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REPORT ON THE AFRICAN FORESTRY COMMISSION[1]

Fourth Session, convened by FAO in Bangui, Central African Republic,

22 - 27 March 1976.

by

E. Alan Morrow
UNIDO Official

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INTRODUCTION

In line with an invitation extended by Dr. Kenneth King, Ass't. Deputy Director, FAO Forestry Department, for UNIDO to prepare a paper on the "Potential for the development of secondary wood processing industries in Africa" for presentation at the above commission meeting, the writer journeyed to Bangui for the purpose of presenting the UNIDO document and to participate in the commission's deliberations.

The agenda for the session comprised the following-

I. PROCEDURAL MATTERS

1. Adoption of Agenda
2. Election of Officers

II. THE STATE OF FORESTRY IN AFRICA

3. Review of national progress reports
4. Problems of the Sahel and marginal lands

III. FOREST POLICY ISSUES

5. Export of tropical wood and wood products
6. Development of pulp and paper industries
7. The regional framework for formulation of forest policies

IV. TECHNICAL PROBLEM AREAS

8. Public forestry administration and forest utilization contracts
9. Development of manpower at the managerial level
10. Silviculture and forestry research in the rain forest
11. Mechanical wood industries
12. Charcoal and its by-products

V. MATTERS TO BE REFERRED TO THE ATTENTION OF THE COMMITTEE

13. The FAO Forestry Department's Regular Programme activities
14. Forestry field operations activities in the African region
15. The role of the Regional Forestry Commission
16. Activities of the Working Party on Wildlife Management/National Parks
17. The Eight World Forestry Congress
18. The Committee on Forest Development in the tropics

VI. BUSINESS OF THE COMMISSION

19. Date and place of the next session
20. Other business
21. Adoption of the Report

GENERAL

46 Participants representing the following countries attended: Algeria, Benin, Cameroon, Congo, Ivory Coast, France, Ghana, Upper Volta, Kenya, Liberia, Nigeria, Central African Republic, Senegal, Sudan, Tanzania, Togo, Uganda, Zaire and Zambia, plus Rome. 9 Observors also attended from the following countries: Belgium, China, Italy, Japan, Roumania, Spain, USSR and Yugoslavia. The following International Organisations were also represented: CEAO, ECA, UDEAC, UICN, OAU, plus Agencies of the United Nations which were UNDP, UNEP and UNIDO.

Makeup of the officers for the ensuing two years was as follows-

President:	Mr. A. Patasse' Minister of Forests and Tourism Central African Republic
1st Vice Pres:	Mr. K. Kese Deputy Chief Conservator of Forests Ghana
2nd Vice Pres:	Mr. S. J. Akapelwa Deputy Chief Conservator of Forests Zambia
3rd Vice Pres:	Mr. G. Mbeng Director of Forests Republic of Cameroon
Rapporteurs:	Mr. R. K. Kpan Conservator of Forests Republic of Liberia
	Mr. S. Cisse Forestry Engineer Ivory Coast
Secretary:	Mr. G. S. Child FAO Rome

Documents relative to the agenda items and bearing the following codes and titles were prepared for use by the committee:

Agenda item	Code	Title
1	FO:AFC/76/1	Provisional Agenda
3	FO:AFC/76/2	The state of forestry in Africa, 1972-75
5	FO:AFC/76/3	Export of tropical wood and wood products
6	FO:AFC/76/4	Development of pulp and paper industries
7	FO:AFC/76/5	The regional framework for the formulation of forest policies
8 and 9	FO:AFC/76/6	Public forestry administration and the need to develop its managerial capabilities
8	FO:AFC/76/7	Recent developments in forest utilization contracts
10	FO:AFC/76/8	Silviculture and forestry research in the rain forest
"	FO:AFC/76/15	The state of silviculture in Africa and related research requirements
11	FO:AFC/76/9	The mechanical forest industries in central and west Africa-guidelines for development
12	FO:AFC/76/10	The wood charcoal industry in Africa
13	FO:AFC/76/11	FAO Forestry Department Regular Programme activities of interest to the African region
14	FO:AFC/76/12	FAO forestry field operations in the region
15	FO:AFC/76/13	The role of the Regional Forestry Commissions
17	FO:AFC/76/14	The Eighth World Forestry Congress

In addition to the foregoing documents the following were used-

Agenda item	Code	Title
Background documents		
3		National progress reports from member countries
5	FO:AFC/76/3-Ref.1	Europe as a market for tropical timber
"		The marketing of tropical wood: A. Wood species from African tropical moist forests
7	FO:AFC/76/5-Ref.1	Forestry development in the new Economic Community of West African States (ECOWAS)
"	FO:MISC/75/15	Country tables of produotion, trade and oonsumption of forest products: Africa
8	FO:AFC/76/6-Ref.1	Development of manpower at the managerial level
"	FO:MISC/76/6	Forest utilization contracts on public land in the humid tropics: experiences, problems and trends
10		Management possibilities of tropioal high forest in Africa
11	FO:AFC/76/9-Ref.1	Seoondary wood-using industries - UNIDO

Information documents

	FO:AFC/76/Inf.1	General information
	FO:AFC/76/Inf.2	Annotated provisional agenda
	FO:AFC/76/Inf.3	Provisional timetable
	FO:AFC/76/Inf.4	List of documents

Reference material

Report of the Seoond Session of the Committee on Forestry (May 1974)

