



TOGETHER
for a sustainable future

OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.



TOGETHER
for a sustainable future

DISCLAIMER

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as “developed”, “industrialized” and “developing” are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

FAIR USE POLICY

Any part of this publication may be quoted and referenced for educational and research purposes without additional permission from UNIDO. However, those who make use of quoting and referencing this publication are requested to follow the Fair Use Policy of giving due credit to UNIDO.

CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org



05204



Distr.
LIMITED

ID/WG.163/9
6 August 1973

ORIGINAL: English

United Nations Industrial Development Organization

Seminar on Furniture Industry

Lahti, Finland, 6 - 25 August 1973

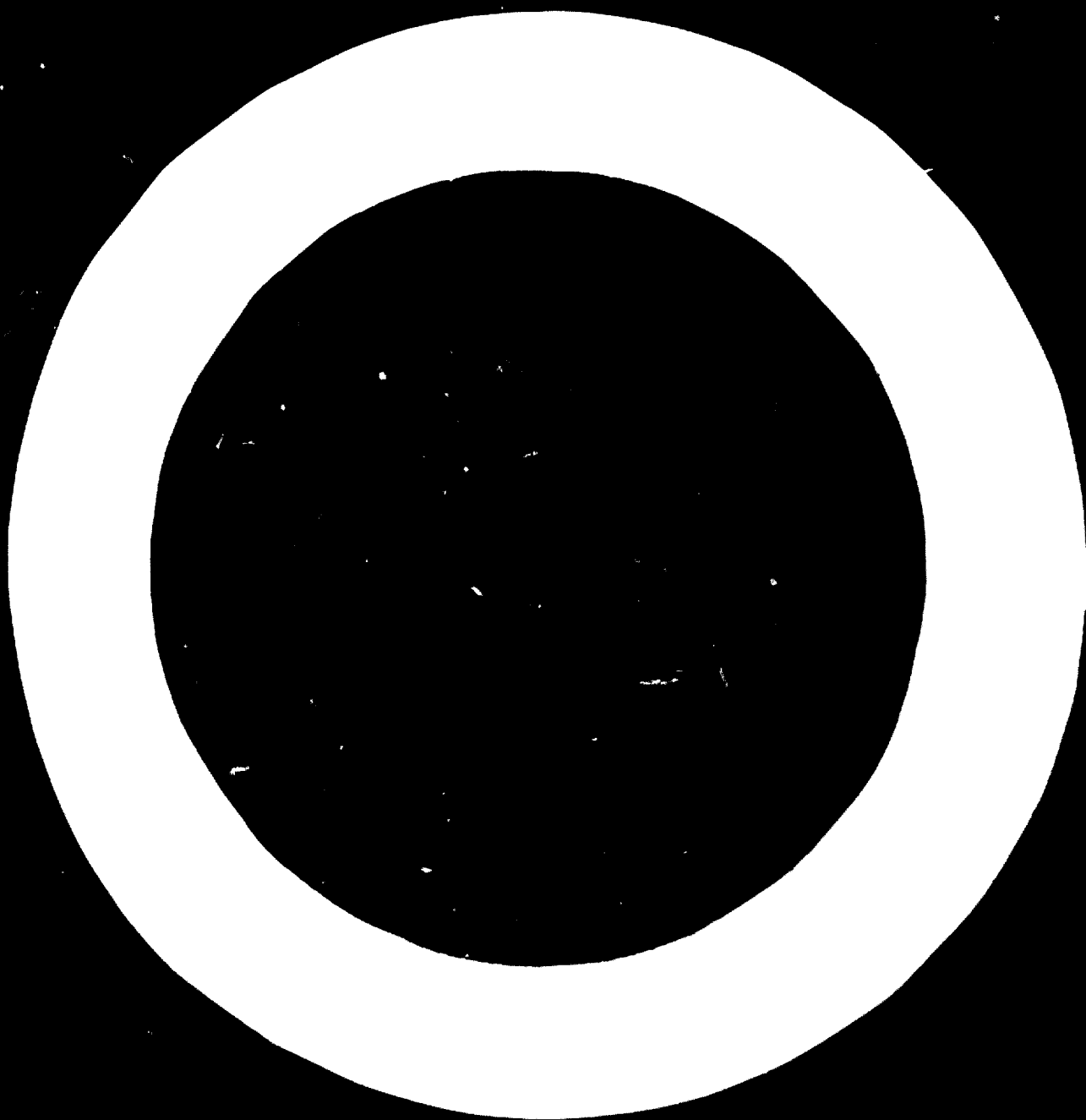
THE CURRENT STATUS OF FURNITURE AND JOINERY INDUSTRIES ^{1/}
IN GHANA AND THEIR FUTURE PROSPECTS

