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PREREQUISITES FOR ESTABLISHING
EXPORT ORIENTED SECONDARY WOOD
PROCESSING INDUSTRIES IN AFRICA^{1/}

by

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I POTENTIAL MARKET FOR WOOD PRODUCTS IN DEVELOPED COUNTRIES

The developed market economy countries have become increasingly dependant on tropical hardwoods (available to all intents and purposes only in the developing countries) to satisfy their needs in wood and wood products.

Imports of hardwood products by these countries in recent years are given in the table I below.

TABLE I

IMPORTS OF HARDWOOD PRODUCTS BY DEVELOPED MARKET ECONOMY COUNTRIES AND CENTRALLY PLANNED ECONOMIES

<u>Non Coniferous</u>		1965	1970	1972	1973	1974	1975
<u>Sawlogs and Veneer Logs</u>							
Developed market economy countries	(1.000m ³)	16.508	28.436	31.086	37.992	34.465	24.605
	(\$ x 10 ⁶)	623.8	1.083.3	1.247.9	2.419	2.642.0	1.599.3
Centrally planned economies	(1.000m ³)	925	2.039	4.480	4.567	4.344	4.840
	(\$ x 10 ⁶)	32.4	70.4	131.2	240.5	281.5	308.8
World total	(1.000m ³)	20.058	36.119	41.841	48.943	44.344	35.745
	(\$ x 10 ⁶)	711.3	1.325.4	1.566.1	3.013.7	3.260	2.222.3
<u>Non Coniferous</u>							
<u>Sawnwood</u>							
Developed market economy countries	(1.000m ³)	4.323	5.466	6.340	8.586	6.721	5.387
	(\$ x 10 ⁶)	327.7	459.9	610.6	1.132.4	1.151.5	907.8
Centrally planned economies	(1.000m ³)	434	408	379	362	468	466
	(\$ x 10 ⁶)	32.2	30.4	33.3	36.6	51.4	66.8
World total	(1.000m ³)	5.417	5.786	7.879	10.651	9.288	7.993
	(\$ x 10 ⁶)	397.3	540.0	704.3	1.267.1	1.399.8	1.163.9

(Table I cont'd)

		1965	1970	1972	1973	1974	1975
<u>Veneer Sheets</u>							
Developed market economy countries	(1.000m ³)	708	852	1.274	1.354	1.246	692
	(\$ x 10 ⁶)	154.4	206.5	299.3	435.9	445.2	358.8
Centrally planned economies	(1.000m ³)	57	86	93	129	94	85
	(\$ x 10 ⁶)	11.1	20.1	25.8	40.2	34.7	32.9
World total	(1.000m ³)	779	965	1.429	1.583	1.484	957
	(\$ x 10 ⁶)	169.5	233.5	336.2	495.2	507.8	425.8
 <u>Plywood</u>							
Developed market economy countries	(1.000m ³)	2.236	4.167	5.485	6.165	4.516	4.700
	(\$ x 10 ⁶)	324.8	585.0	820.0	1.301.1	1.150.5	1.023.4
Centrally planned economies	(1.000m ³)	86	164	161	160	173	210
	(\$ x 10 ⁶)	12.3	23.9	27.4	31.1	35.1	57.4
World total	(1.000m ³)	2.577	4.700	6.165	6.949	5.355	5.663
	(\$ x 10 ⁶)	375.6	670.3	932.9	1.466.9	1.349.1	1.246.3

SOURCE: FAO, 1975 Yearbook of Forest Products

It is clear from the above table that:

Both the developed market economy countries, and to a lesser extent, the centrally planned economies are relying to a large extent on tropical hardwood logs to satisfy their needs in forest products.

- this trade has increased in the past, and it is forecasted that it will continue to increase in the future;

- a large portion of the trade of the market economy countries with developing countries is still in the form of logs, which are further processed into sawnwood, plywood, veneer and finished products in the developed countries, in spite of the increasing imports of plywood of these countries.

Because of the de-facto monopoly which the developing countries have in this product and the facilities accorded to them for exports of semi-manufactured and manufactured products under the General System of Preferences (GSP), the developing countries can and should enter these markets, initially with semi-manufactured products, such as sawnwood,

vener and plywood, and subsequently develop their secondary wood processing industries to enable them to export also, to the extent possible, manufactured wood products such as joinery, furniture (probably in knocked down form) and prefabricated housing components (such as truss elements).