Report of the 9th Session of the Asia-Pacific Forestry Commission (September 1973)

Report of the 7th Session of the Near East Forestry Commission (November 1974)

Report of the 7th Session of the North American Forestry Commission (February 1974)

While the writer was on hand throughout all discussions as covered by the agenda and recognizes that in a few weeks time FAO will be forwarding UNIDO a copy of the report covering the proceedings of the commission meeting it would seem appropriate at this time to make the following comments pertaining to items which are directly of interest to UNIDO. It should be noted that all papers prepared for the meeting were presented in summary form only. On the second day of the meeting and during discussion of agenda item 5 - Export of tropical wood and wood products - it was agreed with the chairman that I would be introduced as UNIDO's representative, make a short statement, along with any comments which I cared to make as a result of having read the paper under agenda item 5. The following therefore represents my opening remarks and comments:

Mr. Chairman and Gentlemen- "On behalf of the Executive Director of UNIDO I wish to state that UNIDO welcomes the opportunity of participating in this your fourth session of the African Forestry Commission, this having resulted from the kind invitation extended by Dr. Kenneth King for UNIDO to present a paper on the establishment of secondary wood processing industries in Africa.

On the subject which is now under discussion allow me to make a few observations. These pertain to the export of raw material in round log form. While it is recognized that much headway towards reducing log exports has been noticeable over the past few years, those countries which are still engaged in this practice should seriously examine their actions for the following reasons-

a) They are encouraging the denuding of their forests of high quality merchantable type timber at a rapid pace;

b) Placing the local processors of wood at a disadvantage by forcing them to use lower quality raw material which in turn increases their wastage factor, besides giving them a lower yield and consequently increases their cost of production. Additionally, these same firms have to compete on world markets with similar products as their own, but of superior quality, because of having to accept the lower grades of logs.

c) As long as the export of logs continues, those countries so involved will fail to improve their economy, upgrade their standard of living or show a healthy employment picture.

For the foregoing reasons it would appear that the timber industry of Africa needs to apply the co-operative spirit within its framework for the purpose of encouraging the various Government bodies to put a stop to the export of logs and instead assist in the formation of plans towards the expansion of present wood processing industries so as to achieve higher utilization, improve employment and increase the value of the end product for their respective countries."

During discussion on this particular agenda item the following points came to light and I believe are worth mentioning:

- while some countries impose certain tariff barriers on the import of manufactured wood products exemption is given in the case where wood in round log form is imported;
- some countries are forced to export their logs in order to purchase machinery and equipment to keep their industries running;
- certain countries engaged in the export of logs assess a special tax on such exports to apply against reforestation costs.

Agenda item 6 - Development of pulp and paper industries. The chairman having summarized this paper many comments were made by a number of the participants, three of which I wish to indicate below:

- formerly, whereas the use of a variety of species for the making of pulp posed a problem this is no longer so;
- most developing countries have very little long fibred timber as the forests contain mainly short fibred material which is not applicable to the production of pulp and paper products;
- pulp mills are based on economy of scale, however, while certain costs which remain stationary make it necessary to consider the establishment of larger operations it is possible to reduce capital investment by 20 to 35 per cent through the use of good used equipment (which is obtainable) for small operations.

Agenda item 11 - Mechanical Wood Industries.

Touching on sawmilling in the foregoing agenda item it was stressed by some speakers that UNIDO should get more involved in the question of wastage factors; waste usages for greater utilization and possible benefits to the current energy crisis.

The consensus of opinion, following numerous comments from the participants, is that small sawmill plants are not in the best interest of developing countries because of the costly job of supervision by forestry and other government officials. Larger efficient plants are proving to be more suitable, besides which they are more adaptable for purposes of integration. Two points were made which the writer feels should go on record. These are:

- that the present large sawmills should be encouraged to install kiln drying facilities and to expand into veneer and plywood production (and vice versa) and be given long-term forest concessions in order justify additional investment on their part;
- that the existing smaller sawmills, many of which are located near the larger urban centres, should be encouraged to expand into secondary operations (joinery, furniture, wooden packaging, prefabricated housing, etc) in order to improve their utilisation of raw material and to remain economically viable. Also because these latter industries are highly labour intensive assistance should be given through special tax and other incentives.

Carrying on with agenda item 11 as above I was then called upon to introduce the UNIDO paper - Potential for the development of secondary wood processing industries in Africa. In summarizing our paper I made reference to those points which I felt were of importance to the countries of Africa, such as the following:

- Introduction - Drew attention to the importance of developing secondary wood processing industries and referred to paragraph 28 of the Lima Declaration and Plan of Action;

- Definition - Indicated just what secondary wood processing industries represent in the way of processing;

- Capital requirements - Emphasized the fact that these type of industries need not be capital intensive in a developing country, particularly where they are catering for the local market;

- Labour requirements - While pointing out the advantage of making greater use of local labour in secondary wood processing industries attention was drawn to the fact that while such an approach seemingly is quite valid, this may not always be the case, particularly where a company finds that it can enter an attractive export market which demands a specific item in large volume and on a continuous basis. In such an instance and in order to be competitive it can well prove that the only way to conclude the business is to introduce partial automation in certain sections of the operation.