by

P.K. Essiav
Ghana

^{1/} The views and opinions expressed in this paper are those of the author and do not necessarily reflect the views of the secretariat of UNIDO. This document has been reproduced without formal editing.

We regret that some of the pages in the microfiche copy of this report may not be up to the proper legibility standards, even though the best possible copy was used for preparing the master fiche.



There has been a rapid growth in the development of furniture and joinery industries in Ghana between 1957 and 1973. The growth could be described in socio-political as well as economic terms. Long before the growth and development of the factory system and therefore large scale production in Ghana, there existed the traditional one-man business in the field of furniture making in the country.

Even though, the traditional system was very slow and labour-intensive, yet it was able to satisfy local demand especially in so far as the demand for furniture and traditional stools was concerned. However after 1957 (after independence), because the government had to embark upon certain projects, especially infrastructure (such as schools, hospitals etc.), the traditional system was found to be inadequate. The government therefore set up furniture and joinery units attached to certain strategic departments for non-commercial purposes. The Public Works Department had a furniture and joinery unit which was charged with the construction of furniture for government bungalows. The Railway & Ports and Post and Telecommunications Departments also had their furniture and joinery units to cater for their respective needs.

It became apparent through the operations of these pioneering non-commercial furniture and joinery units that the government could set up a viable furniture and joinery factory for commercial purposes to meet the local demand for furniture. Therefore in 1960, the State Furniture Corporation was formed to meet the needs of the public in so far as the demand for furniture was concerned. However, despite the formation of a State Furniture and Joinery Factory, the government realised that the volume of local demand (both tapped and untapped) was too large to be satisfied by one factory. The government therefore decided to support the establishment of private furniture and joinery factories. Between 1960 and 1962, 6 private furniture and joinery factories were established. By January 1973, the number of private furniture and joinery factories had increased from 6 to 11.

Another important reason for the rapid growth of furniture and joinery factories in Ghana is the overseas demand. Partly because of excess production capacity as a result of large scale production and partly because of the desire to export, private furniture and joinery factories in Ghana started to produce furniture parts to meet the specifications and designs of the overseas customer.

Broadly speaking, the furniture and joinery industries in Ghana can be described under two groups; namely the government sector and the private sector. The government sector can be sub-divided into commercial and non-commercial units. The commercial unit is the Ghana Timber Marketing Board's Furniture and Joinery Factory situated in Kumasi, formerly called State Furniture Corporation. The non-commercial units of the government sector are the furniture and joinery factories of the following departments and corporations. They are Public Works Department, State Construction Corporation, State Housing Corporation, Post and Telecommunications Department and Ghana Railway & Ports Authority.

The government sector is characterized by economies of large scale production - that is machinery, a high level of technology, and a large labour force. Most of the wood working machines are of English origin. It is quite recently that modern wood working machines of different make are being used in Ghana. Some examples of both old and new machines being used in Ghana are WADSWORTH machines, SAGAR machines, ROBINSON machines and some German-made machines.

The private sector of Ghana's furniture and joinery industry is characterized by production for commercial purposes. This sector can be sub-divided into modern and traditional units. The technology and mode of production in the modern units of the private sector relate to that existing in the government sector. Therefore, the modern private sector is also characterized by economies of large scale production - that is better machinery, a high level of technology and a large labour force.

Because of the high cost of road working machines in Ghana, very few well-established furniture and joinery factories use drying kilns in seasoning their timber. Most of them depend largely on natural/air-dried seasoned timber obtained from the mountains. There are at least 6 factories which have drying kilns.

