, 16.9 per cent for doussie, 18.7 per cent for ekki and 18.58 per cent for ayous.

The same percentages as applied to sawn wood from the centre and centre-south are 14.77 per cent for sapelli, 14.7 per cent for sipo, 13.95 per cent for doussie, 15.6 per cent for ekki and 15.57 per cent for ayous.

Comments

The share of inland transport is smallest in the c.f. and c.i.f. cost of rough timber or sawn wood from the country or areas of it using a single mode of transport and benefiting from an improved overland transport infrastructure.

Conversely, it is greatest in the countries with recourse to intermodal transport (with several transshipments) possessing a less satisfactory and more poorly maintained overland transport infrastructure.

Inland transport plays a more important part in the formation of c.i.f. and c.f. prices of rough timber than in sawn wood since the cost prices ex factory are higher than the ex-logging site price for rough timber.

In the east and south-east of Cameroon, where there is recourse to intermodal transport, the cost of inland transport for rough timber is identical to or higher than the cost of freightage by sea. The evidence is that domestic transport costs between 14,800 and 24,900 CFA francs/m^3, as against a fork between 15,700 and 20,044 CFA francs/m^3 for average sea freightage.

The same can be said for sawn wood from the east and centre-south of Cameroon, which pay an inland transport price varying between 17,790 and 22,320 CFA francs/m^3 and a mean sea freightage Europe estimated at 19,540 CFA francs/m^3.

We should mention here that the example of the price levels for inland transport in Cameroon can be transposed to Gabon and, to a lesser degree, to the Congo (especially for wood from the north).

5. Other f.o.b. charges

In the absence of reliable data for the Congo and Gabon, the examples given below relate to Cameroon and Côte d'Ivoire.

Rough timber

The other f.o.b. costs in Côte d'Ivoire are 25,881 CFA francs for niangon, 23,525 for framire, 19,923 for koto and 8,062 for tali.

In terms of percentages compared with the c.i.f. value of the rough timber, the other f.o.b. costs account for 41.4 per cent of the price of framire, 36.9 per cent for niangon, 36.3 per cent for koto and 18.6 per cent for tali. Tables 23 and 24 give a detailed list of figures. It should be noted, however, that the costs of transit, handling, storage and quotas for niangon are slightly above the average sea freightage Europe paid for this product. It should also be pointed out that the customs duty and taxes on framire are higher than the mean freightage Europe paid for this product. The duty and taxes are slightly below the freightage in the case of koto.

In Cameroon, the other f.o.b. costs in the case of rough timber from the east of the country amount to 17,270 CFA francs/m^3 for doussie, about 13,800 for sapelli and sipo, 6,550 for ayous and 5,560 CFA francs/m^3 for ekki.

These costs are the same for the same species in the case of wood coming from the centre and the central-southern part of Cameroon.

In percentages of the c.f. price for rough timber from the eastern part of the country, we find 20.51 per cent for sapelli, 20.75 per cent for sipo, 24.42 per cent for doussie, 11.63 per cent for ekki and 14.23 per cent for ayous.

Sawn wood

As far as sawn wood from Côte d'Ivoire is concerned, the other f.o.b. charges are 6,438 CFA francs/m^3 for samba and 7,785 for iroko.

In terms of percentage of the c.i.f. price of these two species, we find approximately 7.8 per cent for iroko (depending on the distance of the plant from the port of Abidjan).

As far as sawn wood from Cameroon is concerned, no matter which region it comes from, the other f.o.b. costs are reckoned at 20,180 CFA francs/m^3 for doussie, 13,000 for sapelli and sipo, 6,000 for ekki and ayous.

In percentage of the c.f. cost of these products, we get 10.85 per cent for sapelli, 11.4 per cent for sipo, 15.8 per cent for doussie, 5.45 per cent for ekki and 6 per cent for ayous from the centre and centre-south.

For the east of Cameroon, these percentages are 10.5 for sapelli, 10.98 for sipo, 15.28 for doussie, 5.25 for ekki and 5.8 for ayous.

Comments

Time did not permit us to have access to the details of other f.o.b. costs for Cameroon.

The other f.o.b. costs for rough timber seem especially high in the case of doussie in Cameroon, as well as niangon and framire in Côte d'Ivoire.

They are just as high for sapelli and sipo rough timber from Cameroon, but are reasonable in the case of ayous and ekki from Cameroon, as well as koto and tali from Côte d'Ivoire.

The other f.o.b. costs are especially favourable to the export of iroko and samba sawn wood from Côte d'Ivoire, as well as ayous and ekki from Cameroon. On the other hand, they seem to be penalizing in the case of doussie, which is a species for which they reach the level of sea freightage. To a lesser degree they are also considered high in the case of sawn sapelli and sipo from Cameroon.

Furthermore, it should be pointed out that the other f.o.b. costs for rough timber make up a larger share in the formation of their c.i.f. and c.f. prices than the other f.o.b. costs for sawn wood.

RECOMMENDATIONS

The recommendations cover the whole of the transport chain.

1. Recommendations on factors associated with the organization of the timber trade

If it is not possible to fix the prices of wood and wood products or to be of influence in fixing them, the logging enterprise should reduce as much as possible the cost price of its rough timber. The same applies to the industrial enterprises which convert the wood.

For this purpose the enterprises could:

(a) Effect regrouping in order to increase their financial resources and trading capacity and create economies of scale. In actual fact, in most of the countries visited very many enterprises have a cottage-industry or family-type structure which prevents them from meeting these requirements. To illustrate this point we need only recall that some African industrial enterprises for converting wood receive an advance from the exporter (or directly from the importer) in order to stock up with the rough timber that is to be converted. It should also be remembered that in the Congo, for instance, some exporters do not have sufficient funds for paying the costs of inland transport in advance (especially in the case of rail transport). Finally, it has only to be pointed out that the bulk of the logging enterprises or wood conversion plants constantly resort to the practice of bank overdrafts, which in Africa is highly onerous, because of the application of a bank rate which usually varies between 15 and 20 per cent, depending on whether the overdraft is authorized or not.

(b) Increase the proportion of processed wood products in the annual volume of exports. To do so, the wood processing enterprises could produce more sawn wood, veneers, plywood, floor blocks, planed parts, mouldings and items for joinery and cabinet-making. However, in view of the debility of the local market and the high standards required by the European importers, it would be desirable for these enterprises not to market finished products such as furniture, doors and windows for export purposes. Diversification of this kind would make it necessary for the African wood-converting enterprise to have greater financial resources available, more efficient equipment and know-how constantly adapted to the change in taste of the clientele. The wood-converting enterprises should, for example, acquire a minimum drying capacity enabling them at least to dry the fragile sawn wood, for example, iroko, samba (ayous) and koto.

(c) Plan for medium- or long-term contracts by which to make better forecasts for the future and sell larger volumes. At the present time, it is quite normal to come across batches of 300 m^3 or less and, what is more, these batches, which are too small to be transshipped in view of the trans-shipping costs, are sometimes sold for destinations which are not served by regular transport systems. The outcome is that the freighters refuse them. Signature of long- and medium-term contracts could, moreover, help to avoid the practice of prolonged storage and promote improved rotation of stocks.

(d) Promote the export of known or unknown species of wood so as to extend the range of products offered.

For their part, the African States producing wood should support such efforts by:

(a) Offering preferential taxation on the import of equipment or spare parts needed by the enterprises of the sector for development and modernization;

(b) Imposing much lower tax rates on petroleum products and electricity intended for the utilization of wood and wood products; the purpose of this is to promote the export of the lesser-known species and conversion of wood on the spot;

(c) Doing away with the turnover tax, wherever it is levied, in the case of transport at the individual's expense of the rough timber intended for local conversion, with a view to promoting on-the-spot conversion;

(d) Exempting certain promotable species from the payment of export duty on a temporary basis while lowering the market price value assigned to them.