Export potential - In this area special emphasis was laid on the fact that for the reason that they are producers of valuable tropical hardwoods which are used by developed countries for a multitude of end uses, the African countries endowed with tropical forests are in the position, provided they can produce manufactured wooden products - initially un-assembled or un-finished - at competitive prices that are of acceptable quality and design, to reduce their exports of "wood in raw state" (i.e. logs) or in a semi-manufactured condition (sawnwood and plywood) and replace them by exports of components or products with a higher value added. It was also pointed out that before entering the export markets developing countries should first develop their native wood processing industries with the view of first satisfying the needs of their own local market - and eventually, depending on their geographic location - as well as those markets of neighbouring countries. Once these requirements have been met it was then stated that following the conclusion of carrying out a suitable feasibility study the time would be ripe for entry into overseas markets.

Problems to be overcome - Certain pitfalls which are to be anticipated in the development of secondary wood processing industries were highlighted and dealt with.

Technical problems - Commenting on this particular aspect, particularly in the area of manufacturing of the lesser known species, attention was drawn to the fact that in the selection of these woods, so as to make fuller use of the forest resources, such problems as that of compatible strength, shrinkage, durability, etc., require careful study, besides which there is always the ever important question of quality control to be recognized, especially as it relates to items which are to be shipped unassembled or in a knocked-down condition (partly assembled) to save on shipping costs. In such instances it was pointed out that these must be machined to a precision whereby parts are interchangeable.

Planning of secondary wood processing industries - When considering plans for these types of industries appropriate guidelines were indicated while at the same time particular mention was made of the "mortality rate" applicable in the case of plants in developing countries which had been established on an ad hoc basis where improvisation replaced planning.

As a finale to my summation of the highlights of the UNIDO paper attention was drawn to the forthcoming technical course on criteria for the selection of wood working machinery being convened by UNIDO in collaboration with the Italian Government in Milan during the month of May. At this point it was indicated that while a number of qualified people from several African countries had already been accepted to participate in this course I was pleased to announce that one of the successful Government nominees originated in Bangui.

Role of UNIDO in Africa - While the writer had met and conversed with a number of participants from countries of Africa as to what UNIDO does and where it might possibly assist, besides being told by several participants during discussion at the meeting that UNIDO needs to make itself known throughout Africa the request was made to the effect that we send out some technical people to meet with Government officials and leaders of industry to learn first-hand of their problems and at the same time pin-point areas where we could be of assistance. Likewise, it was indicated on numerous occasions that even though I had stressed the importance of making their needs known to their local UNDP, the feeling was that normally UNDP is not too interested in small scale problems. Nevertheless I continued to stress the importance of working through the UNDP but upon being pressed agreed that it would be in order to contact UNIDO direct as long as a copy of their communications was furnished the local office of the UNDP.

One case in point was where Mr. A. M. Oseni, Director of the Federal Department of Forestry, Ibadan, Nigeria, publicly announced at the meeting that it was not just enough for someone such as myself to come to the meeting and acquaint him personally in the evening as to where UNIDO could possibly assist in introducing locally built bridges, low-cost housing, etc. He claimed that from what he had learned from me that very definitely the bridge as designed in Kenya would be like a gift from heaven for countries such as his. As to the housing he emphasized that his Government is becoming desperate in trying to find a solution to establishing cheap housing and begged that UNIDO seriously consider approaching his Government with some concrete ideas in this connection. As for the bridges he has requested that he be supplied with the cost of blown up pictures which I had shown him in the UNDP/UNIDO bulletin entitled "The Kenya Low-Cost Timber Bridge Project". The Ivory Coast, Cameroon and other African countries also displayed considerable interest in the Kenya bridge.

Selection of items chosen by writer for inclusion in this report-

1) <u>Expert counterparts</u> - The suggestion was made that in future when experts go to a country that the Government of that country commit itself to furnishing no less than two counterparts as it is being discovered that where one counterpart is trained it is only a short time before he is moved up the ladder or into another department thereby resulting in no continuity of the training given by the expert.

2) <u>Financial position of UNDP</u> - Statement by the UNDP Resident Representative in Bangui to the commission Quote "The UNDP is broke - but as yet not quite destitute" Unquote.

3) <u>Position of FAO</u> - Announcement by Dr. H. Steinlin of FAO to the effect that from now until June the new Director General of FAO will be working on his proposed budget and programme of work for presentation to the Governing Council in mid-July. It is expected that the new proposals will be considerably different from those of recent years with the budget being considerably reduced. While their on-going projects for this year have so far not been seriously affected considerable curtailment of travel of top officials has been made. As a matter of information the new Director General has been appointed to his post for a six year term because of a change which took place in the constitution two years ago.

4) <u>Method of communication with African countries</u> - Because of the need for better informing people in the various countries of Africa greater emphasis needs to be placed on the English language. This was most apparent during the discussions which took place at the commission meeting and whereas there was a surplus of documents in French a shortage existed in the English texts.

5) <u>Place of next Commission Session</u> - Two countries have offered to host the Fifth Session of the Commission in May 1978, i. e. Senegal and Cameroon. FAO has been given the task of making a final decision as to the host country following consultation with Government officials of the two countries, as to what services they are prepared to offer in the event their country is selected.

For the record copies of documents relative to the agenda items which were discussed during the fourth session of the African Forestry Commission have been filed in the UNIDO Registry.

Having concluded my remarks in connection with the Commission meeting I now wish to comment on discussions which I had with Mr. K. Rudy Meyer, Regional Forest Industries Adviser, ECA/FAO Forest Industries Advisory Group for Africa, stationed in Addis Ababa, and Dr. Hans W. O. Röbbel on the African Desk at FAO, Rome.

