



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

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 tape.



07013



United Nations Industrial Development Organization

Distr.
LIMITED
ID/WO.226/23
14 May 1976
ORIGINAL: ENGLISH

Technical Course on Criteria for the
Selection of Woodworking Machines

Milan, Italy, 17 - 26 May 1976

REPORT ON THE WOODWORKING INDUSTRY
OF EGYPT ^{1/}

by

Magdi Wahba Wardakhan *)

*) Maintenance Engineer of Egyptian Woodworking Industry

^{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.

14.76-2652

Woodworking industries constitute an important aspect of the socio-economy of Egypt. Our production covers the needs of the local market. This represents the combined efforts of both the public sector and private enterprise. The surplus covers the needs of other Arab countries.

The geography of Egypt is not suitable for forestry. Only about six million trees grow on the river banks and even these are not suitable for woodworks belonging as they do to the class of very hard woods. These include Casuarina Eucalyptus, Dalbergia Sisso, Albizia, etc.

We depend entirely on imports of logs for our woodworking industry with a variety of both softwood and hardwood species being imported from Europe, Africa and Asia.

Seasoning of timber:

Logs are normally sawn into blocks of 1" to 8" in thickness, depending on the purpose of processing. The sawn timber is seasoned in two steps i.e. air seasoning and then kiln seasoning. Sawn timber has a moisture content of 70 to 100 per cent because of climatic conditions in Egypt. It takes about two months in winter and one month in summer to reduce its moisture content to about 30 to 40 per cent. The next step is kiln drying where we get lumber with a moisture content of 10 to 15 per cent.

Problems with imported logs:

Importing logs has many inherent problems most of which include the delay in waiting for the cutting season and the time necessary for despatch from abroad until arrival in Egypt, which amounts to several weeks. This period is long enough to cause longitudinal shakes in the logs, while wide separations in the rings also occur. Also infestation with insects proceeds unchecked. Another delay involved is between the date of arrival and the completion of processing, which at times can amount to three months. Even under the best storage conditions the above mentioned defects continue unchecked. Owing to these problems the

efficiency of processing imported material is very low. This represents a big loss and is reflected in the lack of ability to compete with other plants.

Importance of the activity:

Primary wood processing industry constitutes the major part of woodworking industries in the public sector. This comprises four firms three of which are involved in primary processing while the fourth is involved in secondary processing. The raw material (logs) is processed into sawn wood, block boards, plywood and veneer. About 50 per cent of the product is marketed as such while the other 50 per cent supplies secondary wood processing industries in the public sector. The sawn wood industry consumes about 3000 m³. The production efficiency is about 70 to 75 per cent and of the remaining 25 to 30 per cent about 15 per cent is directed to subsidiary industries such as parquet, both mosaic and classic. A waste of 10-15 per cent is thus involved. The plywood industry consumes about 15,000 m³ with a production output of about 70 per cent grade AB.

The equipment installed is that usually found in sawmills and consists of an overhead crane in the timber yard, steam vats, peeler with complete roller set, pneumatic clipper, drier, two gluespreading machines, hydraulic press, high efficiency cutting saw, sanding machine. The sawing department includes a band saw, and a dry kiln. A complete line for mosaic and classic parquet is annexed.

Development trends:

A project planned for completion by the end of this year is intended to modernize the plywood industry. It aims at doubling the production and improving the quality. Another project is being considered to further develop the parquet industry to increase production so as to cover the needs of the local market.

Problems:

These include problems common to primary wood processing as well as those pertinent to specific factories, common problems are related

to faulty raw material. Loading among these are knots and shakes. Knots constitute a serious drawback because loose knots are bound to fall off leaving empty defects and this causes excessive waste. Deep knots, on the other hand, reduce the value of the wood if left in and if further processed again lead to excessive waste. Shakes obviously reduce the working efficiency of the raw material. Interlocked grain represents weak points which attribute to breakages. Added to these are problems related to the delay between importing and processing. These are to some extent inevitable. Problems related to the plywood industry are mainly related to the gluing material. This is an imported item. Though suitable as it may be to the environmental conditions in the countries of production it does not seem to fit our climatic conditions. As the glueing properties fail, the components of plywood split in parts or fall apart altogether. The secondary wood processing industries consist of a wide range of products such as bedroom, sitting room, dining room, furniture, also chairs and building components.