2. Recommendations on inland transport

(a) To cope with the very important problems of evacuation encountered by the logging enterprises and wood conversion companies, it would appear desirable to set up in Cameroon, the Congo and Gabon, in particular, a road network properly developed and maintained. This network would make it possible to open up the most important regions producing wood, stimulate healthy competition between railways and roads and find an alternative to river transport during the dry season. The development and improvement of the road network would also help to reduce the cost of inland transport because of:

(i) Healthy competition between road carriers and between modes of transport;

(ii) Improvement in operating conditions for servicing and repairing road vehicles. An improved road network would also help to promote the use of new species of wood and to slow down the over-utilization of others.

(b) It would seem essential to create a minimum infrastructure and improved installations for the riverways used for removing wood and wood products: bridging operations, quay construction, purchase of cranes and other hoisting devices. In this respect the African States should leave it to private enterprises specializing in the subject to undertake the handling operations at river ports (such as Brazzaville) and in the dry docks to be set up at the most important railway stations. The building of dry docks will certainly facilitate handling operations at the railway stations and improve the evacuation capacity of the trains.

(c) It would be desirable for the railway companies in Congo, Cameroon and Gabon:

(i) To reprofile the merchandise evacuation routes;

(ii) Acquire more flat cars, logging cars and covered trucks for converted wood;

(iii) Adopt a less complex pricing system more adapted to lower-grade freight composed of wood and wood products. To illustrate this point, we need only remember that the rough timber and sawn wood tariffs offered by the Cameroon railways contain at least 65 different scales and more than 1,000 tariffs, all of which hinder the selection of the most appropriate tariffs and control of the billing by the shippers. A more simple tariff system should cover the application of fixed-price densities closer to the realities prevailing in the wood trade and which avoid the long delays (a large part of the time recorded in this case by the shippers using OCTRA services);

(iv) Apply tariffs that have been more thoroughly studied and are more in line with the services provided in dry dock handling or in the railway yard.

3. Recommendations on the function of companies operating timber yards

(a) It would appear desirable that over and above the 8-hour day which is normal in companies operating timber-yards, the latter should agree to overtime, including Saturdays, Sundays and holidays, if the ship rotation schedule requires it. Indeed, the chartering of a logging ship costs the shipping line between $US 8,000 and 9,000 per day. Hence the days lost at the quayside are not only an excess cost factor (daily cost of operating the ship and port dues), but also, and above all, a factor retarding the rotation rate of the ship.

(b) It will be necessary to improve the use of the present equipment owned by the timber-yard companies through improved organization of the work and to acquire new means of haulage and hoisting: more powerful tugs, cranes and hoisting devices, barges and so forth.

(c) It would be worthwhile applying a lower taxation rate for oil products and electricity used for operations connected with wood and wood products.

(d) It is desirable to agree on a preferential tax system for the import of equipment and spare parts used by timber-yard companies.

(e) It is an urgent matter to provide lighting for the timber-yards to make it easier to work at night there.

(f) A minimum amount of work to construct jetties, storage areas and covered sheds should be undertaken in the timber-yards. The work should be supplemented by dredging and cleaning of the water used in logging operations.

(g) It is a matter of urgency to find a solution to the problem of prolonged storage of rough timber rejected or abandoned in the yards.

4. Recommendations on the operation of ports and roadsteads

(a) It is to be hoped that the improvements advocated in this report in the inland transport conditions will lead to regrouping of the wood and wood-product cargoes at one or (maximum) two ports per country and to the discontinuation of ships loading in the roadsteads.

(b) It would be worth while for the port authority and other administrations conducting operations in ports (customs and water and forest administrations, in particular) to adopt a system of overtime, on request by the ship, in order to minimize the time spent by the ship in port.

(c) It seems more and more essential that the ports at Douala and Ouvenda, in particular, should be dredged and that the construction of dykes and dams to hold back sand should be initiated. It would even be worth while planning in Cameroon and Gabon the construction of a port at a more favourable site that is better protected against silting up; this would prevent loss of time at low tide or when there are currents which stop the lighters from bringing the rough timber up to the ship or hinder the logs being handled at the timber yard.

(d) Some of the ports, such as Pointe Noire or Libreville, should acquire a few hoisting devices (cranes) and build some special piers for the quayside loading of wood that does not float and also worked wood. On the other hand, it would be worth while for ports such as Abidjan to adopt a system of loading on flat-bottomed boats when the wharfs are periodically occupied.

5. Recommendations on handling and packaging of wood and wood products

(a) As far as calculation of the volume of wood in the bill of lading is concerned, it would be desirable to adopt the following minimum standards:

For example, in the case of rough timber, the volume could be calculated from the generally accepted formula given below (bark and sap wood included):

$$V = \frac{\pi}{4} D^2 \times L$$

Where V is the volume in cubic metres,

D is the diameter in metres obtained by taking the average of the 4 diameters measured 2 x 2 at each end,

L is the length in metres, i.e. the shortest distance between the end sections limiting the log.

Similarly, as far as braced billets ("plots") are concerned, only the volume should be selected, on condition the sum of the thicknesses of the angle blocks (taquets) does not exceed 10 per cent of the average diameter of the billet anywhere else, and the present metal banding system for the logs should be reviewed to enable it to withstand shipment by sea.

Furthermore, as far as the wood sold with "defects deducted" is concerned, it should not take into account the deduction for the volume of the "defect". Hence it is up to the shipping agent to carry out the sizing required.

Finally, in the case of sawn wood, it would be best, to avoid problems of loading and ship's safety as well as inconvenience caused to shipping agents by cargo left on the quay, to apply the following pricing system to encourage shipping agents to keep to the standards:

- The normal base rate is applied to the transport of squared-off wood without angle blocks;

- The base rate multiplied by 10 per cent is applied to squared-off wood with 0-8 mm angle blocks;

- The basic rate multiplied by 20 per cent is applied to squared-off wood with angle blocks of more than 8-15 mm, inclusive;

- The base rate multiplied by a rate greater than 20 per cent (to be agreed) is applied in the case of squared-off wood with angle blocks of more than 15 mm.

The application of this pricing system should be accompanied by the introduction of a system of spot checking the angle blocks in a number of loads. To be more precise, however, the application of this method should exclude the overall pricing basis desired by the maritime conferences. In effect, the pricing should affect only the volume mentioned in the bill of lading, since an overall pricing system would lead shipping agents to pay export taxes and import duty (at the destination) on a non-existent commodity. Hence the sea transport space required outside the runners would be shown to only one shipping line to enable it to cope with the loading and ship safety problems.

(b) It is time for the African shippers to stop applying FAS (first and second) imperial standards and to adopt the SATA classification of tropical African squared-off wood) standards. Indeed, a large number of importers continue to deal with their suppliers on the basis of FAS imperial regulations, since when applying such regulations the classifier tends to give priority to pieces with four clean faces. He rejects in all cases items showing minor defects or classifies them as a lower option. But in the application of the SATA regulations, each item, depending on the presence of absence of defects, its dimensions and the species of wood involved, is given an exact classification in an option. The outcome is that the implementation of the SATA regulations may enable a producer to gain 15 per cent more compared with his normal production (from the fact alone of a higher classification for each of the items).

(c) It is desirable to encourage the emptying of containers at the factory since on-the-spot emptying in port not only becomes more expensive from the standpoint of the handling costs; it also prevents more than 12-15 m^3 being emptied as a general rule, given an available space of 25 m^3.

Conversely, emptying at the plant is less expensive from the standpoint of paying the employees and makes it possible to load between 18 and 22 m^3. Since the shipping line bills for an average of 15 m^3, the gain for the shipper may be appreciable, especially since inland transport (above all by road) of 10 m^3 per container costs as much (or almost as much) as dispatching 20 m^3 in the same container. The shipping agent can in this way avoid dead freight expenses.

(d) It would be worth while if shipping agents could demand more and more 40 ft. containers for carrying the converted wood. Indeed, the latter seem to be better adapted to loading sawn wood than the 20 ft. containers.