Mr. Meyer informed me to the effect that just recently a proposal was made to FAO for the setting up of an Industrial Mission at Regional level. This Mission would comprise of 10 persons and will be made up from representatives of ECA/FAO/UNIDO. Mr. Meyer indicated that FAO is agreeable to the inclusion of UNIDO and to this end it will be communicating with UNIDO to name its nominee for Secondary Wood Processing Industries. This perhaps may not take place until after July which is when the FAO budget and plan of work will be presented to the Governing Council for its consideration. Incidentally Mr. Meyer in commenting on the remark by the delegate from Nigeria to the effect that UNIDO should get out and make its presence known in developing countries indicated that ECA is doing just that. By sending out technical people they find that much office work is done away with, decisions can be made much quicker and the impact of ECA is much greater in the countries served.

With regard to Dr. Röbbel I can only say that his approach towards the creation of a co-operative spirit between FAO and UNIDO was beyond all expectations. While earlier in the week we had discussed the idea of such co-operation we always seemed to have insufficient time to discuss the matter in depth with the result that the evening prior to the conclusion of the meeting Dr. Röbbel arranged to visit me at my hotel where we had a two hour session during which time he brought me fully into the picture concerning projects throughout Africa wherein UNIDO might become involved. Briefly what took place was that Dr. Röbbel indicated that he feels it is necessary to have consultation on fairly frequent basis because situations arise where dual participation of FAO/UNIDO would be advantageous, besides being cost saving to the UNDP. Additionally he suggests that UNIDO contact the FAO Asian Desk in Rome concerning projects which it is responsible for. On the question of communication through correspondence Dr. Röbbel suggests that UNIDO make contact with:

Mr. L. Huguet
Director
Forestry Operations Service, FAO
Rome

Those on the African Desk are:

Dr. H. Röbbel	-	FAO, Rome
Mr. J. M. Bryce		"
Mr. H. Abdols		"

The following suggestions have been made by Dr. Röbbel where UNIDO might work on projects already in the planning stage or pending regionally:

a) That UNIDO check with the UNDP, New York, requesting copy of the "Variation Mission Report" - Africa; Ref. RAF.68/444 - Forest Industries;

b) Senegal - Contact FAO, Rome, requesting copy of Project Document SEN.71/522 - Forest Development;

c) Chad - Indicates there would be no interest for UNIDO in the immediate future;

d) Upper Volta - Follow-up at an early date as evident UNIDO can become involved;

e) Equitorial Guinea - Might possibly do with UNIDO assistance but has a serious problem due to the refugees which have been constantly moving into the country;

f) Guinea - UNIDO should examine as possibilities exist in the area of training centres;

g) Dino (Ivory Coast) - Good possibilities for UNIDO/FAO involvement;

h) Ivory Coast - Should be the subject of dialogue between UNIDO/FAO;

i) Ghana - Contact FAO soon concerning a charcoal project;

j) Nigeria - Contact with FAO should be made;

k) Togo - Contact FAO as country shows interest in development of small scale industries;

l) Dahoney - Project possible for start early 1977 where UNIDO could have some interest;

m) <u>Gabon</u> - Training needed and UNIDO should follow up with FAO as to details;

n) <u>Cameroon</u> - Much work evidently here for involvement of UNIDO - Contact FAO re Mission visit on Programming - Woodworking, Boat Building, etc;

o) <u>Congo</u> - Training Centre where FAO/UNIDO might get together - also on Industrial Training during 1977/78 - FAO/UNIDO;

p) <u>Tanzania</u> - UNIDO should examine the possibilities for involvement in the Moshi Woodworking Shop;

q) <u>Kenya</u> - Nothing on the drawing board with FAO presently;

r) <u>Sierra Leone</u> - FAO not currently involved;

s) <u>Liberia</u> - Should be checked by UNIDO;

t) <u>Sudan</u> - Sawmilling - FAO should be contacted as it appears that UNIDO should become involved;

u) <u>Uganda</u> - Maintain contact with FAO which has already commenced early this year.

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Annex I

	FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS ORGANISATION DES NATIONS UNIES POUR L'ALIMENTATION ET L'AGRICULTURE ORGANIZACION DE LAS NACIONES UNIDAS PARA LA AGRICULTURA Y LA ALIMENTACION	FO:AFC/76/9-Ref.1 March 1976

Item 11 of the
Provisional Agenda

AFRICAN FORESTRY COMMISSION

FOURTH SESSION
(Bangui, Central African Republic, 22-27 March 1976)

POTENTIAL FOR THE DEVELOPMENT OF SECONDARY WOOD PROCESSING INDUSTRIES IN AFRICA *

by

The Secretariat of UNIDO

* Paper prepared at the request of the FAO Secretariat

WM/G3324

Introduction

The object of this paper is to draw to the attention of participants of the 4th Session of the African Forestry Commission the vast possibilities that exist through the development of secondary wood processing industries in Africa for the employment possibilities, the local production of hitherto imported wooden products and the increase value added to their exports of forest products.