Product design in the furniture industry is the responsibility of a special department staffed with graduates qualified in fine arts. Different styles are produced to suit the varying needs of the various incomes of the people. Such styles include Islamic, Roman, French, Victorian, Modern, etc.

Furniture and joinery factories have not attained a satisfactory technical level. They are neither formative nor highly sophisticated.

Technological problems are partly related to the assembly of furniture and partly to painting. Owing to the lack of advanced mechanization in the furniture industry there is no mass production. Also, frequent re-adjustments become necessary due to lack of available spare parts. This situation reduces production and wastes time. Problems related to painting are numerous. Some paints are not well suited to our climatic conditions which leads to the appearance of cracks in the paint and to colour changes. The process of painting is also primitive, being performed by pneumatic guns. This involves considerable waste of paint and, moreover, affects the health of the personnel involved in the work.

Equipment installed includes saws, multi-rip saws, planing and thicknessing machines, moulder, surface planer, multi-mortising machine, belt sanders, horizontal sanding belts. These are installed in the lumber finishing department. A double circular saw, two multi-purpose machines, two sanding machines are used in the line of panel production, while a slicing machine, buffing machines, glue spreading machines, continuous press, sanding machine are attached to the gluing veneer line. The products of these three lines go to the semi-finished store from where they pass to the painting line. It is equipped with filling machines, sanding machine, curtain coating machine, drier, polishing machine. The material is then passed to the finished article store. Future developments call for more automation in the furniture industry to allow for mass production and improved standards. We also hope to shift to electrostatic painting to avoid the problems inherent in the use of pneumatic spray guns.

Labour:

About 1800 workers are employed by the public sector of woodworking industries. They are highly skilled particularly as the industry in general is only semi-automated and a fair part of the work is at least partly manual. One aspect of the work in particular is entirely manual, that of hard carving and decorating the woodworks. Availability of labourers is not a problem except in the case of manual skills. The sector has its needs in the various fields satisfied by the Ministry of Manpower graduates of the secondary schools industrial course are the usual candidates. Periodic (usually annual) courses of vocational training are arranged in collaboration with two centres. The labourers are assigned on a rotation scheme whereby each group receives a theoretical and applied course in its speciality. Labourers operating technically complicated machines are offered courses in a factory or country which produces the equipment or machines to familiarize themselves with the mode of operation of such equipment or machines.

Higher technical education is provided for the supervisors of different operations, as well as for the engineers responsible for the electromechanical aspects of the working machinery. This is provided

in different ways. The firm arranges study leaves to attend relevant postgraduate and applied courses in the Universities or Colleges of engineering with the object of obtaining higher degrees. Scholarships are also provided through the co-operation of Universities and Institutes, mostly abroad. Full use is made of technical courses on different aspects of wood working provided by UNIDO with the object of introducing the participants to the latest technical local manufacture and/or import of woodworking machines.