The traditional unit of the private sector of Ghana's furniture and joinery industry is commonly referred to as the Wayside Carpentry shops. This unit makes tables and chairs for individual consumers according to their respective specifications. The level of technology is low and the mode of production is labour-intensive. Most of the furniture produced in Ghana, especially the loose furniture is exported to countries around Ghana. There are only 3 furniture and joinery factories in Ghana which export furniture parts. At the moment in Ghana, there is a great demand for furniture and joinery products both for export and for local use. This is an area where foreign investors who are interested in Ghana's timber trade should catch in and invest.

Ghana has a large forest estate which is rich with many timber trees. Ghana has at least 200 different timber species which could be used for decorative, utility and structural purposes. The decorative timbers are utile, mahogany etc. while the utility timbers are Wawa, Ofram etc. The commercial species/lesser-known species constitute the bulk of Ghana's structural timbers. The brochure on Ghana Hardwoods, as well as the supplementary ones compiled by the Board's Wood Library Unit, spell out the potentialities of Ghana's woods. Most of Ghana's woods can be used for furniture and joinery purposes. Suffice to say that some of the timber species are African Walnut, Mansonia, Danta, Afrermesia, Avedire, Scented Guarea and Hyedua.

The furniture and joinery sector is a fertile area for foreign investment and any investment made in this area is bound to be viable. Any investor may like to know at least the mechanical properties of some

of Ghana woods. This paper would therefore attempt to give a short illustration on the potentialities of Ghana woods, especially in so far as the furniture and joinery industry is concerned. The illustration would be on such species as African Walnut, Mansonia, African Mahogany, Sapele, Afrormosia, Makore, Avodire and Danta.

AFRICAN WALNUT The standard trade name is African walnut. The heartwood is gold-brown, often with black streaks, which originated the name "African Walnut". It is medium hard and the medium weight is 35lbs per cubic foot at 15% moisture content. It works easily by hand and machine tools. It is recommended for a wide variety of interior joinery-paneling, moulding, cabinet work and furniture.

MANSONIA/APRONO Its standard trade name is mansonia and its local name is Aprono. A medium-sized tree up to 100ft. high and 11ft in girth. The sapwood is light coloured and the heart varies from light to a dark-grey-brown.

It is medium hard of medium weight of 39lbs per cubic foot at 15% moisture content. It is generally straight grained and of even texture.

It is very resistant to decay. It works easily with all hand and machine tools. It is generally used for piano cases, furniture shop, motor car fittings, camera bodies etc. It is also recommended for high class cabinet work.

AFRICAN MAHOGANY: The wood is medium hard and of medium weight averaging 35lbs per cubic foot at 15% moisture content. It is pink when cut, darkening to reddish brown on exposure. The grain is sometimes straight, but generally interlocked. It is used locally for furniture and cabinet making. It is also suitable for interior fittings in shops and railway coaches. It is also good for veneer.

SAPLELE: Its standard trade name is sapele and its local trade names are cedar or pankwa (Twi). It is a large tree which grows up to 200 feet

high and its median weight is about 40lb per cubic foot at 15% moisture content. It is medium hard. The heart wood is pinkish-red when freshly cut, darkening to a rich-red-brown. It saws easily and cleanly with little waste and works very easily. It takes nails, screws and glue well. It takes a high polish. It is recommended for furniture, panelling, shop and window fittings in railway coaches and ships saloons. It is used locally for furniture, joinery and carpentry purposes.

AFRERMOSIA/KCTHODUA - A large tree up to 150ft high and 11ft in girth, with an average exploitable girth of 9ft. It is generally straight boled, though tall buttressed may often result in fluted stems.

WOOD:- The wood is hard and medium heavy and the weight average 44lb per cu. ft. air dry and varies between 40-50lb per cu. ft., green weight is about 68lb per cu. ft. It is somewhat harder and heavier than Burma Teak.

This wood is reputed to be highly resistant to decay and insect attack. The strength properties of this timber is found moderately suitable for banding and it has a high abrasive resistance. The working qualities of this wood are such that the wood saws cleanly and works well; owing to interlocked grain, machined surfaces are liable to tear under normal conditions but this should be obviated by a cutting angle of 20°. It takes a good polish and is said to turn well. It has a marked tendency to split when nailed.