(e) Similarly, it would be good if the shipping agents could choose flat containers for loading small batches.

(f) It would be desirable for the customs services to accept the "door against door" principle of loading containers with converted wood, and thereby avoid theft.

(g) Bundles of sawn wood should be put on runners 35-40 mm thick to make it easier and speedier to unload them. The practice of sawn wood bundles without runners should therefore be discontinued or allowed only at higher freight rates.

(h) Fragile green and white sawn wood which react adversely to humidity should be loaded by preference on roll-on/roll-off ships.

6. Recommendations on taxation systems

(a) As already mentioned in this report, it would be worth while encouraging on-the-spot wood conversion and promoting the export of species that are little known or not known at all, for example by:

(i) Lower taxation on oil products, equipment and spare parts as well as electricity needed by logging enterprises in order to develop and modernize;

(ii) Reducing export taxes on the species to be promoted and provisionally exempting them from the payment of this tax;

(iii) Pricing geared to promoting inland transport of the marketed species (road and rail transport, in particular).

(b) It would be better for the customs authorities to give up or modify the practice by which they too often impose fines for attempts at fraud. Indeed, this practice steps up the charges to the shipping line, who in any case passes on this surcharge to the merchandise. Exemption from customs duty, for instance in Côte d'Ivoire, amounts to $US 7,500 since the insurers refuse liability for surcharges generated by "harassment" from customs officials. This harassment also leads the sawn wood exporters to declare all their cargoes in non-uniform batches and to pay accordingly, as export duty, 4 per cent on the export point value in the case of Côte d'Ivoire. They no longer take the risk of declaring their cargoes in uniform batches, although uniform batches only call for 2 per cent of the export duties.

(c) It would be of benefit to exporters of wood and wood products if the customs services, when working overtime, would only charge for the work actually done outside normal working hours. A tendency to apply tariffs automatically for overtime can in the long run only lead to a surcharge on the merchandise.

7. Recommendations on factors associated with shipment by sea and freight rates

(a) In order to reduce the time spent by a ship in each port, the handling companies should make preparations beforehand for the loading. Studies have shown that preparations made two days in advance can appreciably increase the loading time and enable the ship to gain three or four days in the port of Point Noire (out of a normal loading time of seven days). The introduction of this practice would favourably affect the freight rates.

(b) It seems essential for ships to serve only two or three ports when loading wood and wood products in Africa and unloading them in Europe. In view of the port charges and the relatively high level of handling costs for wood and derived products, this new practice (which would contrast strongly with the one currently in force by which batches of 700 m^3 per port are loaded at six or seven ports and unloaded again at European ports) would substantially reduce the freight rates offered to African shipping lines. However, it should be noted that a practice of this kind requires trans-shipment and the availability of reliable facilities for national and subregional in-shore navigation.

Furthermore, the practice can only be beneficial when cargoes are rearranged into larger batches.

(c) It would be desirable if the wood and wood products did not have to remain for long periods at the break-bulk points and timber yard. For this purpose, the scheduling of ships should include more ports of call over the peak periods for richer products such as coffee and cocoa, and certain recommendations contained in the present report should be effectively applied. Prolonged storage of sawn wood, for example, involves:

- After three or four months, a deterioration in the quality of the product, first and foremost as applied to fragile species such as samba (ayous) and bahia. Red woods acquire a grey colouring and white woods turn green;

- Financial costs: studies show that a credit interest rate of 18 per cent per year, a reduction of three months in the amount of time spent in port for sawn wood brings a financial saving of about 600-650 CFA francs per m^3;

- Cost of leaving timber in the yard for a long time;

- Marketing difficulties ranging from loss of image by a brand to breach of contract, including fines for not keeping deadlines.

(d) It is essential that shipping agents should give up the practice of underbanding wood and derived products, more especially, rough timber. Indeed, apart from the problems of loading and ship's safety that this practice creates, it involves merchandise being left for prolonged periods on the quayside, the effects of which have already been stressed.

(e) It would be better if shippers kept to their loading forecasts and informed the shipping lines in advance of the required specifications. Non-compliance with loading forecasts involves:

- Either payment for dead freight equivalent to the level of "abandonment of the freight";

- Or the practice of over-booking by shipping lines which, in advance and in order not to make their clients pay for dead freight, get the freight elswhere. Indeed, the trading terms often prevent the shipping line from making the shipper pay for dead freight. Hence to reduce its losses and the risk of running empty, it procures freight in proportions leading it, when the forecasts are not fulfilled, to stop the loading of certain batches. This practice may create very unfortunate effects in the case of prolonged stay.

(f) It is essential for shipping lines, while waiting to put the present recommendations into proper effect, to give up any idea of increasing freightage.

8. Follow-up of recommendations

It would appear a matter of urgency that in addition to the present study a more detailed report should be drafted on the various components that make up the price f.a.s. and f.o.b. for wood and wood products. Consideration of this point, which it has not been possible to undertake in this report on account of pressure of time, would enable the authorities of each

wood-exporting country to make favourable changes in some of their cost items for the benefit of African wood. The authorities would thereby be able to place the export of wood and wood products within the proper perspective of international trade. Nowadays the wood industry in Africa operates within the framework of an import replacement industry, although the national markets of the producer countries are rather narrow.

The proposals contained in the study should best be discussed with the producers and exporters of wood and wood products, national councils of African shippers and shipping lines which are members of maritime conferences or independent lines serving foreign trade in the wood-producing African countries. But any such discussion should include, first and foremost, the wood importers, who alone are the ones who decide in the long run.

Annex

NOTICE TO MESSRS THE SHIPPERS/CONSIGNEES PAYERS OF FREIGHT FOR TROPICAL TIMBER

Shipments of timber in logs

The member lines of the Mediterranean Europe West Africa Conference (MEWAC) have the honour to inform Messrs the Shippers, consignees, payers of freight for shipments of timber in logs, that their vessels will continue to call in liner trade at the ports and roads hereunder, in spite of the excessive costs of their vessels' stay in the ports and/or the difficulties they are facing during the calls.

To this end, they find themselves forced to levy together with the freight, a supplement of 40 francs per cubic meter, as from Monday, November 27th 1989, vessel beginning to load, for the ports and roads hereunder:

- Ports and roads of Liberia
- Ports and roads of Ghana
- Ports and roads of Gabon
- Ports and roads of Congo
- Roads of Cameroon
- Ports and roads of Zaire
- Ports and roads of Equatorial Guinea

MEWAC Secretariat
Marseilles, 6 November 1989

Table 1. Production and export of rough timber, 1980-1987

a. Production of rough timber (logs) from 1980 to 1987 (in 1,000 m^3)

	1980	1981	1982	1983	1984	1985	1986	1987
World total	12,928,000	12,932,492	12,926,877	13,037,942	13,128,026	13,158,277	13,254,392	13,352,447
Africa	383,485	393,944	404,387	415,651	426,604	437,975	449,363	461,169
of which:								
. Cameroon	10,489	10,489	10,737	11,054	11,455	11,887	12,161	12,447
. Central African Rep.	3,009	3,088	3,112	3,147	3,338	3,417	3,417	3,443
. Congo	2,193	2,176	2,191	2,238	2,348	2,380	2,583	2,614
. Côte d'Ivoire	12,001	11,481	11,808	12,073	12,229	11,906	11,912	11,792
. Gabon	3,678	3,510	3,548	3,746	3,966	3,904	3,847	3,847
. Ghana	7,967	8,147	8,244	8,653	8,935	9,293	9,294	9,884
. Liberia	4,850	4,308	4,400	4,076	4,203	4,455	5,299	5,640
Asia	998,322	911,791	929,852	948,971	973,519	981,222	11,001,679	11,021,337
Europe	333,977	333,406	333,784	338,033	347,254	348,342	353,411	358,492

b. Export of rough timber from 1980 to 1987 (in 1,000 m^3)

