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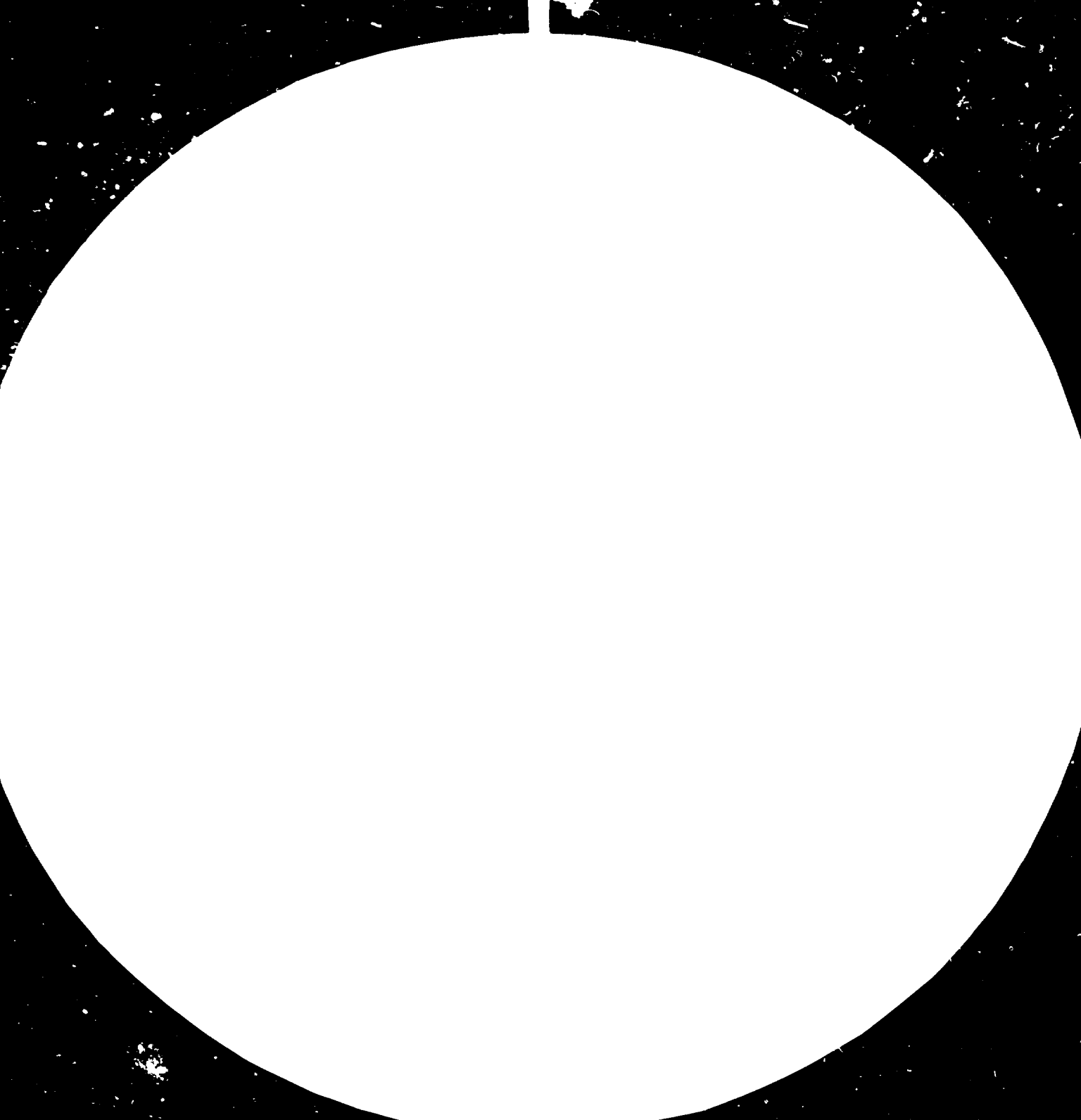
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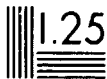
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W. M. COLBY, JR., 1117 N. 10th St., Milwaukee, Wis. 53233

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Seminar on Economic Criteria for the Selection of  
Woodworking Machinery and Plant Systems  
Hannover, FRG, 19 May to 2 June 1981

THE WOODWORKING INDUSTRY IN GHANA \*

by

William Kofi Ashiabor\*\*

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\*\* Director, Kumasi Furniture and Joinery Company Limited, Kumasi.