This study attempts to identify the prerequisites for the establishment of export oriented secondary wood processing industries in Africa. Primary forest products (sawnwood, veneer sheets and plywood) are not covered in this study since these industries exist already in many African countries and the problems associated with the establishing of these industries in Africa and the export of their products have been identified - if not yet solved.

II POSSIBLE SECONDARY WOOD PRODUCTS WHICH COULD BE PRODUCED FOR EXPORT

As stated above, sawnwood, veneer (peeled and even sliced) and plywood are not included because both the production technology and markets for these products have been identified and most problems relating to these products have been solved. This does not mean that all these industries are operating efficiently and/or that the products manufactured are of a quality acceptable on export markets. Various suggestions on improving existing operations are given in chapter III of this study. This chapter will review the various products which are by and large still not produced for export in Africa and enumerate the pros and cons of producing each.

Before identifying these it should be pointed out that establishing these industries have the following common macro-economic characteristics which make their establishment interesting to the developing countries:

a) Capital Requirements:

Primary wood processing industries are capital intensive, often because the sheer size of the tropical logs necessitates investments in heavy duty equipment of large dimensions and calls for a certain amount of mechanization.

On the other hand secondary wood processing industries in developing countries do not need high investment in sophisticated equip-

ment because of the relatively low labour costs. The need for sophisticated machines could be reduced through the use of well designed jigs. The installation of simple, labour intensive machines does not, however, preclude the necessity of maintaining a stringent quality control of goods produced for export and the need to introduce production planning and control methods.

b) Labour Requirements

While realizing that labour costs in developing countries are low, production for export would necessitate its full and rational utilization and an increase in the productivity considered in many cases to be acceptable for marketing products intended for the local market. Low cost automation often allows the utilization of labour intensive processes and simple machines yet ensures a level of productivity acceptable for production for export.

Woodworking is a skill (or craft) that exists at a latent stage in all developing countries, whatever their stage of development. Thus the establishment of secondary woodworking industries for export could be achieved with a minimum need of skilled expatriates. However, export oriented industries call for trained workmen and, more important, qualified and motivated foremen.

The following wooden products could be produced in export oriented plants:

Decorative Plywoods

Pros:

- Africa has the high quality decorative veneers which, if used to face the plywood produced, could increase the value of the product three to five-fold.

- The equipment needed to produce this product is basically very similar to that in the existing plywood mills, and production could be started with only minor additional investments. (Most of the face veneer used would have to be sliced, and it is likely that the existing plywood mills are not equipped with slicers).

- The marketing of the product would not call for the introduction of totally new marketing channels. Existing channels could be used, but promotional campaigns would have to be planned and financed.

Cons:

- Far more stringent quality and process control would have to be introduced, and more highly skilled labour used.

- Cutting tools and machines would have to be maintained more carefully and process control (for example in the drying of the veneers) would have to be more strict.

- Packaging of the product and its storage and handling would have to be more careful because of its higher value.

- The market for this product is far smaller and more sensitive to fluctuations because of economic crises and/or changes in tastes of the consumers in the developed countries.

Mouldings

Pros:

- For this product also, Africa has the species which are acceptable on the markets of the developed countries.

- Relatively large markets exist for mouldings.

- The technology of production is simple and investments are low.

- The marketing channels could be those used for the export of sawwood.

- The product could use sawmill wastes for certain dimensions.

Cons:

- High level of tool and machine maintenance needed.

- Process control (specially in kiln drying) should be strict.

- Not very labour intensive.

Parquet

Pros:

- Many of the African species are accepted for parquet, however, demand for the darker woods (redwoods such as mahogany) is smaller than for suitable light coloured woods.

- The production process could be relatively labour intensive.
- The raw material used could be sawmill wastes.

Cons:

- High level of tool and machine maintenance needed.
- Process control (especially in kiln drying) should be strict.
- Quality control is important both from the point of view of aesthetic appearance (e.g. matching of colours) and of dimensional tolerances. It is also important to control accurately the moisture content of the wood and to limit fluctuations.

- Fluctuations in demand in the developed countries is great - demand for parquet is tied to activities in the construction industry and to the fashion element (competitiveness of wood with other floor covering materials).