World total	116,957	109,190	98,980	100,957	103,249	106,264	106,846	117,433
Africa	6,373	4,968	5,159	4,950	5,507	4,595	4,053	3,967
of which:								
. Cameroon	745	444	448	391	496	748	411	442
. Central African Rep.	137	123	85	81	88	65	63	41
. Congo	281	221	202	188	250	275	287	327
. Côte d'Ivoire	3,655	2,233	2,276	2,253	2,230	1,394	1,020	617
. Gabon	1,971	1,113	1,166	1,134	1,536	1,065	983	1,229
. Ghana	185	54	53	62	70	130	177	319
. Liberia	475	255	239	223	184	252	370	251
Asia	34,867	26,707	26,616	25,713	21,589	22,902	21,532	25,333
Europe	23,909	23,332	20,965	30,349	24,153	26,339	26,426	26,777

c. Export of rough timber from 1980 to 1987 (in $US 1,000)

World total	16,762,866	16,646,816	16,278,563	15,890,589	15,402,621	15,479,126	15,870,063	17,332,184
Africa	927,245	592,368	480,062	436,332	429,132	399,277	437,268	415,674
of which:								
. Cameroon	113,873	55,518	45,811	34,431	33,347	64,309	37,000	47,663
. Central African Rep.	27,449	25,947	14,141	12,355	13,610	11,664	13,696	9,000
. Congo	44,591	28,501	21,200	19,553	26,032	28,716	39,460	54,019
. Côte d'Ivoire	490,189	287,124	222,295	200,458	184,580	130,717	121,087	81,070
. Gabon	129,525	115,430	97,733	105,359	110,897	91,683	114,427	112,000
. Ghana	12,398	4,391	3,469	4,311	5,140	9,559	18,440	33,150
. Liberia	84,000	46,213	37,101	29,027	22,568	33,369	48,973	34,587
Asia	13,077,031	12,060,130	12,092,250	11,960,706	11,332,175	11,560,491	11,316,688	11,842,879
Europe	11,397,714	11,241,527	11,027,470	877,987	933,344	11,032,225	11,241,918	11,503,730

Source: F.A.O.

*This annex has not been formally edited.

Table 2. Production and export of sawn wood, 1980-1987

a. Production of sawn wood from 1980 to 1987 (in 1,000 m^3)

	1980	1981	1982	1983	1984	1985	1986	1987
World total	446,999	426,387	419,393	438,198	457,062	461,985	478,453	499,026
Africa	7,317	7,672	7,252	6,991	7,323	7,563	7,884	8,162
of which:								
. Cameroon	380	383	383	341	552	565	565	565
. Central African Rep.	71	70	63	61	58	56	54	52
. Congo	64	73	66	66	60	50	77	30
. Côte d'Ivoire	664	611	748	718	679	753	765	775
. Gabon	88	88	88	89	97	106	106	106
. Ghana	159	169	150	210	220	280	310	310
. Liberia	43	99	72	61	53	69	91	311
Asia	93,695	90,075	94,456	94,344	95,605	98,093	98,695	103,285
Europe	89,319	83,004	92,049	84,478	86,003	83,355	83,152	83,301

b. Export of sawn wood from 1980 to 1987 (in 1,000 m^3)

World total	78,483	71,596	72,362	83,093	85,334	85,380	86,466	94,273
Africa	792	653	677	706	788	696	883	938
of which:								
. Cameroon	63	73	75	55	91	129	70	63
. Central African Rep.	36	37	39	40	32	32	30	30
. Congo	37	27	28	26	28	23	33	32
. Côte d'Ivoire	277	256	308	393	418	473	475	469
. Gabon	18	3	2	2	1	3	1	1
. Ghana	49	53	60	63	56	69	102	173
. Liberia	43	24	18	11	6	7	8	5
Asia	7,013	5,952	6,249	7,378	6,861	6,630	7,455	8,987
Europe	25,156	23,155	23,113	25,666	25,751	24,359	24,055	24,585

c. Export of sawn wood from 1980 to 1987 (in SUS 1,000)

World total	112,164,960	110,117,882	19,291,499	110,739,022	110,515,314	119,036,248	111,535,259	14,794,762
Africa	187,599	132,682	117,510	124,818	125,776	143,489	170,267	211,939
of which:								
. Cameroon	21,351	15,366	17,273	6,322	13,732	19,100	11,536	14,879
. Central African Rep.	9,537	8,745	6,407	6,265	5,512	7,014	8,123	8,123
. Congo	13,376	7,733	7,000	5,433	5,768	5,807	7,077	11,599
. Côte d'Ivoire	77,749	55,841	57,341	71,200	69,476	75,069	100,069	122,020
. Gabon	3,500	326	337	464	78	599	128	128
. Ghana	23,212	11,974	6,640	7,695	10,051	14,077	16,000	34,500
. Liberia	11,009	7,079	4,115	2,869	915	1,515	2,024	1,369
Asia	1,532,298	1,112,964	1,122,986	1,416,384	1,283,508	1,144,709	1,496,494	11,697,009
Europe	4,998,007	3,936,347	13,544,098	3,742,742	3,683,973	3,283,893	3,920,847	14,483,544

Source: F.A.O.

Table 3. Production and export of veneers, 1980-1987

a. Production of veneers from 1980 to 1987 (in 1,000 m^3)

	1980	1981	1982	1983	1984	1985	1986	1987
World total	4,438	4,531	4,566	4,634	4,907	4,836	4,792	5,134
Africa	525	517	493	522	516	554	571	573
of which:								
. Cameroon	63	63	63	63	63	63	63	63
. Central African Rep.	3	3	4	3	1	2	1	1
. Congo	75	68	63	74	63	59	51	47
. Côte d'Ivoire	122	108	100	127	115	140	160	166
. Gabon	97	97	97	97	97	97	97	97
. Ghana	22	23	21	15	24	34	34	34
. Liberia	2	2	2	2	2	2	2	2
Asia	1,054	1,096	1,086	1,169	1,187	1,188	1,042	1,085
Europe	1,501	1,532	1,484	1,572	1,640	1,531	1,556	1,868

b. Export of veneers from 1980 to 1987 (in 1,000 m^3)

	1980	1981	1982	1983	1984	1985	1986	1987
World total	1,425	1,398	1,293	1,018	2,006	1,795	1,839	1,962
Africa	203	202	182	187	198	206	199	195
of which:								
. Cameroon	20	23	19	23	28	27	18	18
. Central African Rep.	-	-	3	3	1	1	1	1
. Congo	67	60	63	59	59	50	46	43
. Côte d'Ivoire	48	47	44	52	58	72	79	75
. Gabon	19	21	16	9	2	8	5	5
. Ghana	8	7	5	9	12	13	16	21
. Liberia	2	3	2	-	-	-	-	-
Asia	254	257	287	845	816	673	672	666
Europe	376	319	260	349	394	393	395	413

c. Export of veneers from 1980 to 1987 (in $US 1,000)

	1980	1981	1982	1983	1984	1985	1986	1987
World total	880,410	714,824	653,730	793,134	812,252	747,236	799,138	938,095
Africa	81,911	65,913	56,565	52,772	52,928	54,005	64,550	73,298
of which:								
. Cameroon	13,779	13,264	9,822	9,429	10,449	10,901	11,507	11,229
. Central African Rep.	-	-	890	675	376	328	298	298
. Congo	26,372	18,331	18,509	16,809	15,876	14,227	15,943	15,659
. Côte d'Ivoire	14,568	10,394	10,025	10,127	10,270	12,499	20,043	28,470
. Gabon	7,636	5,792	3,922	2,413	347	1,405	1,784	1,764
. Ghana	82	82	82	-	-	-	-	-
. Liberia	2,002	895	921	584	2,114	1,042	705	705
Asia	72,066	65,198	67,341	173,557	189,517	153,229	129,797	122,072
Europe	472,963	358,170	395,704	505,469	514,760	327,919	375,231	453,284

Source: F.A.O.