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1. Present Situation of the Woodworking Industry

The woodworking industry is one of the most important in the economy of the country. It has a very long tradition and at one time was the second most important foreign exchange source for the country. It is now rated third, cocoa being the first followed by mining - gold, diamond, bauxite, manganese. The timber industry is mainly logging, sawmilling, plymilling, veneers, chipboard, furniture, mosaic parquet and matched flooring. The government is considering a programme in injecting capital and inviting financial assistance for the industry. As this is still under consideration no definite information can be given. The programme will naturally have to give outside financiers favourable and attractive terms.

The industry is faced with problems which are the effect of global inflation on the economy of the nation. There has been a decline in production and under utilization of capacity in general.

The woodworking industry faces the following problems:

- (i) Insufficient allocation of foreign exchange necessary for purchase and importation of spare parts to repair broken down and deteriorating machinery or purchase new and modern machines to replace old and obsolete ones. There is also a limitation of imported inputs.
- (ii) Absence of facilities for the manufacture of spare parts locally.
- (iii) Lack of skilled labour due to exodus of skilled workers to neighbouring countries. Insufficient local training facilities resulting in wastage both in logging and sawmilling due to lack of proper education.
- (iv) The cost of production locally is very high and makes prices uncompetitive on the export market.

- (v) There is fragmentation of Forest Concessions resulting in inefficient logging. There is indiscriminate conversion of unused forest to farmlands.
- (vi) There is deterioration in logging and haulage facilities and the railway system.
- (vii) The handling facilities at the ports are old and poor and shipping problems further compound the above listed ones.

## 2. Forest Resources

The hot wet tropical forest runs through the southern portion of Ghana and is the main source of raw material for the timber industry. The forest can be classified into two thusly:

(1) Closed Forest	82,259 square kilometres
(2) Savanna Woodland	156,281 " "
	<hr/>
	238,540 " "

The closed forest which formerly covered about 30 per cent of the land is now reduced to barely 9 per cent as a result of exploitation and indiscriminate conversion to farmlands. The closed forest is the source of raw material for the timber industry.

Plans have been initiated for reforestation using the following techniques:

- a) Direct Plantation;
- b) Conversion by Tungya;
- c) Conversion by Enrichment Planting,

and in 1974 a total of 6,680 hectares were planted and 4,453 hectares in 1975 throughout the country. The species most favoured to planting are Parrieta species (Niangon), the Triplochiton scleroxylon (Obeche, Wawa), Cedrela, Mansonia and Eucalyptus species in the high forest.



Although there are over 200 different species of timber in our forests only a few are known on the world market. The species most used in the furniture industry are Mahogany, Sapele, Aframosia, Utile, Mansonia and in construction Odum (Iroko), Kusia, Ofrormosia, Dahoma, and Wawa (Obeche) for shuttering.

Ghana does not import logs or timber.

The problems associated in the forest resources are included in those listed earlier for the industry in general.

### 3. Primary Wood Processing Industries

Ghana is able to meet all its domestic needs from local sources and this sector also exports logs, lumber plywood, veneer, chipboard. The primary wood processing is the backbone of the nations timber industry and the main foreign exchange earner. The Government attaches great importance to it. The Ghana Timber Marketing Board which exercises general control on the timber trade has adopted a policy of banning export of some round logs, squared logs, and boards of the following fourteen species in order to ensure continuous log supply to local industry in correct grades, sizes and species. The affected species are:

Aframosia, Hyedua, Walnut (African), Mansonia, Utile, Sapele, Niangon, Mahogany, Makore, Edinam, Avodire, Candolei, Odum (Iroko) and Teak.