At this juncture it is well to take note of the Lima Declaration and Plan of Action on Industrial Development and Co-operation which was adopted for the Second General Conference of the United Nations Industrial Development Organisation convened in Lima, Peru, in March 1975, particularly paragraph 28 which reads: "That, in view of the low percentage share of the developing countries in total world industrial production, recalling General Assembly resolution 3306 (XXIX), of 14 December 1974, and taking into account the policy guidelines and qualitative recommendations made in the present Declaration, their share should be increased to the maximum possible extent and as far as possible to at least 25 percent of the total world industrial production by the year 2000, while making every endeavour to ensure that the industrial growth so achieved is distributed among the developing countries as evenly as possible. This implies that the developing countries should increase their industrial growth at a rate considerably higher than the 8 percent recommended in the International Development Strategy for the Second United Nations Development Decade." For those countries endowed with large forest resources one way to achieve this goal is to develop their secondary wood processing industries.

The paper also attempts to identify the technical, social and marketing problems that have to be overcome before such industries can become viable under the conditions of the developing countries of Africa.

Because this topic is of major importance only to those African countries that are endowed with rich forest resources, the statistics quoted in this paper refer only to some of these countries. However, the same would undoubtedly apply - at a lesser level - to all other developing countries in the region.

Definition of Secondary Wood Processing Industries

These are operations which represent the transformation of the sawn plank and wood-based panel into products such as wooden furniture and wooden furniture components (in a variety of styles and types), joinery, mouldings, prefabricated wooden building elements (roof trusses, beams, partitions, etc.) packing cases, miscellaneous wooden products (bowls, carvings, toys, gun-stocks, etc.).

Local Demand for Secondary Wood Processing Industries

Unlike for primary wood products adequate production statistics and forecasts for secondary (manufactured) wood products do not exist for Africa. This may be due to the fact that in Africa these products are still mainly produced by a multitude of craftsmen and industrial production in this sector is more often than not the exception to the rule.

Actual demand for manufactured wood products can in most cases only be determined by assuming that the apparent consumption of primary wood products (sawnwood and wood-based panels), apart from the quantities used for wooden shuttering in construction, is used as raw material by the secondary wood processing industry.

The apparent consumption of primary wooden products (sawnwood and wood based panels) in selected countries of Africa is given in Table 1. In compiling this table, it has proven impossible to assess the volumes of sawn wood in wood based panels used for shuttering and by deducting these figures estimate the demand in raw material of the secondary wood processing industry.

Table 1

APPARENT CONSUMPTION OF PRIMARY WOOD PRODUCTS (SAWNWOOD AND WOODBASED PANELS) IN SELECTED COUNTRIES OF AFRICA (in 1000 m^3)

Country	1965			1970			1971			1972			1973		
	Sawnwood	WBP	Total	Sawnwood	WBP	Total	Sawnwood	WBP	Total	Sawnwood	WBP	Total	Sawnwood	WBP	Total
Central African Rep.	36	... 2/	36	38	...	38	38	...	38	43	...	43	...	...	...
Cameroon	66	3	69	105	11	116	107	22	129	86	20	106	60	26	86
Congo	29	1	30	31	...	31	31	...	31	30	...	30	37	...	37
Gabon	26	41	67	35	15	50	35	34	69	46	27	73	60	47	107
Ghana	226	8	234	118	14	132	173	33	206	109	35	144	119	8	127
Ivory Coast	105	8	113	125	51	176	135	28	163	140	32	172	142	68	210
Kenya	63	6	69	103	13	116	129	16	145	129	17	146	129	18	147
Mozambique	66	6	72	78	9	87	47	8	55	40	8	48	40	8	48
Nigeria	211	17	228	519	15	534	527	39	566	527	41	568	527	47	574
Tanzania	96	8	104	149	11	160	185	17	202	158	20	178	158	22	180
Uganda	50	8	58	68	11	79	91	18	109	91	18	109	91	19	110
Total Africa 1/	4266	492	4758	5719	658	6377	5900	738	6638	5986	808	6794	6232	901	7133

Source: FAO Yearbook of Forest Products Statistics, 1973

1/ (including countries not listed above)

2/ Indicates not available

Table 2

IMPORTS OF MANUFACTURED WOODEN PRODUCTS IN SELECTED COUNTRIES OF AFRICA
(in 1000 US$)

Country	1965			1970			1971			1972			1973		
	SITC[1] 632	SITC[2] 821	Total[3]	SITC 632	SITC 821	Total	SITC 632	SITC 821	Total	SITC 632	SITC 821	Total	SITC 632	SITC 821	Total
Cameroon	...[5]	977	977	1091	1523	2614	208	1115	1323	228	1147	1375	...	...	...
Central African Rep.	...	159	159	...	...	...	...	...	...	...	...	...	...	...	...
Congo	...	278	278	...	...	...	...	...	...	...	...	...	...	...	...
Gabon	...	1001	1001	...	...	...	...	...	...	...	...	...	...	...	...
Ivory Coast	...	2293	2293	...	2342	2342	...	2247	2247	...	...	...	...	...	...
Kenya	...	314	314	...	...	...	...	...	...	...	...	...	...	...	...
Liberia	...	...	...	...	1425	1425	...	1637	1637	...	1012	1012	...	1178	1178
Mozambique	...	...	...	997	...	997	...	...	...	...	...	...	...	...	...
Nigeria	...	...	...	381	823	1204	551	2370	2921	648	4365	5013	774	3745	4519
Tanzania	...	451	451	...	...	...	...	...	...	...	...	...	...	...	...
Total Africa[4]	...	...	...	26426	47123	73549	3748	59233	62981	3009	22046	25055	4936	8835	13771

Source: UN Yearbook of International Trade Statistics, 1974, Vol. 2

1/ SITC 632; Manufactured Wooden Products, excluding Wood Based Panels

2/ SITC 821; Furniture

3/ Currency Conversion to US$ on 1965 imports based upon exchange rates, "FAO Yearbook of Forest Statistics, 1966"

4/ Including countries not listed above

5/ Indicates not available

This, however, does not fully represent the total needs of manufactured wooden products in Africa, since these countries have imported a considerable quantity of manufactured wooden products.