Table 4. Production and export of plywood, 1980-1987

a. Production of plywood from 1980 to 1987 (in 1,000 m^3)

	1980	1981	1982	1983	1984	1985	1986	1987
World total	39,385	40,303	38,893	44,095	44,010	44,883	47,749	48,989
Africa	490	509	554	546	552	584	625	624
of which:								
. Cameroon	10	18	12	12	10	10	10	10
. Central African Rep.	4	5	9	8	5	5	4	3
. Congo	4	3	4	5	6	7	7	5
. Côte d'Ivoire	63	25	24	33	26	44	44	45
. Gabon	95	70	104	104	110	131	131	131
. Ghana	49	43	39	27	26	21	25	25
. Liberia	7	2	2	3	3	3	3	3
Asia	14,459	14,174	14,664	16,269	16,010	16,587	17,566	19,522
Europe	3,585	3,445	3,271	3,070	3,163	3,102	3,220	3,169

b. Export of plywood from 1980 to 1987 (in 1,000 m^3)

World total	6,623	7,296	6,859	7,659	8,082	8,654	9,626	11,231
Africa	94	96	99	108	106	106	92	82
of which:								
. Cameroon	8	18	12	12	8	10	-	-
. Central African Rep.	4	4	7	8	4	3	2	2
. Congo	-	-	-	-	-	-	-	-
. Côte d'Ivoire	14	12	16	20	18	20	27	23
. Gabon	42	39	34	44	53	46	46	44
. Ghana	2	-	-	1	-	1	1	1
. Liberia	2	2	2	2	2	2	2	2
Asia	3,677	4,362	4,094	4,947	5,215	5,849	6,669	7,983
Europe	1,475	1,405	1,439	1,458	1,459	1,311	1,498	1,544

c. Export of plywood from 1980 to 1987 (in $US 1,000)

World total	2,706,456	2,764,836	2,405,117	2,649,758	2,471,899	2,456,869	2,999,002	4,135,944
Africa	4,820	42,365	40,655	48,848	4,747,220	35,356	34,257	35,244
of which:								
. Cameroon	5,603	4,567	5,125	4,456	2,527	3,100	-	-
. Central African Rep.	1,050	1,580	2,457	2,893	1,288	1,245	968	968
. Congo	-	-	-	-	-	-	-	-
. Côte d'Ivoire	8,500	6,300	7,200	9,729	7,643	7,400	12,564	13,557
. Gabon	21,800	20,400	18,900	23,100	28,100	14,862	14,862	14,862
. Ghana	395	44	51	269	59	105	82	96
. Liberia	1,803	692	507	291	234	234	-	-
Asia	1,335,956	1,472,917	1,245,252	1,461,099	1,391,775	1,443,688	1,775,984	2,612,740
Europe	678,852	750,541	709,654	679,569	645,813	577,301	735,901	654,480

Source: F.A.O.

Table 5. Trade in timber and sawn wood, 1987

a. Trade in rough timber (logs) in 1987 (in 1,000 m^3)

Destination ----> / Origin ----v	Belgium	France	FRG	Italy	Netherlands	UK	Singap.	Japan	USA
TOTAL	73.34	885.40	379.71	526.26	115.00	57.99	58.68	13,762.72	6.58
Africa	58.58	882.56	371.55	516.37	101.25	53.92	1.19	248.83	1.42
of which:									
. Cameroon	27.67	67.77	64.00	141.60	62.17	7.24	0.44	10.51	0.08
. Central African Rep.	0.12	0.36	5.62	0.03	0.11	-	-	0.11	-
. Congo	6.33	73.21	33.31	43.03	1.26	1.14	0.40	15.29	-
. Côte d'Ivoire	5.90	65.67	10.46	158.36	0.48	13.48	-	1.09	0.05
. Gabon	8.05	358.26	20.99	47.98	17.59	2.52	-	218.69	0.25
. Ghana	2.07	27.26	133.91	65.43	3.40	3.34	-	-	-
. Liberia	1.76	251.85	49.82	24.44	2.58	23.86	-	-	-
Asia	0.88	2.52	6.23	5.86	0.93	1.67	55.37	13,493.89	3.83
Latin America	0.03	0.19	1.68	1.02	5.48	1.78	0.01	8.95	1.33

b. Trade in sawn wood in 1987 (in 1,000 m^3)

Destination ----> / Origin ----v	Belgium	France	FRG	Italy	Netherlands	UK	Singap.	Japan	USA
TOTAL	271.80	493.10	604.59	452.26	578.20	558.76	987.44	1,258.73	608.43
Africa	13.45	117.36	55.94	142.52	18.57	124.79	-	0.05	9.09
of which:									
. Cameroon	1.44	12.55	3.65	2.91	13.94	5.41	-	-	-
. Central African Rep.	-	0.12	0.02	0.58	-	0.05	-	-	-
. Congo	1.68	1.70	1.70	1.15	0.02	3.85	-	-	0.32
. Côte d'Ivoire	6.88	96.07	14.21	120.89	0.21	34.03	-	0.05	8.40
. Gabon	-	-	-	-	-	0.35	-	-	-
. Ghana	0.93	2.99	26.65	6.20	0.32	64.58	-	-	0.36
. Liberia	0.04	1.46	1.66	-	0.18	1.74	-	-	-
Asia	196.12	358.14	506.51	295.93	532.63	276.76	984.25	1,248.10	590.38
Latin America	1.00	15.54	9.38	10.33	0.70	174.48	-	10.47	399.17

Source: F.A.O.

Table 6. Trade in veneers and plywood, 1987

a. Trade in veneers in 1987 (in 1,000 m^3)

Destination ----) / Origin ----v	Belgium	France	FRG	Italy	Netherlands	UK	Singap.	Japan	USA
TOTAL	14.64	19.89	70.28	39.09	13.62	26.30	23.31	79.41	134.28
Africa	10.54	14.26	55.70	34.38	5.61	19.49	0.05	13,527.00	9.69
of which:									
. Cameroon	-	2.59	0.61	20.08	0.06	0.22	-	-	-
. Central African Rep.	-	-	-	-	-	-	-	-	-
. Congo	1.81	5.40	10.08	3.04	4.04	0.61	-	-	0.32
. Côte d'Ivoire	8.08	4.70	31.93	6.43	1.42	0.59	-	0.08	8.40
. Gabon	-	0.75	-	0.72	-	0.01	-	-	-
. Ghana	0.23	0.62	6.98	0.37	0.03	8.07	-	-	0.36
. Liberia	-	-	-	-	-	-	-	-	-
Asia	0.17	0.28	1.80	0.02	4.73	4.87	23.20	77.33	75.46
Latin America	0.48	0.25	2.40	0.30	0.25	0.62	0.04	2.00	49.43

b. Trade in plywood in 1987 (in 1,000 m^3)

TOTAL	113.96	165.48	123.26	17.50	210.14	541.91	412.05	535.18	11,507.27
Africa	0.65	47.10	5.98	3.87	6.37	4.72	-	-	0.20
of which:							-	-	-
. Cameroon	0.15	4.84	0.68	0.05	0.04	0.07	-	-	-
. Central African Rep.	-	-	-	-	-	-	-	-	-
. Congo	-	-	-	-	-	-	-	-	-
. Côte d'Ivoire	-	3.08	0.47	0.69	0.02	0.04	-	-	0.12
. Gabon	0.30	38.26	3.64	2.68	-	2.40	-	-	-
. Ghana	-	-	0.08	-	0.02	0.47	-	-	-
. Liberia	-	-	-	-	-	-	-	-	-
Asia	108.56	135.82	105.72	11.92	175.40	465.88	411.92	535.15	11,462.09
Latin America	3.76	2.52	11.32	1.05	1.95	71.17	-	0.03	41.71

Source: F.A.O.