- Because of the high cost of labour, cost of installation of parquet is high, and this has led to the development in the advanced countries of technologically more advanced products (larger squares of mosaic parquet and more sophisticated and larger laminated parquet elements. Some of these might be too advanced for the developing countries).

- A new marketing channel - other than that used for marketing of plywood and sawnwood - would have to be developed.

- Shipment in packages using shrunk foil PVC necessary for export from most tropical climates.

Flush Doors^{1/}

Pros:

- Would use locally available raw materials.
- Simple production technology.
- Large markets in developed countries.
- Designs standardized in most developed countries.
- Can be shipped on pallets.

Cons:

- Economies of scale play a large role in this industry.
- Relatively low cost and high shipping charges would make production marginally profitable in many instances.
- A new marketing channel - other than that used for sawnwood and plywood - would have to be developed.
- The product is affected by fluctuations in the building activities of the developed countries.

Solid Wood (Panel) Doors and louvered Doors and Shutters^{1/}

Pros:

- Use locally available raw materials.
- Higher unit values than flush doors make these products better suited to bear the high freight costs from most developing countries.
- The production process could be simple and use labour intensive methods, provided adequate quality control is introduced.
- Can be shipped on pallets.

^{1/} It is assumed that the doors would be sold unfinished (sanded but not surface coated and with no hardware since all these products would have to be imported in most of the developing countries).

Cons:

- Precise tool and machine maintenance necessary.
- Process control (specially kiln drying) should be strict.
- Relatively smaller market than for flush doors.
- Products less standardized than flush doors hence calls for market surveys and more frequent (and costly) changes in models than flush doors.
- A new marketing channel - other than that used for marketing of sawwood and plywood - would have to be developed.

Since some of these doors would be sold varnished, the matching of colours of the wooden elements would have to be done carefully and quality control should be strict.

Wooden Roof Trusses (knocked down)

Pros:

- Could use a wide range of lesser known species if mechanically stress graded and grouped according to natural durability and shrinkage factor, including dense hardwoods otherwise difficult to market.
- Products more or less standardized.
- Simple manufacturing technology, requiring relatively low investments.
- Ease of shipment (in bundles).
- Could use labour intensive production methods.
- Relatively low quality control requirements (if timber has been mechanically stress graded).

Cons:

- Market fluctuations large - affected by slumps in the construction industry.
- Would call for the establishment of a serious inspection scheme and quality label in the developing country.

- Production would have probably to be a joint venture with a firm in a developed country to assure the construction of the trusses - using the elements shipped from the developing country - and to assure their marketing.

- Promotion of the species used to assure their acceptance by the local specifiers (and building codes) could be a costly and time consuming process calling for assistance at the national and even regional levels.

Joinery Components (carved Door Panels, turned Staircase Columns, Stair Steps and Rails, etc.

Pros:

- Excellent species available for this product.
- Some of the smaller components could be produced from what is to-day considered to be sawmill wastes.
- The process could be labour intensive, economies of scale do not play an important role.
- Relatively simple production technology.
- Relatively low tooling costs for large series.
- Range of components and variations between them, relatively small, hence need for a relatively small range of equipment in the plant.

Cons:

- It would be difficult to produce these components for stock. They would have to be produced only on a sub-contract basis.
- Process control (dimensional tolerances, moisture level in wood and surface finish) has to be strict.
- Production planning and control (and industrial costing) play important roles.
- Tool and machine maintenance very important.
- Respect of delivery dates of utmost importance.

- A totally new marketing channel - other than that used for marketing of sawnwood and plywood - would have to be created.

- Shipping of components in containers would be preferred to avoid damage.

Furniture Components (Drawer Front and Sides, Panel Doors, Shelves, Chair Legs, Rails, etc.)

Pros:

- Furniture in the developed countries is increasingly being made from - or veneered with - tropical hardwoods, hence product acceptability is no problem.

- Components could be produced from what is presently considered to be sawmill wastes - hence low cost.

- Process could be labour intensive, and economies of scale do not play an important role - except for large series.

- Designs, production process, jigs and know how could be obtained from the client.

Cons:

- Would have to be produced on a sub-contract basis - i.e. products cannot normally be produced for stock.

- Process control (dimensional tolerances, moisture level in wood and surface finish) has to be strict.

- Production planning and control - and industrial costing - play important roles.

- Tool and machine maintenance very important.