Basic information (in values) is given in Table 2.

The foregoing is accounted for by the fact that African countries have been unable to produce the required quantity of goods of the required standards themselves. The development of the secondary wood processing industries of Africa would result in the creation of employment and a reduction in the outlay of foreign currency to pay for these imports. Both of these are essential for developing countries and in the case of Africa they are attainable because the requirements for establishing secondary wood processing operations are relatively simple.

Characteristics of these Industries

a) Capital requirements

Primary wood processing industries are relatively capital intensive in many instances because the sheer bulk of the tropical logs necessitates investments in heavy duty, large sized equipment and calls for a certain degree of mechanisation because manual labour cannot handle these big logs.

Secondary wood processing industries in developing countries need not be capital intensive if they are to produce a wide range of products and cater for the local market. In fact complete small plants can be established with the price of but one costly piece of equipment of a primary wood processing plant.

Provided due care is taken in maintaining high quality of products and industrial methods of production planning and control are introduced, mechanization - let alone automation - can be kept to a minimum. Initially the entrepreneurs-owners of these small plants could start production (for the local market) using simple multi-purpose or basic woodworking machines. These could be added to at a later date and their productivity increased through modifications by introducing the concept of "low cost automation".

It is only when demand has risen and/or the entrepreneur wishes to enter the export markets that more important investments would have to be made.

b) Labour requirements

While it is usually recognised that as labour is inexpensive in developing countries, the emphasis should be directed towards its full utilization and increasing its productivity, the decision to make a factory labour intensive, while seeming to be quite valid, may not always be the right approach to take, particularly in the case where a company finds that it can enter a particular export market which demands a specific item in large volume and on a continuous basis. In such an instance, and in order to be competitive, it can well prove that the only way to conclude this business is to introduce partial automation in certain sections of the operation.

Woodworking is a skill (or craft) existing latent in all developing countries whatever their degree of development is. Because of this, secondary wood processing industries are one of the few industrial sectors where Africanization can be introduced at an early stage of a country's development. Needless to say that, in order to introduce a competitive industry (or to transform the existing craft or cottage industries into real industrial enterprises), attention should be paid to the training of these craftsmen into industrial workers, and more important, the training of foremen and mechanics to operate and maintain the machines which will replace the operations hitherto done by hand.

Technicians must eventually be trained who will understand the reasons behind each characteristic parameter of a specific operation, such as drying, machining, surface finishing and thus eventually be able to introduce local modifications to the recommended processes to suit better the characteristics of the tropical wood species being utilised and eventually be able, through the utilisation of lesser known species, to make fuller use of Africa's vast wealth of this natural resource which is one of its greatest and, furthermore, one of its only renewable ones.

c) Export potential

It must be realised that because of their position of growers of valuable tropical hardwoods which are used in the developed countries for a multitude of end uses, the countries of Africa endowed with tropical forests are in a position, provided that they can produce manufactured wooden products - initially un-assembled or un-finished - at competitive prices that are of acceptable quality and design, to reduce their exports of "wood in raw state" (i.e. logs) or in a semi-manufactured condition (sawnwood and plywood) and replace them by exports of components or products with a higher value added. This calls for the solution of certain problems discussed hereunder.

The size of this potential market is colossal. Table 3 gives the values of exports of semi-manufactured wood products (sawnwood and wood based panels) of the countries selected as examples in this study, while Table 4 gives the values of exports of manufactured wood products (SITC 632 and 821 Furniture) of these same countries. The disparity between these figures makes any comment on them redundant if it is remembered that most of the semi-manufactured wood products exported from Africa are further processed into finished products in the country of destination.

It must be realised that in the case of most developing countries they should develop their native secondary wood processing industries to cater first for the local market - and eventually, depending on their geographic location - also for the market of neighbouring countries. It is only after they have established themselves in this field that they should venture on overseas markets. Before they do so they should investigate in depth the actual needs and preferences of these markets, establish a sound system of compilation of market information and develop appropriate marketing channels.

One possibility of entering world markets at an earlier stage is to enter into a joint venture for the establishment of export oriented industries whereby the foreign partner brings not only the technical know-how but also the captive market (or the marketing know-how).