Table 7. Cost structure for the export of a 30 m^3 batch of frake logs from San Pedro to Caen (March 1985)

			CFA francs/m^3
BEACH PRICE			18 000
EXPORTER'S GROSS MARGIN			12 576
Timber-yard costs		1 000	
Quota purchase		5 500	
Financial costs (60 d = 3% beach value)		540	
Operating costs + exporter's profit		5 536	
COSTS f.o.b.			9 424
Customs duty		6 418	
Single export duty:	17 500/m^3 x 36%	6 300	
OIC:	17 500/m^3 x 0.6	105	
Removal charge		13	
Miscellaneous outlay		1 341	
Felling tax	(F/m^3)	400	
Port tax	(F/m^3)	900	
Water and Forest Administration	(F/m^3)	41	
Operations		635	
Commission on outlay	1.5%	117	
Commission on transit	(F/m^3)	262	
Fixed price for equipment	(F/m^3)	163	
Initiation of procedures, etc.		93	
Sundry		1 030	
Loss of wood insurance (val. f.o.b. x 0.5%)		255	
VAT (25%) on operations		223	
Direct delivery to ship (BF)	(F/m^3)	552	
SEA FREIGHT PRICE f.o.b.	= 800 FF/m^3	=	40 000
Basic 305.00)			
C.i.f. (7.5%) 22.87)	= 400.16 FF/m^3	=	20 208
BS (23.7%) 72.29)			
PRICE c.i.f.	1 200.15 FF/m^3	=	60 208

Source: IDREM.

Table 8. Cost structure for the export of a 30 m^3 batch of niangon logs from San Pedro to Caen (March 1985)

			CFA francs/m^3
BEACH PRICE			32 000
EXPORTER'S GROSS MARGIN			14 081
Timber-yard costs		1 000	
Quota purchase		5 500	
Financial costs (60 d = 3% beach value)		960	
Operating costs + exporter's profit		6 621	
COSTS f.o.b.			21 419
Customs duty		17 876	
Single export duty:	40 000/m^3 x 44%	17 600	
OIC:	40 000/m^3 x 0.6%	240	
Removal charge		36	
Miscellaneous outlay		1 541	
Felling tax	(F/m^3)	600	
Port tax	(F/m^3)	900	
Water and Forest Administration	(F/m^3)	41	
Operations		801	
Commission on outlay	1.5%	299	
Commission on transit	(F/m^3)	262	
Fixed price for equipment	(F/m^3)	163	
Initiation of procedures, etc.		77	
Sundry		1 201	
Loss of wood insurance (val. f.o.b. x 0.5%)		362	
VAT (25%) on operations		287	
Direct delivery to ship (BF)	(F/m^3)	552	
SEA FREIGHT PRICE f.o.b.	= 1 350 FF/m^3	=	67 500
Basic 305.00)			
C.i.f. (7.5%) 25.12)	= 409.52 FF/m^3	=	21 976
BS (23.7%) 79.40)			
PRICE c.i.f.	1 759.52 FF/m^3	=	89 476

Source: IDREM.

Table 9. Other f.o.b. costs for rough timber

1. Services provided by timber-yard with hoist (hook)

Note: TCA tariffs at 10.9878% included when applicable.

		Logs				Sawn wood/sleepers			
		Douala	Kribi	Campo	Lokoundje	Douala	Kribi	Campo	Lokoundje
Buffer yard	m^3	1 650	-	-	-	-	-	-	-
Entry tax	m^3	-	272	-	-	-	272	-	-
Storage	m^3	-	-	-	-	-	222	-	-
Yard handling	m^3	1 798	832	2 384	2 000	1 798	888	2 384	2 000
Use of hoist	t/m^3	-	(1 942)	2 698	3 000	-	(2 331)	2 698	4 000
KIENKE call	t	-	300	-	-	-	300	-	-
Lighterage	t	246	-	-	-	246	-	-	-
Port tax	m^3	794	-	-	-	794	-	-	-
ONPC toll	t	85	171	-	-	85	171		
For Ekki d = 1.1		2 956	3 758	5 082	5 000	2 956	4 464	5 082	6 000
With buffer yard		4 606							

2. Levies and duty (TCA included)

In CFA francs

		Logs				Sawn wood/sleepers			
		Douala	Kribi	Campo	Lokoundje	Douala	Kribi	Campo	Lokoundje
Loading tax	m^3	210	210	210	210	220	220	220	220
Export duty	m^3	)	% market prices						
Logging tax	m^3	)	according to area				% market price		
CNCC tax	m^3		0.3% f.o.b. value of species						
Removal charge			0.1% on total of the four preceding taxes						
Bill of lading stamp			5 000 per original negotiable bill of lading						
Excise stamps			Average 2 850 per file at Douala and 1 800 elsewhere						
Customs holidays			Average 4 555 per file at Douala and 3 075 elsewhere						

Table 9 (continued)

3. Operations by forwarder

A. Costs fixed officially (TTC)

in CFA francs

	Logs				Sawn wood/sleepers			
	Douala	Kribi	Campo	Lokoundje	Douala	Kribi	Campo	Lokoundje
Initiation of procedure	3 962.3	3 301.9	Nil	3 301.9	3 962.3	3 301.9	Nil	3 301.9
Tender D48	3 301.9	3 301.9	Nil	3 301.9	3 301.9	3 301.9	Nil	3 301.9
Plant health certificate	7 697.0	7 735.8	Nil	7 735.8	7 697.0	7 735.8	Nil	7 735.8
Submission of verification	3 301.9	9 905.7	Nil	9 905.7	3 301.9	9 905.7	Nil	9 905.7
CNCC visa	3 301.9	3 301.9	Nil	3 301.9	3 301.9	3 301.9	Nil	3 301.9
Exchange formalities	11 098.8	5 343.8	Nil	5 343.8	11 098.8	5 343.8	Nil	5 343.8
Fixed costs	32 664	32 891	Nil	32 891	32 664	32 891	Nil	32 891

B. Lawyer's fees for customs

	Logs				Sawn wood/sleepers			
	Douala	Kribi	Campo	Lokoundje	Douala	Kribi	Campo	Lokoundje
LFC	166.5/m^3	166.5/m^3	193/m^3	166.5/m^3	166.5/m^3	277.5/t	193/m^3	277.5/t

C. Commission on levies and duties

1.5% of total levies and duties, except for Campo.

Table 9 (continued)

Duties and levies

	Rich wood (sapelli)		Poor red wood (ekki)		Yellow wood (ayous)	
	Logs	Sawn wood	Logs	Sawn wood	Logs	Sawn wood
Cameroon (Zone 2)	10 284	9 564	2 314	2 705	3 424	3 600
Côte d'Ivoire	23 694	3 043	2 799	2 027	13 069	1 596
Gabon	2 159	1 003	455	673	-	-
Congo	2 753	Exempt	554	Exempt	604	Exempt
			Delivery f.o.b.			
Cameroon (Zone 2)	13 727	13 074	5 560	6 189	6 596	6 893
Côte d'Ivoire	26 058	9 355	6 524	7 439	15 073	6 675
Gabon	7 531	3 934	6 983	3 855	-	-
Congo	9 297 11 297	4 544	5 378	19 596	5 119	19 137

Sources: CNCC - Douala/SOFREMER.

Table 10. BAF and CAF levels at MEWAC from 1985 to 1988

BAF

Year	Day/month	Level (per cent)
1985	1/03	26.9
	1/05	28.5
	1/06	26.5
	1/07	24
	1/08	21.4
	1/10	21.4
1986	1/03	19.8
	1/04	19.8
	1/06	14.2
	1/07	12.3
	1/10	11
1987	1/01	12.4
	1/03	13.8
1988	1/04	11.7

CAF

1985	1/09	7.7
	1/12	5.1
1986	1/03	3
1987	1/02	0.9
1988	1/1	-1.9

Source: Côte d'Ivoire Shippers Office (OIC) Negotiation Department.