USES: The wood contains tannin which, under wet conditions, would cause discoloration to occur in the presence of iron-salts. This effect would not occur when the wood is used under nor when it is protected by varnish, etc. It is used as a substitute for teak in ships, decking and rails. It is suitable for high class furniture and flooring

and might be used with success for tool handles and dowels. It is a serviceable wood when strength, high durability and dimensional stability combined with an attractive appearance are desired.

MAKORE/BAKI - One of the largest trees of the forest and it grows up to 200ft high and 30ft in girth with an average exploitable girth of about 13ft, the clear bole may reach 100ft. It is peculiarly liable to be completely shattered or badly split in felling.

WOOD: The wood is moderately hard and of medium weight, with recorded air dry weights varying from 38-45lb per cu. foot and averaging about 40lb per cu.ft. Its colour varies from pale pinkish-brown to a rich-red-brown.

This timber is very resistant and one of the most durable local timbers. It is however, occasionally attacked by ambrosia and related beetles. The sapwood is susceptible to attack by powder-post beetles. The strength properties is equal in stiffness and maximum crushing strength to, but harder and with much greater resistance to splitting than mahogany. The wood is classified as moderately good for steam bending.

WORKING QUALITIES: It saws with some difficulty at least on circular benches, but cuts cleanly, and logs are markedly free from defects. It works moderately easily with both hand and machine tools. There is a rapid blunting of cutting edges and the blunting increases as the moisture content decreases. It takes screws/glues and polishes well but tends to split in nailing. It is suitable for rotary peeling and slices and it easily produces attractive veneers. The fine wood dust formed in some operations may irritate the nose and throat hence a good dust - collecting system is required.

USES: It is used for general construction, furniture and cabinet work and produces decorative panels and veneers. It is suitable for heavy plywood, and sliced veneers from figured logs are in demand for decorative purposes. It is also used for superior mill work and interior wood work. It is also used for exterior doors, laboratory benches, turnery and flooring.

It has been used for shaft guides in local mines and is an excellent sleeper timber.

AVODIRE: - A medium-sized tree which grows up to 110ft. high and 14ft in girth, with an average exploitable girth of 7ft. It is generally short boled and is frequently crooked and badly fluted.

WOOD: The wood has a natural satiny lustre and is pale cream, tending to darken to a golden-yellow with no distinction between heartwood and sapwood. The grain is often irregularly interlocked and such timber has a beautiful mottled figure when quarter sawn. It is firm, medium hard and of medium weight ranging from 31-37lb. per cu. ft. air dry with an average of 35lb. The texture is fine to medium and very uniform.

This wood is perishable, is liable to blue stain. Therefore, quick extraction and rapid conversion are essential.

The strength properties of this wood are such that the wood has good strength (properties) especially in bending and in compression along the grain. The working qualities of this wood are such that the wood works easily, finishes smoothly and polishes well. Preboring for nails is advisable in order to prevent splitting.

USES: Plain stock has been used for plywood, box boarding and railway coach penalling. It is a good whitewood suitable for general joinery work of all kinds.

DANTA: A medium sized tree reaching a height of 90 or 100ft and a girth of 10ft, with an average exploitable girth of about 7ft. The buttresses are small but well defined, often extending to a considerable height.