- The plant producing these components would have to be equipped with a larger range of machines than if it were producing joinery components, hence machine utilization could be a problem.

- Range of components far larger than in the case of joinery components, and series normally are smaller.

- Consequently costs of tools and jigs are also higher.

- A totally new marketing channel - other than that used for marketing of sawnwood and plywood - would have to be created.

- Shipping of components in containers would be preferred to avoid damage and pilferage.

- Respect of delivery dates of utmost importance.

Institutional Furniture (School, Hotel and Restaurants Furniture)

Pros:

- Higher value added than for components.

- Locally available species readily acceptable.

- Economics of scale do not play a large role.

- Production technology is simple and range of equipment could be small.

- Process could be labour intensive.

- Designs would initially probably have to be obtained from abroad.

Cons:

- The market very competitive. Quality plays a high role.

- New marketing channels - including probably participation in furniture fairs in developed countries - would have to be developed.

- Quality control very important.

- Production planning, process and cost control would have to be carefully followed.

- Respect of delivery dates is important.

- High freight and packaging charges for items which could be bulky.

- Designs would have to be chosen to minimise the need for imported inputs (foams, textiles, hardware, etc.).

- Product will no doubt be shipped knocked down, hence components must be interchangeable - a high dimensional accuracy is imperative.

Household Furniture

Pros:

- Local designs would be more easily acceptable than for institutional furniture.

- Local wood raw material acceptable, in some cases even desirable.

- Series initially small, hence labour intensive methods could be used.

- Relatively simple process technology.

- Relatively small investments in equipment possible if labour available is highly skilled.

Cons:

- Designs would have to be developed and tested, or purchased from abroad. This could be costly in view of the small initial size of series.

- Market very competitive and, for high priced articles, "design conscious".

- Quality has to be high - even very high - hence need to have high quality control at all stages of production, the more so, if the furniture is to be shipped knocked-down.

- Packing and shipping costs are high.

- Tool and machine maintenance very important.

- Products would have, as far as possible, to be shipped knocked-down, to reduce freight costs, hence special design considerations.

- Because of smallness of series, tooling and jig costs can be high.

- High quality labour necessary for finishing some products.

- Imported components (textiles, laminates, hardware, foams, etc.) could affect overall competitiveness if they represent a high percentage - hence need to choose products judiciously.

- New marketing channels - including probably participation in furniture fairs in developed countries - would have to be developed.

Wooden Household Articles, Toys, Implement Handles, etc.

Pros:

- Raw materials used could be considered sawmill offcuts.
- Local species perfectly suited and accepted for these products.
- Labour intensive methods could be used.
- Series could be small.
- Packaging and shipping no problem.

Cons:

- Dimensional accuracy very important for certain items (e.g. toys).
- Designs would probably have to be imported.
- A totally new marketing channel (different from that for all other products) will have to be developed.
- Production would have to be on a sub-contract basis for certain items (tool handles, etc.).

In concluding this short enumeration, the following points must be stressed since they apply to all secondary wood processing industries.

1. In all cases complete techno-economic feasibility studies, comprising in depth market surveys of the potential export markets, should be carried out prior to investing. Such studies should best be carried out by independent specialized firms of consulting engineers.

2. Special care should be paid to the selection of equipment. It should be compatible with the skills of the available labour, and local costs of labour and ease of maintenance and interchangeability of spare parts and tools should also be borne in mind in selecting the equipment.

3. Special emphasis must also be placed on the merits of integrating the above industries to existing primary wood processing plants whenever possible to assure common services, marketing, administration,

waste utilization for the primary industry and assured raw materials at low costs for the secondary industry as well as more enlightened management and better contacts with overseas markets.

III PREREQUISITES FOR ESTABLISHING EXPORT ORIENTED SECONDARY WOOD PROCESSING INDUSTRIES

This section of the study will cover briefly common problems facing the establishment of these industries in Africa. Because of the general scope of the study some points made might not be applicable to all the industries enumerated above.

Raw Material Considerations

Although every effort should be made to improve the utilization of Africa's forest resources through an increase in the number of species marketed, care should be taken in using species that are technically suitable, and if mixed, species are to be used in any application, to group these correctly with respect to strength, natural durability and shrinkage (colour would be important only in external components of furniture and joinery that is varnished and not painted).