Table 11. BAF and CAF levels at COWAC NORD and SUD

BAF

YEAR	COWAC NORD		COWAC SUD	
	DAY/MONTH	LEVEL	DAY/MONTH	LEVEL
1985	04 - 03 - 85	18.2%	04 - 03 - 85	23.7%
	01 - 06 - 85	16.8%	01 - 06 - 85	22.2%
	01 - 07 - 85	15.3%	01 - 07 - 85	20.3%
	01 - 08 - 85	14.00%	01 - 08 - 85	18.5%
1986	01 - 02 - 86	12.5%	01 - 02 - 86	16.9%
	01 - 04 - 86	8.9%	01 - 04 - 86	14.6%
	01 - 06 - 86	6.4%	01 - 06 - 86	13.00%
	01 - 08 - 86	4.8%	01 - 08 - 86	11.1%
1987	01 - 02 - 87	6.1%	03 - 03 - 87	13.2
	01 - 06 - 87	7.5%		
1988	01 - 01 - 88	5.3		

CAF

YEAR	COWAC NORD		COWAC SUD	
	DAY/MONTH	LEVEL	DAY/MONTH	LEVEL
1985	21 - 10 - 85	0%	01 - 04 - 85	+ 7.5%
			01 - 09 - 85	+ 5.1%
1986	01 - 01 - 86	- 2.1%		
	01 - 04 - 86	- 5.3%	01 - 06 - 86	3%
	01 - 09 - 86	- 8.7%		
1987	01 - 02 - 87	- 11.2%		3%

Source: COWAC.

Table 12. Summary of readjustments of MEWAC basic freight rates

	GENERAL TARRIF		WOOD (logs)		PRODUCTS including machined wood	
DATE	AMOUNT	RATIO	AMOUNT	RATIO	AMOUNT	RATIO
1/10/78	+ 7 %	107	-	100	-	100
1/02/79	+ 9 %	116.63	+ 7 %	107	+ 7 %	107
1/09/80	+11 %	129.45	+ 7 %	114.49	+ 7 %	144.44
1/10/81	+ 9.5 %	141.74	+5.5 %	129.78	+ 5.5 %	120.78
1/10/82	+ 6 %	150.24	+ 6 %	128.02	+ 2 %	123.19
1/10/83	+ 6 %	159.25	+ 3 %	131.86	+ 3 %	126.88
1/10/84	+ 8 %	171.99	+ 6 %	139.77	+ 6 %	134.49
1/10/85	+ 5 %	180.58	+ 3 %	143.96	+ 3 %	138.52
1/10/86	0	180.58	0	143.96	0	138.52
1/10/87	0	180.58	0	143.96	0	138.52
1/10/88	0	180.58	0	143.96	0	138.52

The increase of 6 per cent in the tariffs was exceptional for 1982.

For the other years we see that the freight rates for logs is the same as for machined wood.

Source: MEWAC Secretariat.

Table 13. Results of negotiations on freight rates between the Regional Negotiation Committee and COWAC NORD from 1978 to 1988

Year	Tarrif increase proposed by COWAC NORD	Agreed increase for general merchandise	Increase agreed on for sensitive products*
1978	8%	5%	5%
1979	15%	6%	4%
1980	9%	8%	5%
1981	12.5%	8%	5%
1982	6.5%	3%	0%
1983	7%	3%	0%
1984	10%	5%	3%
1985	11%	3%	3%
1986	13%	0%	0%
1987	29.5%	0%	0 %
1988	20%	0%	0%

* Sensitive products: coffee, cocao, wood, etc.

Source: Côte d'Ivoire Shippers Office (OIC).

Table 14. Results of negotiations on freight rates between the Regional Negotiation Committee and UKWAL from 1980 to 1988

Year	Tarrif increase proposed by UKWAL	Agreed increase for general merchandise	Increase agreed on for sensitive products*
1980	15%	9%	5%
1981	25%	8%	5%
1982	19%	6.5%	3%
1983	17%	4%	2%
1984	10%	5%	3%
1985		0%	0%
1986	7%	3%	0%
1987	26.7%	0%	0%
1988	8%	0%	0%

* Sensitive products: coffee, cacao, wood, etc.

Source: Côte d'Ivoire Shippers Office (OIC).

Table 15. Côte d'Ivoire: freight rates fixed by ministerial decree, plus BAF and CAF, in French francs per m^3

	1986		1987		1988	
	CAF • 3.35 BAF • 14.8		CAF• 1.08 BAF• 13.6		CAF• - 1.9 BAF• 11.7	
	SOUTH OF FRANCE	ITALY	SOUTH OF FRANCE	ITALY	SOUTH OF FRANCE	ITALY
LOGS						
1 category	314	314	304	304	290	290
2 category	361	361	349	349	333	333
3 category	401	401	389	389	371	371
	FRANCE	ITALY	FRANCE	ITALY	FRANCE	ITALY
SAWN WOOD	308	308	299	367	285	351

The CAF and BAF are the yearly averages.

Source: Côte d'Ivoire Shippers' Office.

Table 16. Côte d'Ivoire: freight rates fixed by ministerial decree, plus BAF and CAF, in DM per m^3

COWAC NORD

	1986	1987	1988
	CAF* - 6.7 BAF* 7.8	CAF* - 11.2 BAF* 7	CAF* - 11.2 BAF* 5.3
LOGS			
1 category	120	113	111
2 category	153	144	142
3 category	173	163	161
SAWN WOOD	149	141	138

The CAF and BAF are the yearly averages.

Table 17. Freight rates for different parts of Europe, 1986

1. Freight rates for the north continent (Antwerp - Hamburg) year 1986 (per m^3, including BAF and CAF)

ROUGH TIMBER	COTE D'IVOIRE	GHANA	LIBERIA	TYPES OF WOOD
Category 1	112 DM	90 DM		Conventional woods
Category 2	144 DM	110 DM	110 DM	Samba Ekki
Category 3	162 DM	123 DM		

2. Freight rates for Atlantic France (Bordeaux - Dunkirk)

ROUGH TIMBER	COTE D'IVOIRE	GHANA	LIBERIA*	TYPES OF WOOD
Category 1	313 FF		$ 36-38 or 256-270.56 FF	Niangon Kotibe Framire Faro
Category 2	365 FF			
Category 3	402 FF			

3. Freight rates for Italy (MEWAC) year 1986

ROUGH TIMBER	COTE D'IVOIRE	GHANA*	LIBERIA*	TYPES OF WOOD
Category 1	311 FF	$ 40-42 or 285-299 FF	$ 37 or 263 FF	Kotibe Framire Bahia
Category 2	356 FF			
Category 3	396 FF			

Source: Union of wood exporters and negotiators in Côte d'Ivoire.

Table 18. Duration and cost of shipments by a small chartered logging ship, COWAC (S) conference region

Crossing: Six West African ports to ports in the west of France, in a small chartered logging ship at $3,025 per day, plus a lump sum of $8,250, carrying 10,000 m^3 of logs.

Days:

Crossing	17	(5,100 naut. m at 12.5 knots)
Loading	12	
Unloading	10	
Total days	39	

Costs:

		$
Loading ports		42 000
Loading lighterage		84 000
Crossing	126 200	
Unloading port		57 500
Unloading lighterage		92 500
Diesel (HO)		26 000
Diesel (DO)		7 300
Various, insurance		10 000
General/administrative expenses		33 400
Total cost		478 900
Cost excluding the share of the unloading lighterage costs for the recipient		409 525 or $40.95/$m^3$

Revenue: Assumption 50 per cent category 1 + 50 per cent category 2
COWAC (S) = OIC rate, including CAF and BAF

$$\frac{44.60 + 52.10}{2} = \$48.35/m^3$$

less 5 per cent rebate/commission = $45.93/$m^3$

Source: OAB - DOC/OAB/C/88/03.

Table 19. Duration and cost of shipments by a small chartered loggig ship, COWAC (N) conference region

Crossing: Six West African ports to four ports between Antwerp and Gothenberg, in a small chartered logging ship at $3,025 per day, plus a lump sum of $8,250, carrying 10,000 m^3 of logs.