Table 3

EXPORTS OF SEMI MANUFACTURED WOOD PRODUCTS (SAWNWOOD AND WOOD BASED PANELS)
FROM SELECTED AFRICAN COUNTRIES
(in 1000 US$)

Country	1965			1970			1971			1972			1973		
	Sawnwood	WBP	Total	Sawnwood	WBP	Total	Sawnwood	WBP	Total	Sawnwood	WBP	Total	Sawnwood	WBP	Total
Centr.African Republic	438	2/ ...	438	893	...	893	893	...	893	893	...	893	...	...	...
Cameroon	1349	817	2166	2567	3301	5868	3078	2370	5443	4413	3470	7883	6930	3180	10110
Congo	335	2610	2945	1200	6500	7700	1200	6700	7900	1800	11000	12800	3000	29000	32000
Gabon	1348	8608	9956	940	9646	10586	940	6950	7890	307	10430	10737	394	16359	16744
Ghana	16020	2021	18041	16748	3058	19806	11484	1946	13430	16092	2383	18475	32569	9478	42047
Ivory Coast	12153	1244	13397	15927	4741	20668	12758	5618	18376	13970	7064	21034	31640	7064	38704
Kenya	1093	...	1093	1356	766	2122	1262	626	1888	1262	626	1888	1262	626	1888
Mozambique	6564	224	6788	6225	...	6225	6112	...	6112	7438	...	7438	7438	...	7438
Nigeria	4186	3380	7566	2893	2605	5498	2248	2691	4939	2248	2691	4939	2248	2691	4939
Tanzania	1596	301	1897	1676	350	2026	1382	380	1762	1382	354	1736	1382	354	1736
Uganda	455	...	455	697	86	783	513	56	569	513	56	569	513	56	569
Total Africa 1/	52868	26941	79809	64043	41385	105428	55858	39717	95575	65301	51597	116898	103903	86077	189980

1/ Including countries not listed above.
Source: FAO Yearbook of Forest Products Statistics, 1973

2/ Indicates not available

Table 4

EXPORTS OF MANUFACTURED WOOD PRODUCTS FROM SELECTED AFRICAN COUNTRIES

(in 1000 US$)

Country	1965			1970			1971			1972			1973		
	SITC 632 1/	SITC 821 2/	Total	SITC 632	SITC 821	Total	SITC 632	STIC 821	Total	SITC 632	SITC 821	Total	SITC 632	SITC 821	Total
Congo	... 4/	...	...	70	...	70	194	...	194	...	...	...	...	...	...
Ivory Coast	...	...	...	132	...	132	87	...	87	...	...	...	...	...	...
Kenya	...	...	...	959	125	1084	1148	161	1309	1329	284	1613	2243	486	2729
Mozambique	...	...	...	105	202	307	145	...	145	...	...	...	...	...	...
Tanzania	...	...	...	255	33	288	227	194	421	206	174	380	951	17	968
Uganda	...	...	...	128	...	128	327	...	455	194	...	194	.45	...	45
Total Africa 3/	...	...	...	5136	13574	18710	566	16523	17089	863	14435	15298	529	17452	17981

Source: UN Yearbook of International Trade Statistics - 1974 - Vol. 2

1/ SITC 632; Manufactured Wooden Products, excluding Wood-based Panel
2/ SITC 821; Furniture
3/ Including countries not listed above
4/ Indicates not available

Integration of Secondary Wood Processing Industries

Secondary wood processing industries should, whenever possible, be integrated vertically with already existing primary wood processing industries (or complexes to be established in the future), for the following reasons:

a) Managerial skills in industrial operations are scarce in developing countries. By integrating into an existing operation fuller use can be made of managers with proven industrial experience in this sector;

b) The utilization of the existing forest resources could be improved (i.e. more cubic metres harvested from a given area) since lesser known (or to be more exact, commercially lesser desired) species can be utilised for certain end-uses, in conjunction with primary (commercially desirable) species, thus also lowering the cost of infrastructure in forest roads, etc. per unit volume extracted from the forest;

c) Secondary wood processing industries can often make full use of sawnwood which, because of its defects and/or because of its size - less than 6 ft - cannot normally be marketed at profitable prices. One must bear in mind that the longest piece of timber in a standard chair is less than 3 ft (90 cm) long, while the front legs and all the rails are only about half that length. The establishment of a furniture plant can make full use of shorts and extra shorts of prime species for which commercial demand is often slack;

d) Integrated woodmaking complexes, established in rural areas help to develop industrial employment in these areas and the creation of social facilities;

e) Integration allows for better ancillary services (such as tool and machine maintenance, ordering of ancillary materials and spare parts, etc.) than a small un-integrated secondary woodmaking plant could afford;

f) Lower capital investments are possible through integration because of economies of scale in power plants, equipment for tool and machine maintenance, boilers, etc.;

g) Common marketing, and common marketing and administrative staff is possible and the financial position of the company can be improved provided that flexibility and independence of individual operations is maintained.

On the other hand integration calls for higher management skills because the problems of allocation of raw material supplies, financial and personnel management, planning of preventive maintenance, etc. are more complex than in an enterprise of similar size producing only one product.

Problems which have to be overcome:

a) Infrastructural problems

The secondary wood processing industries generally call for a higher developed infrastructure than primary wood processing plants.

Because plants are smaller, they rely more often on electric power from the national grid; harbour facilities have to be better developed to ship finished products that can neither be floated nor left out in the rain. In fact, shipment in containers - wherever feasible - is a great advantage in the export of furniture components, knocked down furniture, joinery products and miscellaneous woodware. Secondary wood processing industries also often call for higher educated staff in fields such as quality control of inputs (glues, surface finishes), processes and finished products, and the testing facilities in local research institutions, or universities, are more often utilised for research and product development work than is the case with primary wood processing industries.