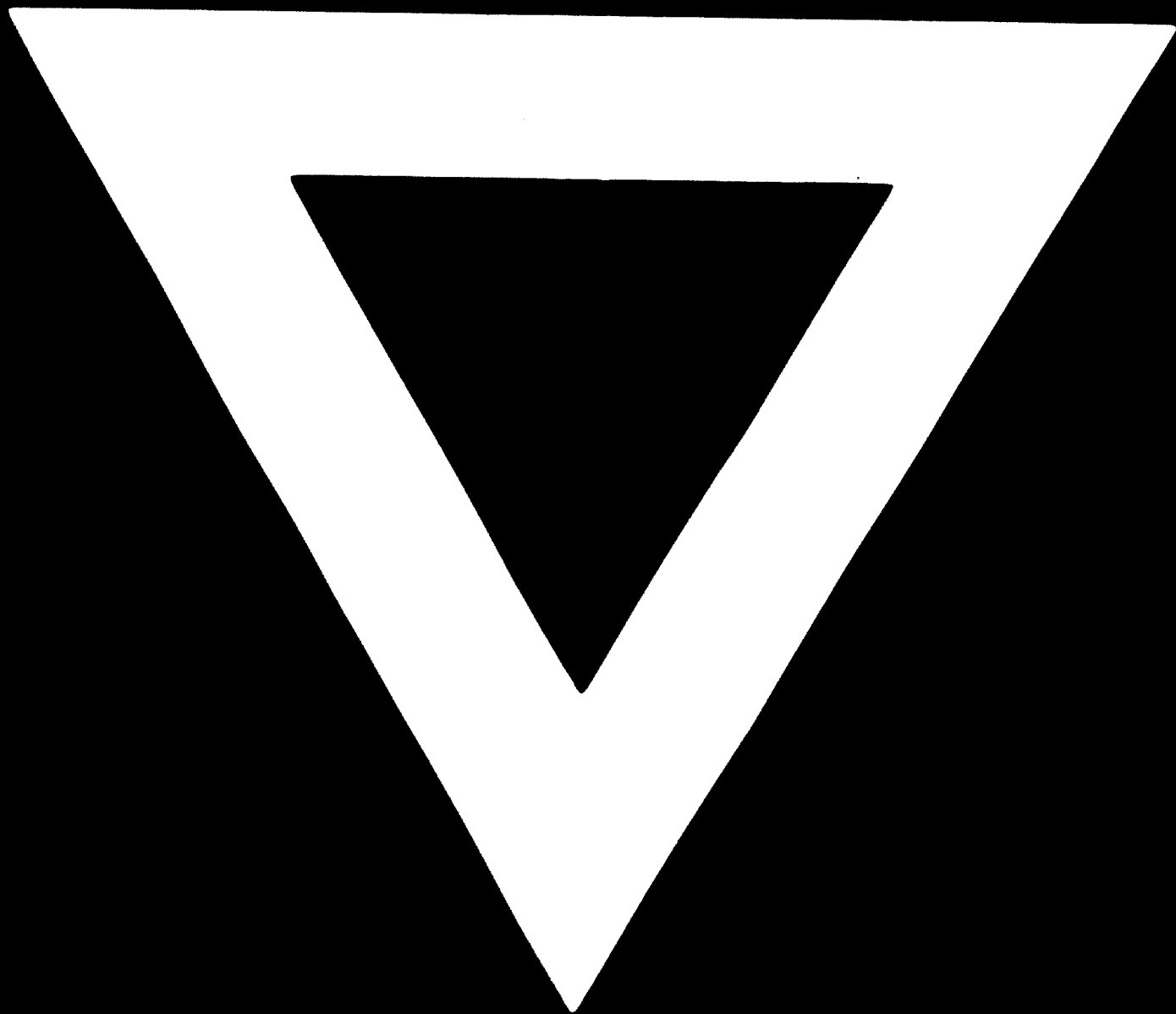
Insofar as heavy industry is not yet available in Egypt virtually none of the woodworking machines are manufactured locally. We depend entirely on imports. There are practically no restrictions on imports which is however supervised by the Ministry of Foreign Commerce. This provides the necessary facilities for hard currency while options of the countries of purchase are open and governed by the technological standards and price lists.

The producing firms provide for after sales services in several ways, such as supervising the installation of machines and instructing our labourers in their operation. Some firms arrange for free periodic check-ups of installed equipment while others provide facilities for consultation and inspection regarding any mechanical failures or operational problems of which might arise. Standard maintenance is covered by our engineers.

Problems are related mainly to faulty operation. The period which the experts stay initially is usually too short to instruct the operating personnel in the efficient operation of machines. This obviously leads to frequent faulty operation with inevitable mechanical breakdowns. Inseparable from this is the delay involved in ordering and supplying spare parts. Another problem is the difficulty we encounter in catching up with recent developments in the field of technology on woodworking machines. This is mainly due to reluctance on the part of producing firms to send us up-to-date literature on their equipment.



C-268



77.06.29