The distribution of firms in this sector in 1980 is as follows:

<u>Type</u>	<u>Number</u>
Loggers	120
Log Exporters	40
Sawmillers	95
Plymillers	10
Slicers (Veneer)	25
Peelers (Veneer)	12

The figures above are not additive as many of the firms listed conduct more than one operation. In addition there are many other

small size mills (mobile sawmills and on a declining scale pit saws).

The installed capacities in 1980 levels are:

Type	Installed Capacity (m <sup>3</sup> )
Sawmills	1,100,000
Plymills	98,000
Veneer	45,000
Chipboard	15,000

Production in 1,000 m<sup>3</sup> over the past three years was:

Year	Logs	Lumber	Plywood	Veneer	Chipboard
1978	1,075	315	43	23	7
1979	882	258	65	28	6
1980 *	1,208	300	70	70	8

\* Projected Figures

Expressed as a percentage of installed capacities it is:

1978	50	61	58		55
1979	40	50	55		50
1980 *	40	50	45		55

Revenue from exports in US\$ 1,000,000 are:

Product	1978	1979	1980
Logs	37.6	18.6	13.8
Lumber	20.5	20.5	26.3
Plywood	5.3	5.9	7.1

The increase in installed capacities did not show corresponding increase in output due to general decline in the industry.

The distribution of sawmills by sizes are: (95 in total)

Cubic Metres Per Annum	Number
36,000-60,000	7
12,000-36,000	15
6,000- 6,000	21
Below - 6,000	52

The range of products manufactured by this primary sector are:

- 1) Logs;
- 2) Lumber of various species, sizes and grades;
- 3) Plywood and veneer of various species facing, thickness and grade;
- 4) Chipboard of various species facing, thickness;
- 5) Corestock;
- 6) Railway sleepers;
- 7) Transmission poles for domestic use.

The traditional and prominent importers of Ghana's timbers are: the United Kingdom, the Federal Republic of Germany, Italy, Holland and Spain.

New and potential markets are Malta, Iran, Pakistan, Cyprus, Canada and the neighbouring African States.

Marketing channels are by export direct to manufacturers Agents and by bulk shipment.

The equipment installed in sawmills vary somewhat with the annual capacity which is in the range of below 6,000 - 60,000 m<sup>3</sup>.

A typical mill will have the following machinery:

- 1) Gantry/Derrick crane of 5 to 15 ton capacity;
- 2) Chain conveyor system to feed the logs to the bandmill carriage;
- 3) A bandmill with 1,800 mm wheel (common size) using a blade of 260 mm width;
- 4) System of roller conveyors to carry the saw flitches to a resaw mill or edger;
- 5) Cross-cut saw for cutting to specific lengths;
- 6) A dipping tank in some mills for treatment of the finished lumber (some species) before storage for marketing or air-drying.

The trend is mainly towards automation and vertical integration of the sawmills as listed on the following page.

Automation: Replacing dead rollers with live ones, manual saw dust conveying is giving way to conveyor saw dust extraction and installation of storage bins.

Expansion: Installation of new machinery for slicing, flush doors, door frames, tool handles and furniture.

Renovation: Obsolete equipment and machinery are being replaced with new and modern ones of improved design.

Problems: The problems in this sector have been grouped with those listed earlier.

#### 4. Secondary Wood Processing Industries (Furniture and Joinery)

There are over 40 main carpentry and joinery factories. In addition there are many joiners operating with one to half a dozen workmen. The products are mainly items of household furniture, office furniture and fittings, flush doors, profile boards and mouldings, tool handles, toys, television and radio boxes and in one or two cases soles for clogs. Very few firms make knock-down furniture for export. There is one factory which produces units for prefabricated houses together with T and G boards.

Product designs are more or less similar to the traditional with very little new introduction into the system. The level of production is very difficult to pin-point but is sufficient to meet the local demand. Ghana does not import wooden furniture commercially, however, personal furniture of , say, those residing outside of the country and returning home are permitted.

As very few companies have kiln driers, export of knock-down furniture is very low. It is, however, on the increase as some mills are installing kiln dryers and are able to meet moisture content requirements of the importing countries which are the United Kingdom and Scandinavia. The usual channel is direct export to overseas customers through Agents.