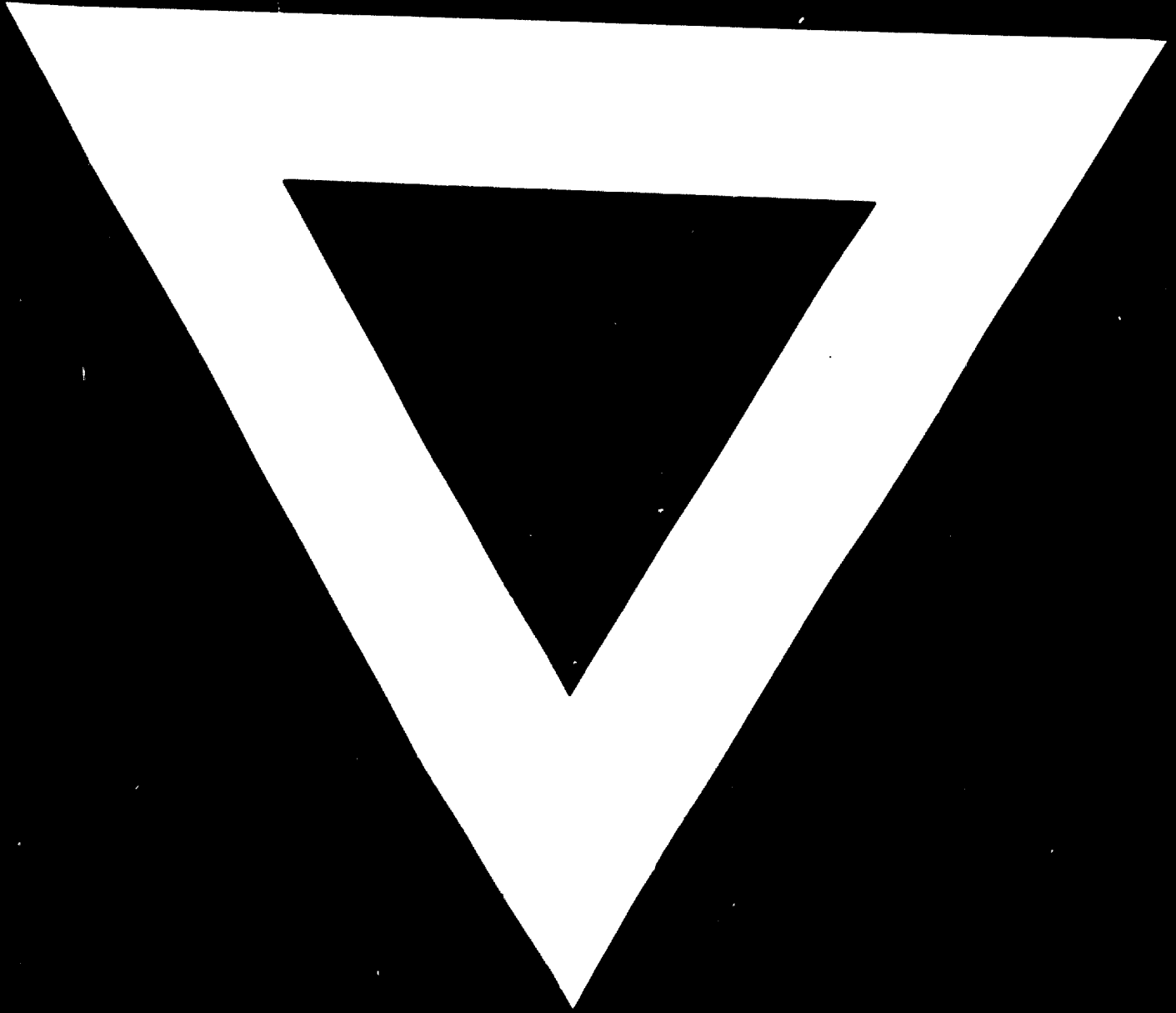
WOOD: The wood is hard and medium heavy, as about, when green. The heartwood is reddish brown and distinct from the sapwood which is light brown with slightly pinkish tinge, about 2 inches wide.

The wood has a fine, even texture. The grain is generally interlocked and when quarter-sawn it produces a striped appearance resembling sapele.

The durability of danta is moderately resistant. It is susceptible to attack by powder, pest beetles and sometimes by ambrosia beetles. The pin-knots that occur are not sufficiently numerous to constitute a serious defect. The working qualities of danta are such that the wood works easily and well with both hand and machine tools. A tendency for the grain to pick up in planing quarter-saw material can be overcome by reducing the cutting angle to 45°. It has a slight tendency to split in nailing, but it takes screws and glues well. The timber that is fairly free from pin-knots peels well and gives strong plywood. It turns excellently and takes a good finish and polishes well and requires comparatively little grain filler.

USES: The wood is suitable for wheelwright's and wagon work and possibly for railway carriage, lorry bodies and ship building and is widely used in Ghana for all kinds of tool handles and for gun stocks, and occasionally for furniture. It is also suitable for sports gear. It might be suitable for tight cooperage and it appears to be a promising plywood species. It is also used for flooring particularly where a decorative effect is desired.

Therefore it may be realised from this paper that the prospects of Ghana's timber industry and trade, especially in the furniture and joinery sector, are very bright. Once more, it is noteworthy to reiterate that Ghana's furniture and joinery industry is a fertile area for foreign investment.



2 . 9 . 74