Days:	Crossing	19.5	(5,850 naut. m at 12.5 knots)
	Loading	12.0	
	Unloading	10.0	
	Total days	41.5	

		$	
Costs:	Loading ports	42 000	
	Loading lighterage	84 000	
	Crossing	133 800	
	Diesel (HO)	29 800	
	Diesel (DO)	7 800	
	Unloading port	77 200	
	Unloading lighterage	112 500	
	General/admin./comm. expenses	36 600	
	Total cost	523 700	or $52.37/$m^3$

Revenue: Assumption 50 per cent category 1 + 50 per cent category 2
COWAC (N) = OIC rate, including CAF and BAF

$$\frac{76.50 + 94.20}{2} = \$85.35/m^3$$

less 15 per cent rebate = $72.55/$m^3$

OIC rates for the region COWAC (N), including CAF and BAF

$$\frac{56.90 + 72.70}{2} = \$64.80/m^3$$

less 15 per cent rebate = $55.08/$m^3$

Source: OAB - DOC/OAB/C/88/03.

Table 20. Duration and cost of shipments by a large, modern logging/general cargo ship, COWAC (S) conference region

Crossing: Six West African ports to six ports in the west of France in a large modern logging/general cargo ship in the shipping line's service, returning at $13,500/day to the shipowner/operator - in one case with a full cargo of 24,000 m^3 of logs and in the other case with a half load.

		100% full 24,000 m^3	50% full 12,000 m^3
Days	Crossing	16	17
	Loading	16	12
	Unloading	12	9
	Total days	44	38
Costs:	Loading ports	65 500	$ 47 300
	Loading lighterage	201 600	100 800
	Crossing	594 000	499 500
	Diesel (HO)	40 800	40 800
	Diesel (DO)	11 000	9 300
	Unloading ports	128 600	92 800
	Unloading lighterage	276 900	104 000
	Various/insurance	10 000	10 000
	Admin/comm/gen. costs	107 000	45 000
	Total costs	$1 435 400	$949.500
	Less the recipient's share of the unloading lighterage costs		
		$1 227 700	$845 500
		$ 51 15/m^3	$ 70 46/m^3

Source: Study of carriage of forestry products by sea (OAB) DOC/OAB/C/88/03.

Table 21. Duration and cost of shipments by a large, modern logging/general cargo ship, COWAC (N) conference region

Crossing: Six West African ports to six ports in the west of France in a large modern logging/general cargo ship in the shipping line's service, returning at $13,500/day to the shipowner/operator - in one case with a full cargo of 24,000 m^3 of logs and in the other case with a half load.

		100% full 24,000 m^3	50% full 12,000 m^3
Days	Crossing	17.5	17.5
	Loading	16.0	12.0
	Unloading	12.0	9.0
	Total days	45.5	38.5
Costs:	Loading ports	65 500	47 300
	Loading lighterage	201 600	100 800
	Crossing	614 200	519 700
	Diesel (HO)	44 600	44 600
	Diesel (DO)	11 400	9 600
	Unloading ports	163 200	117 800
	Unloading lighterage	298 800	112 100
	Various/insurance	10 000	10 000
	Admin/comm/gen. costs	105 700	45 000
	Total costs	$1 515 000	$1 006.900
	or	$63.13/$m^3$	$83.91/$m^3$

Source: (OAB) DOC/OAB/C/88/03.

Table 22. CAF cost price for two species

SPECIES - FRAMIRE	FCFA	Per cent
Cost price ex-logging site	10 496	18.7
Road transport (250 km)	6 500	11.4
Transit, handling, timber yard and quote costs	6 614	11.6
Customs duties and taxes	16 966	29.8
Sea freightage	15 700	27.5
Maritime insurance	626	1.0
CAF cost price	56 901	100.0

SPECIES - KOTO	FCFA	Per cent
Cost price ex-logging site	10 500	19.2
Road transport (250 km)	6 500	11.9
Transit, handling, timber yard and quote costs	7 575	13.8
Customs duties and taxes	12 348	22.5
Sea freightage	17 250	31.5
Maritime insurance	613	1.1
CAF cost price	54 786	100.0

Table 23. Summary of CAF cost prices

	Niangon	Framire	Koto	Tali
Cost price ex-logging site	22.8%	18.5%	19.2%	23.1%
Road transport (250 km)	11.5	11.4	11.9	18.5
Transit, handling, timber yard and quote costs	29.8	11.6	13.8	5.0
Customs duties and taxes	7.1	29.8	22.5	13.6
Sea freightage	28.5	27.5	31.5	39.4
Maritime insurance	0.3	1.0	1.1	0.3
CAF cost price	100.0	100.0	100.0	100.0

Table 24. Logs - eastern region (via Belabo) - Douala

		in CFA francs/m^3				
		Sapelli	Sipo	Doussie	Ekki	Ayous
1.	Cost price ex logging site	9 000	9 000	9 000	9 000	9 000
	Inland transport	24 140	24 140	24 140	17 540	14 770
2.	Beach price	33 140	33 140	33 140	26 540	23 770
3.	Cost f.o.b.	13 730	13 930	17 270	5 560	6 550
4.	Cost of product f.o.b.	46 870	47 070	50 410	32 100	30 320
	PV f.o.b. Douala in 1983	53/72 000	60/78 000	70/100 000	28/30 000	37/42 000
	Ratio: f.o.b. price - logging site price	x 5	x 5.5	x 5.5	x 3.5	x 3.5
	Profit on f.o.b. value per m^3	12 to 35%	21 to 40%	28 to 50%	loss	18 to 28%
	Volume exported through Douala in 1983	79.041 m^3	27.170 m^3	19.783 m^3	nil	113.135 m^3
	Sea freightage	20 044	20 044	20 044	15 700	15 700
	c.f. price	66 914	67 114	70 454	47 800	46 020

Table 25. Price of white-wood and red-wood logs
(CFA francs/m^3 TTC)

Logs	White woods, ayous type					Rich red woods, sapelli type							
	Cameroon		East	South-east		Cameroon		Centre	East	South-east	South	North	
Beach price paid	16 400	20 300	23 800	36 900	36 900	18 500	28 300	31 400	33 100	42 100	27 000	42 100	28 500
of which internal transport			14 800	24 900					24 100	24 900			
	6 700		6 100	6 500	5 100	26 100		13 700	12 900	13 500	10 900	9 300	7 500
												11 300	
Price paid f.o.b.	23 100	27 000	29 900	43 400	42 000	44 600	54 400	45 100	46 000	55 600	37 900	51 400	36 000
												53 400	
Transport by sea	10 000				13 000	13 000		14 500			16 000	16 000	17 000
Atlantic France			15 700	15 700					20 044	20 044			
Price paid	33 100	37 000			55 000	57 600	67 400	59 600			53 900	67 400	53 000
			45 600	59 100					66 044	75 644		69 400	

Source: CNCC/SOFREMER.

Table 26. Logs - central and central south region (via Mbalmayo or Yaounde) - Douala
(CFA francs per m^3)

		Sapelli	Sipo	Doussie	Ekki	Ayous
1.	Cost price ex logging site	12 000	12 000	12 000	12 000	12 000
	Inland transport 1/	19 500	19 500	19 500	15 000	13 150
2.	Beach price	31 500	31 500	31 500	27 000	25 150
3.	Cost f.o.b.	13 730	13 930	17 270	5 560	6 550
4.	Cost of product f.o.b.	45 230	45 430	48 770	32 560	31 700
	Selling price f.o.b. Douala in 1983	53/72 000	60/78 000	70/100 000	28/30 000	37/42 000
	Ratio between cost price f.o.b. and logging site price	x 4	x 4	x 4	x 2.5	x 2.5
	Profit on f.o.b. value per m^3	15 to 37%	24 to 42%	30 to 51%	loss	14 to 25%
	Volume exported through Douala in 1983	79.041 m^3	27.170 m^3	19.783 m^3	nil	113.135 m^3

1/ Average of journeys.

Source: CNCC - DOUALA/SOFREMER.