The technical level of the furniture and joinery factories varies quite a lot given the size of the factory. The small local manufacturer uses mainly manual labour and hand tools and equipment is normally

limited to an air compressor and spraying gun for lacquer coating. The bigger and more modern factories or additions to sawmills, of course, use mechanical methods and are reasonably well-equipped with the basic woodworking machinery. Equipment installed in such a typical larger factory will include:

- Band saw or band resaw
- Cross-cut saw
- Planer and/or planner-thicknesser
- Tenoning machine
- Chain or Chisel mortiser
- Spindle moulder
- Wood turning lathe
- Mortising machine
- Drilling machine
- Belt sanding machine
- Spraying equipment
- Upholstering machines

The very few factories that make knock-down furniture for export have seasoning kilns but generally timber for furniture is air-dried.

Development trends in the furniture industry are mainly integrated within the existing sawmills.

Problems of furniture and joinery industry are generally those affecting the timber industry as a whole but specifically there is a general lack of machines and automation. There is lack also in expertise in product design, selection of machines and plant systems and layout with the proverbial lack of spare parts. The industry faces frequent shortages of imported inputs like lacquer, thinners, upholstery materials and resulting in high cost of these things.

##### 5. Institutional Infrastructure

The Government set up the Ghana Timber Marketing Board which regulates and controls both domestic and export trade of the industry in the best interest of the country. There is also Ghana Timber Association to which the firms operating in this sector of the economy

belong and it seeks their welfare. Over a year ago furniture producers also formed their own association known as the Ghana Furniture Producers Association.

There are no specific national standards for timber with legal backing but due to the country's long association with the United Kingdom, lumber is produced and graded generally to British specifications. Export orders, however, are produced to the specifications of the buyers.

Special institutions or consulting firms providing assistance to the timber industry do not exist and in cases of new factories or extensions consultancy is provided from outside usually by the supplier of equipment of final details like civil, structural, mechanical and electrical services based on skeleton layout from the supplier.

#### 6. Labour

The industry faces labour problems due to drift of skilled and trained personnel to other countries and lack of educational institutions specifically for the industry. Though there is skilled personnel in the country demand is very high.

There are a few vocational institutions and polytechnics that run courses in basic woodworking. There is one forestry training school for technical and intermediate staff in forestry but none for logging and sawmilling. There is a two-year Forestry Diploma Course at the University of Science and Technology and also a post graduate course on Wood Technology and Management which is now receiving technical assistance in the form of staff and equipment from the Federal Republic of Germany.

#### 7. Local Manufacture of Woodworking Machines

There is no local manufacturer for woodworking machines, tools and spare parts. One factory is however in the process of establishing a section for the manufacture of spare parts to service the industry.

There is no restriction in the source origin or type of woodworking

machines excepting for the allocation of import licence and provision of foreign exchange for such items.

8. Energy

Energy from the industry is mainly from the country's hydro-electric project at Akosombo with installed capacity of 912,000 kilowatts and a national grid system of 936 km at 161 kv, extended to all important industrial areas in the southern part of the country. The national consumer supply is at 220 - 230 V single phase or 430 V three-phase at 60 cycles per minute.

There is a second dam under construction at Kpong, a few miles downstream of the first one. It is almost completed and at the time of writing the reservoir is being filled. This new dam will have an installed capacity of 144 Mw and is likely to be commissioned in about two months.

In addition to the above, there are numerous generators using oil for fuel which serve other parts of the country not served by the national grid system.

The country has abundant electric energy and sells power to two neighbouring countries - Togo and Benin.

In the case of a couple or so large and integrated mills set up in the heart of the high forest, electricity is generated by burning waste materials for steam to drive the generators.

The current pump price of oil per imperial gallon is US\$ 4.11 for 95 octane, US\$ 3.82 for 84 octane and US\$ 2.18 for gas oil.

There is generally a lot of waste in the industry starting from logging operations down to final stages of sawmilling and furniture manufacturing. Saw dust generally has no use and but off-cuts are used for domestic fuel as firewood or converted to charcoal for the same use. Better use is made of waste from sawmill in a few cases by the manufacture of blockboard, matched and mosaic parquet flooring.