In establishing new export oriented industries, their raw material needs should be assured. In many developing countries the secondary wood processing industries suffer from irregular supplies of sawnwood and plywood: when export markets for these products are sluggish they can obtain all their requirements both with respect to quantity and quality; however, on a sellers market they are given a low priority in the delivery of goods and, even then, often only have access to now exportable grades. Such a situation will of course adversely affect the establishment (and subsequent profitable operation) of secondary wood processing industries.

It might well be argued that the present situation exists because the existing secondary industries are small and have not got a good enough credit rating to justify being treated at par with overseas clients which are sounder financially.

Yet another raw material consideration affecting the establishment of these industries is the price of raw materials delivered to them. Sawmills in Africa are often less efficient than those in

developed countries sawing tropical hardwoods, and however efficient the secondary operation is, it should not be burdened by high costs of raw materials, a factor over which it has no control.

Thus, it may be advisable to integrate secondary wood processing operations with existing primary operations, and for the authorities to consider taking measures to rationalise and increase productivity in existing primary wood processing plants concurrently with the establishment of secondary wood processing industries.

Design Considerations

These fall under two categories: design for structural end uses (e.g. joinery) and industrial design where aesthetic values play a high role (e.g. furniture).

Design of Joinery and Structural (load bearing) Elements

In spite of their large forest resources wood is not yet used as extensively for structural purposes in Africa as it is in many of the developed countries. The reasons for this are beyond the scope of this study, but the result of this is that timber engineers (civil engineers trained to design using timber) are scarce in developing countries. Furthermore, the exporter of joinery products would have to familiarize himself with the standards and building codes of the countries he is intending to export to, and to adapt his designs if and when necessary.

Design of Furniture and Furniture Components

Here again, there is a lack of local designers. Most of the furniture now produced in developing countries in Africa is based on copies - often taken from photos. Latent native talent certainly exists, and steps should be taken by the authorities in the various countries to educate talented young men in industrial design for the furniture industry. The aim should be at producing industrially furniture that has some of the cultural characteristics of the exporting country. Once such a product is accepted on the world market it would fetch higher prices than if the goods exported are only copies of foreign styles - and often poor ones at that.

One possibility of interesting latent local talent would be for the factory to organize national furniture design competitions. This would provide the possibility of eventually developing local styles.

Training of local designers takes time, and until such time as they are available the following possibilities exist:

- to bid for contracts for institutional furniture for which the designs and all production drawings are given.
- to purchase designs from well known designers (or enter into royalty agreements with them) and produce them locally.
- to hire expatriate designers as staff members.

In the eyes of the author the first is the alternative yielding quickest results. The second would be excellent provided top level designers are willing to collaborate, while the third would probably not provide for the top level designers who could develop products for export markets. (The most competent designers work freelance on a royalty basis and refuse to become employees of an industrial concern, let alone expatriate themselves).

Large export oriented furniture plants should attempt to secure the collaboration of well known designers in the markets they wish to enter and keep them on a retainer basis to advise them on trends in design - in the country they cover. Local agents, which being in a position to compile information on commercial data are often at a loss to provide that on design trends.

In designing furniture for export, special considerations should be given to the volume of the product, since sea freight play a very important role. Design of knock down and foldable furniture, and the choice of fittings to re-assemble it should receive attention by top management. It is also important to draw up clear and precise instructions (preferably in several languages and profusely illustrated) for the assembly of these products.

Finally, in designing furniture for industrial production the following considerations should be borne in mind:

(a) that the position, shape and size of joints (tenons, dowels, etc.) are compatible with the equipment installed.

(b) that the components are standardized as far as possible
- e.g.
same size of drawer sides for a complete range of products. This is necessary to minimize costs of inventories, jigs and cutting tools.

(c) that the sizes of the components are such that offcuts are reduced to a strict minimum, or, failing that, that the waste of one item could be used to produce another item. (This is particularly important for expensive materials such as laminates, decorative plywood, etc.).

Special Considerations of End Users

Whereas it is relatively simple to market semi-manufactured wood products on far away markets, the marketing of manufactured products is governed by consumer preference and/or legislative restrictions.

Among the former, colour of the wood is one (e.g. dark coloured parquet is often not acceptable); form is a major consideration in purchasing furniture; fashions affect type of surface finishes (satin finish, glossy or different colours) preferred on various markets.