b) Technical problems

These vary considerably depending on the product being manufactured. Among the major problems that are common to most secondary wood processing industries are:

i) the selection, as far as possible, of lesser known species - so as to make fuller use of the forest resources - that have compatible strength, shrinkage, durability and other properties for use in any given product;

ii) the development of appropriate drying schedules, machining characteristics, surface finishing processes, etc. for these lesser known tropical hardwood species to suit their characteristics through adaptation of schedules and processes already used in the developed countries for the commercially known species;

iii) the adaptation of machinery and products (glues, surface finishes, fittings, preservatives, etc.), developed for temperate zone hardwoods, for use for tropical hardwoods;

iv) the training of personnel in these skills.

c) Quality control

Because the secondary wood processing industries in developing countries have far higher overheads than the craftsmen they might have to compete against, they have to sell on a quality and not on a price basis, hence the need to introduce stringent quality control procedures. In the case of export of these products, this is doubly important because even if the purchaser were to accept low quality products, in many instances these would have to be shipped un-assembled or at least partly assembled (knocked down) so as to save on shipping costs. This necessitates machining to a precision whereby parts are interchangeable hence the need for stringent quality control.

d) Marketing channels

Normally the marketing strategy differs according to whether a product is manufactured for the local or export market.

When selling manufactured wooden products on the local market, the plant has, in many instances, to develop its own retail channels or outlets because the local distribution network is not sufficiently developed.

The smallness of the market means that a wide range of products has to be produced and size of batches are smaller than would be justified from a production planning point of view. Many developing countries that have embarked upon the industrialization of their secondary wood processing industries have catered initially for the Government and other institutional buyers because on the one hand these clients offered the size of series necessary to produce industrially, while on the other hand, the industry was the only local producer who could deliver the relatively large quantities on time. Increased tourism in the developing countries has helped the development of the furniture industry because it has created a demand for larger series of identical furniture which could best be produced. In many countries the end of the local hotel building spree has led the manufacturers of secondary wood products (such as furniture and joinery) to enter export markets. The experience gained in catering for the local market has prepared them well for their new tasks.

Exporting secondary wood products calls for a different marketing approach. Although the developing countries have an advantage through the availability of wood raw materials and labour at generally lower costs, the exporting of manufactured wooden products calls for a careful study of the following major activities:

i) compilation of market information data to determine requirements of the markets, commercial practices and marketing channels;

ii) the development of new marketing channels, bearing in mind that the agents and clients that might have been trading with firms in the developing country for its export of semi-manufactured products are not necessarily specialized to deal with manufactured products since these importing firms are not in the business of selling manufactured products, their clients being often potential competitors of the plant producing manufactured wood products in the developing country;

iii) the development of designs - or the purchase of designs on a royalty or other basis - acceptable to the markets to which it is intended to export; or the adaptation - both from a technical and aesthetic point of view - of the existing local designs to suit the market preferences and standards requirements of the markets of the country of destination;

iv) one of the major technical problems that occurs in the shipment of manufactured wood products from the hot humid climate typical of tropical countries that have rich forests to drier climates is the problem of stabilizing the moisture content of the wood at a level compatible to its equilibrium moisture content under the drier climatic conditions of its final destination (including premises that are either air conditioned or centrally heated). This is a major technical problem affecting exports of solid wood furniture from developing countries to the developed countries;

v) the preparation of appropriate brochures and other publicity material (aimed either at technical specifyers or the general public) in the appropriate language, to promote the articles being produced;

vi) the eventual financing of an advertising campaign and/or the participation in international trade fairs (preferably of a specialized nature);

vii) the development of an appropriate packaging technology for the products manufactured;

viii) the selection of the most appropriate shipping route and method.

<u>Implementation of plans for the development of the secondary wood processing industries</u>

The development of secondary wood processing from craft to industry in the developing countries can best be achieved by preparing detailed complete techno-economic feasibility studies for such plants - be they integrated into existing primary wood processing plants or established as independent entities.

Such studies should be prepared by independent specialized consulting engineering firms and should be based on detailed raw material and market surveys. Selection of machinery for secondary wood processing plants is more important (and more difficult) than for primary wood processing plants because the range of equipment and its level of automation for any given function is far larger. Equipment selection and plant layout is dependent <u>inter alia</u> on the labour intensity chosen, the range of products to be manufactured, the size of batches, raw materials used, etc.

In many instances the secondary wood processing plants in developing countries have been established on an <u>ad hoc</u> basis in which improvisation replaced planning, with no preliminary market surveys. Needless to say that the "mortality rate" of such plants was exceedingly high.

Secondary wood processing industries in developing countries should be established as industrial undertakings (with adequate production planning, process and quality control, cost accounting, etc.) even if, because of the relative low cost of labour and its relative high productivity, the production would be using labour intensive methods.

Over the past years many countries in Asia, Latin America - and even in Europe - have requested UNDP/UNIDO assistance in the development of their secondary wood processing industries. They have obtained short term assistance in the preparation of complete techno-economic feasibility studies, product design and development, production planning and control, quality control, as well as in specific fields such as selection of equipment, glue technology, surface finishing, etc. Requests from the developing countries of Africa have been less numerous than those for other areas.

This direct technical assistance given by UNIDO was complemented by five Seminars on Furniture and Joinery Industries for Developing Countries, held in Finland and jointly sponsored by the Government of Finland (attended by 122 participants from developing countries) as well as a Technical Meeting on Selection of Woodworking Machinery (1973) and a Workshop on Wood Processing (1975). In 1976 UNIDO will be convening a Technical Course on Criteria for the Selection of Wood Working Machinery in collaboration with the Italian Government during the forthcoming woodworking machinery fair to be held in Milan.

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