Market surveys should not be restricted to a compilation of quantitative statistics and addresses. Consumer preference should be studied in depth. It is not sufficient to assess whether one's own product is acceptable on the market, one must determine what the market really wants.

Potential exporters should also keep abreast of legislation which might affect the marketing of their products in certain countries. This could be of various forms: e.g. adoption of national standards for these products, legislation in the building code on performance of joinery and trusses, legislation on safety affecting the fire resistance of doors or the flammability of upholstered material or the use of toxic surface finishes (such as lead based paints) legislation on fraud in the use of veneer substitutes, or on consumer information, etc.

Selection of an Appropriate Production Technology and Selection of Machines

This is perhaps the point in which the potential industrialists in the developing countries are the least equipped to cope with, and where mistakes, once made, are the costliest.

There do not exist yet sufficient specialized consulting engineering firms in the developing countries to advise potential investors in the selection of an appropriate technology thus ensuring a sound investment. Although many specialized consultants exist in developed countries, very few of them are familiar with the conditions of developing countries. Unfortunately feasibility studies, prepared by - or on behalf of - equipment suppliers are often presented as complete potential investors in the developing countries. These more often than not, are intended to promote a single process and do not take full account of the particular problems of the developing countries.

Potential investors should seek advice of impartial specialized consulting engineering firms, or address themselves to international organizations (such as UNIDO) to obtain the information which will help them in their decision taking. Both UNIDO and FAO have published documents on selection of processes in woodworking industries. The topic is too vast and the differences between countries is too large to be covered even superficially here.

The same applies to equipment selection. Because of the distance separating them from the major specialized fairs in Europe and North America, industrialists cannot keep as easily up to date on recent innovations as their potential competitors in Europe and North America. Hence they are at a large disadvantage, since more often than not, they are led by equipment salesmen (who are far more experienced than the buyers in this technical field) to purchase machines which are too sophisticated or have too great a capacity, or are under-powered, or are otherwise unsuitable.

More often than not the spare parts supplied with the machines are sufficient for operating it under the conditions of the developed countries (no currency restrictions, no restrictions on imports, ease of transport, etc.). They are not sufficient when obtaining the

spare parts is a long and tedious procedure.

Enumerating the procedures for selecting individual woodworking machines is beyond the scope of this study. Those interested are referred to UNIDO document No. ID/WG.256/26.

Process and Production Control and Problems of Industrial
(serial) Production

The secondary wood processing industries in developing countries of Africa are by and large still operating on a semi-mechanized or even craft level.

This type of firm will have to greatly improve its process and production control before it can successfully enter world markets. Since it would have invested more funds in equipment, it will have to realize that this equipment will have to be fully utilized, and that the operator should serve the machine and not vice versa.

Furthermore, the production of large series calls for more accurate production planning and production control to limit as far as possible the value of work in progress and reduce delivery times. Production planning and control is of course necessary to ensure optimal machine utilization and to plan purchases of inputs, cutting tools, auxiliary equipment, etc. It is also necessary to assure the availability of sharpened cutting tools (saws, knives, bits, etc.) at the right moment.

This calls for experienced middle management, which is still a rarity in developing countries. The foremen should be trained in operating and setting up the more complicated machines and should be able to diagnose simple faults. In many cases, on expanding, industrialists have appointed senior skilled craftsmen as foremen. These older people do not have the experience in operating machines efficiently and do not have the motivation to study this subject in greater depth.

Costing for industrial production would also have to be further refined since, with greater series, the cost of mistakes in calcu-

lating unit costs are greater.

One other major consideration in industrial production is the difference between craft and industrial (serial) production. In the former the craftsman finishes by hand each and every piece; hence machining accuracy is not important. In industrial production - specially of components that are shipped knocked down - there can be no finishing by hand as it cannot assure interchangeable parts. Machine setting up is hence much more important as is the precision of the machine. Because of this need for extra precision, and because for large series any error in machines setting up will be a costly one, it is customary to entrust this task to foremen or a few skilled and reliable workers.

Finally, but by no means the least important, is the problem of planning and scheduling the preventive maintenance on the equipment. Because of increased dependence on machining the need to assure the continuous operation of the machines is increased and a breakdown in one key machine could stop all production. Also, maintenance of the machine is extremely important because of the need to ensure the accuracy to produce interchangeable parts. Too many instances exist where quality control cannot be assured because of the poor state of the equipment. This of course affects adversely the export possibilities of the firm concerned.

Labour Qualifications and Training

The need of training middle management and foremen has been covered above. The training of skilled and semi-skilled operators is just as important and should be given top priority early in the plant's operation, even if that implies sending trainees to plants where such equipment is already installed. Care should be taken in selecting these trainees. Such training is necessary because by and large the training provided in vocational schools is geared for artisanal and craft production methods and not for serial production for export. Attempts should be made to provide short training courses to operatives prior to the introduction of new processes, new machines or even the introduction of new products in the process.

Basic training manuals in local languages might be useful. Such

projects should secure financing from the authorities since it is unlikely that industry will be able to prepare them.

Prospection of Markets and Market Intelligence

This is a sine qua non condition for entering overseas markets. Assistance to prospective exporters should be given by the authorities. This could take any of the following forms:

- financing of study tours by prospective exporters .
- financing of market studies .
- compilation of market intelligence on specific products and/or markets and its diffusion to all concerned in the form of newsletters.
- financing of promotional material.
- diffusion abroad of information about the industry through the commercial representatives.

Marketing Channels

As stated in the previous chapter, many of the secondary wood products identified in the previous chapter call for the introduction of new marketing channels.

Consideration should also be given for the larger firms to store a certain quantity of standard products in free zones in Europe and/or North America for immediate distribution to their clients. They will thus be able to overcome the hitherto unsurmountable problem of distance from markets and allay fears of rupture in deliveries in case of strikes or other force majeure reasons. By using this system the exporter can obtain better prices. Such an approach could only be considered by the larger firms. This system was introduced very successfully by large Canadian exporters of primary forest products to the United Kingdom. The costs of the operation have been more than compensated by the increase in prices they could charge and by savings in freights through chartering vessels instead of using conference lines.

Great care should be taken in screening and appointing agents in the developed countries. As soon as export sales to a region attain a high level, consideration should be given to appoint a national of the

country with extensive business experience and good contacts with the industry as their representative at large. He could be entrusted with the more delicate market intelligence operations and overseeing the local agents. Other possibilities would be to create joint ventures with local agents. (This method has been used successfully by the leading exporters of softwoods in the United Kingdom).

Quality Control, Quality Labels and Inspection

The introduction manufactured wood products on the markets of the developed countries is, to a large extent, dependant on assuring the prospective buyers that the quality agreed in the contract will be respected.

Consequently, quality control throughout the process and final inspection should be serious. (It is worth pointing out that ideally quality control should be at every stage of the manufacturing process to avoid adding value on pieces that will ultimately be rejected).

The example of certain countries in South East Asia (namely establishing inspection boards for timber products) is worth studying further. The fact that a possibility exists for obtaining serious and impartial inspection of the goods before shipment will facilitate exports even if it adds a small sum to the cost of the product.

Once the industry is well established consideration could be given to establishing a national quality label to warrant the quality of the products. This would have to be done concurrently or after the establishment of national standards for these products.

Promotion through Fairs and Exhibitions

Specialized fairs and exhibitions should be fully used by the developing countries to promote their secondary wood products. The authorities could assist in the following ways:

- subsidising the cost of attendance of executives of potential exporting firms at specialized fairs to identify products, price ranges, quality requirements, etc.

- subsidising the cost of participation at specialized fairs by prospective exporters. They would exhibit their goods at national stands

as part of an industry wide effort.

- assisting in the preparation and cost of publication of catalogues of the products in the language of the country to which it is intended to export.

Although permanent exhibits would facilitate marketing, these are costly. Consideration should therefore be given to using the offices of the country's trade representatives as exhibitions, i.e. to furnish them with nationally produced furniture, joinery products and wall panelling.

Shipping Problems

The successful export of wood products overseas depends to a great extent on the existence of quick, regular, frequent, reliable and cheap shipping services between the two countries. Unfortunately, this is often a stumbling block over which the exporter has no direct control over these problems. The introduction of container services has facilitated to a great extent the export of components by diminishing the risk of pilferage or breakage. Much still remains to be done with respect to speeding up deliveries at both ends.

In order that the manufactured wood products may enter the markets of Europe and North America concessionary freight rates may have to be negotiated initially.

Finally, whenever bulk shipments can be made - specially if for primary products stocks are kept in a developed country - use should be made of chartered vessels instead of conference liners, because of the savings involved.

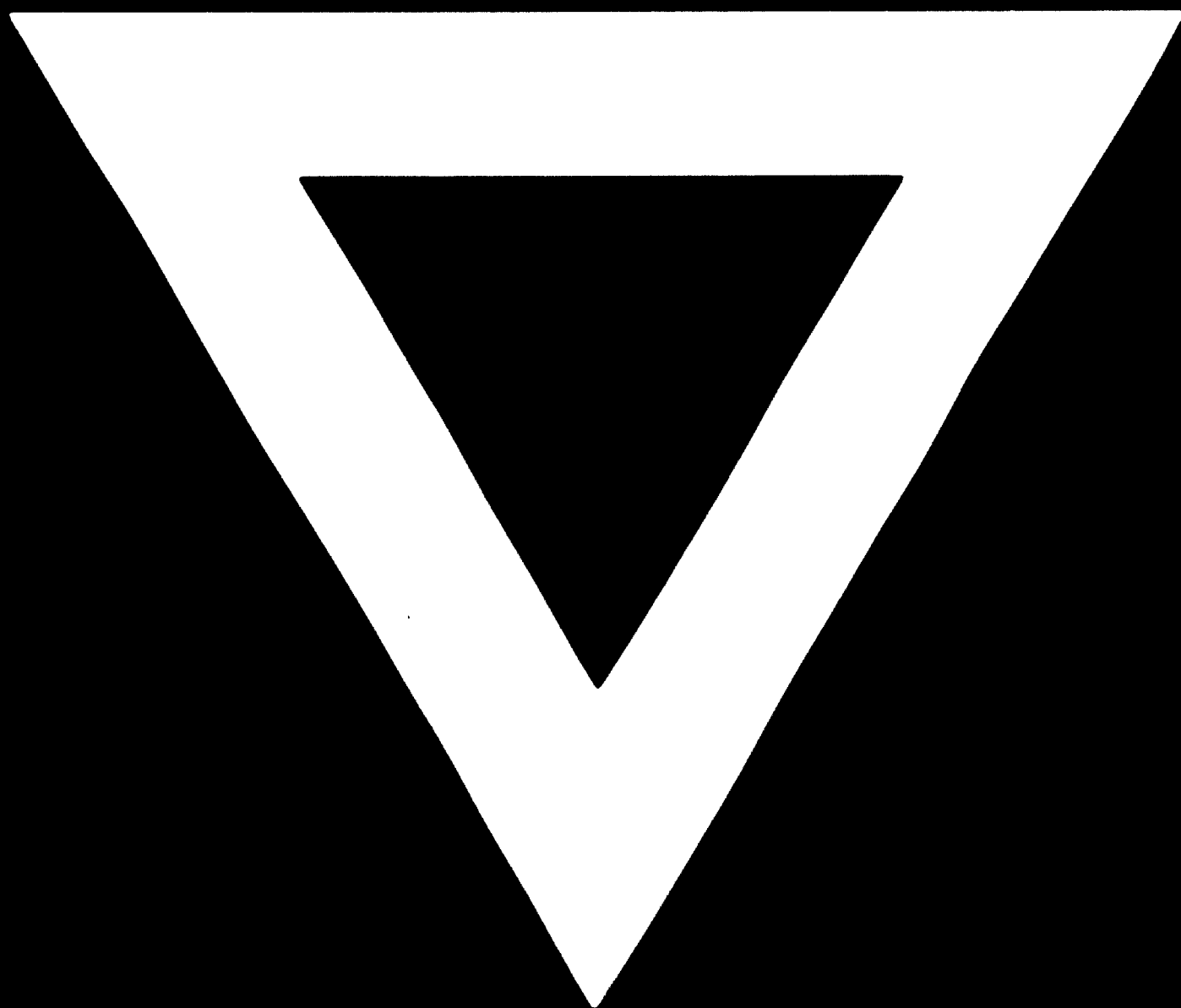
Packaging Problems

The correct packaging of manufactured wooden products is a topic worthy of further study. The successes of an export drive could well depend on the quality of packaging because the importer would shrink from placing repeat orders if the goods have been received damaged.

Specialists in packaging exist. UNCTAD/GATT can, through the International Trade Centre, provide information and assistance in this field.



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