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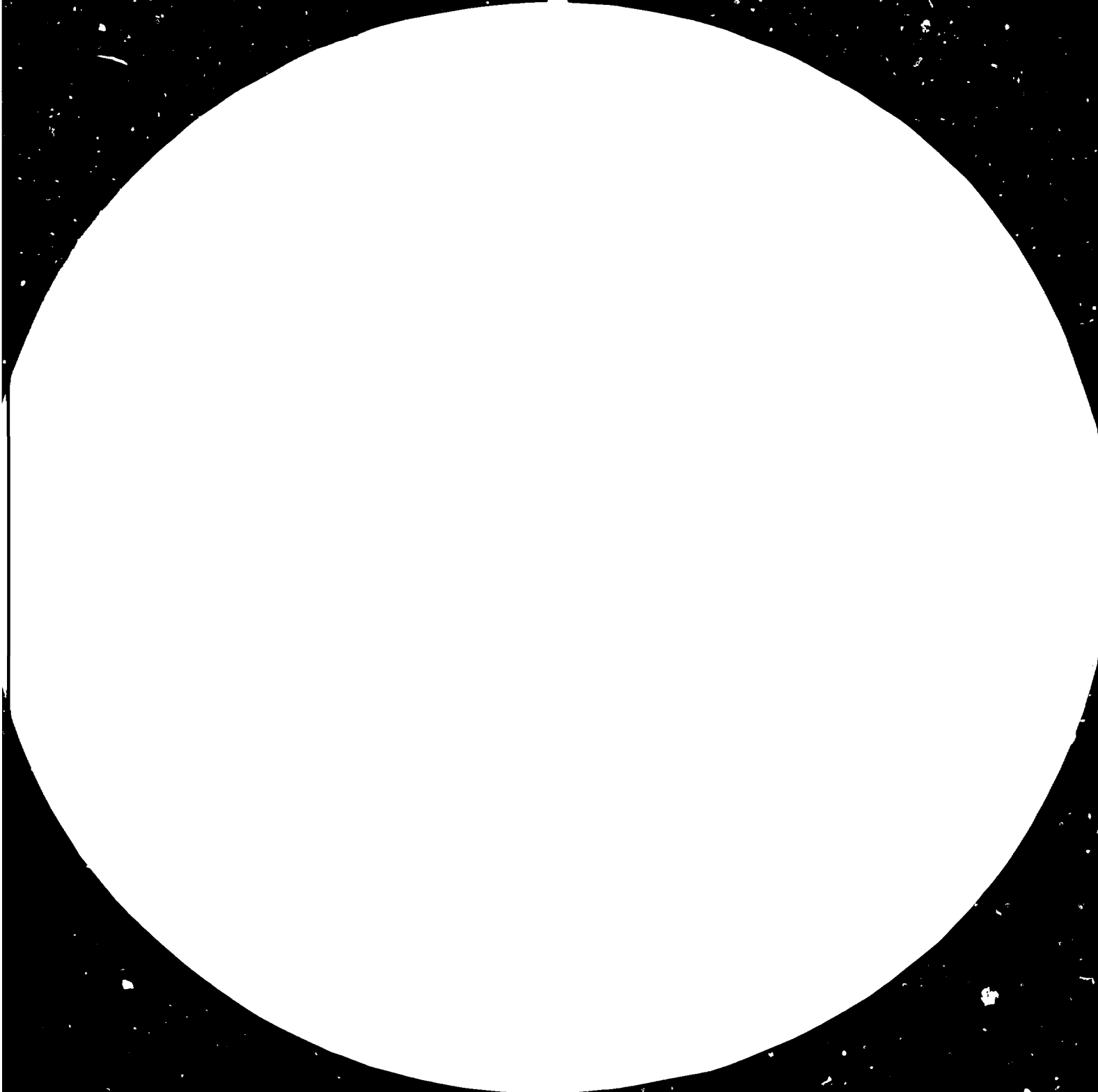
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MICROCOPY RESOLUTION TEST CHART

NATIONAL BUREAU OF STANDARDS-1963-A



12492



United Nations Industrial Development Organization

Distr.  
LIMITED

ID/WG.373/9  
13 July 1982

ENGLISH

Regional Meeting for Africa in preparation of  
the First Consultation on the Wood and Wood  
Products Industry, Vienna, 1982  
Vienna, Austria, 21-25 June 1982

WOOD AND WOOD PRODUCTS INDUSTRY IN KENYA \*

by

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### INTRODUCTION

Kenya's wood-based industry is primarily dependent on Plantation Forests made up exclusively of Exotic Softwoods. The two major timbers are Cypress (*Cupressus Lustanica*) and Pinus (*Pinus Patula* and *Pinus Radiata*). There is a very limited planting programme for indigenous hardwoods.

The indigenous forests although comparatively extensive (approximately 1.7 million hectares) is of less significance industrially due to the three factors:-

Firstly these forests comprise mainly of a Heterogeneous species composition of which many a lesser known timbers in the market.

Secondly where traditionally preferred timbers exist such as Cedar (*Juniperus Procera*), Podo (*Podo Carpus Gracilar* and *Millajiunus*), Camphor (*Ocotea Usambarensio*), Meru Oak (*Vitex Keniensis*) and Olive/Teak (*Olea Spp.*), these timbers have been over-exploited over the years and current harvesting has to be extremely selective.

Thirdly a large proportion of these indigenous forests are conserved for environmental protective functions particularly water catchment, soil erosion and again timing their industrial functions.

Nevertheless Kenya's indigenous forests form the major raw material base for the Plywood and high quality furniture industries, parquet flooring as well as the important wood-carving industry.

### WOOD RESOURCES

Way back in the 1940's the Kenya forest department embarked on an ambitious afforestation programme, forests of which now form the industrial wood base. Currently the Forest Department works on a planting programme target of over 6,000 hectares per year.

The department estimates man-made forests at about 160,000 hectares. Due to Kenya's favourable growth conditions attaining about 17 cu. m per hectares per year and a saw log rotation of about 27 to 30 years. At maturity a hectare of man-made softwood forest will yield in excess of 400 cu. ms.

An FAO/UNEP (refer to remarks no. 1) survey report estimates Kenya to have 1,055,000 hectares of industrially potential natural forest area containing 71.8 million cu.m. of which 52 million cu.m. is classed as Broad Leaved Forests, 8.8 million is classed as Coniferous and 11 million cu. m. is Open Forest.

Marketing Officer of Forest Department (1979) (refer to remarks no. 2) estimated plantation timber supplies of 12.6 to 13.8 million cu. m for the period 1981 - 1985 and 12.2 to 13.5 million cu. m. for 1986 - 1990 being potentially available for softwood and plywood. While Pulpwood supplies are estimated at 1.7 to 3.4 million cu. m. for 1981 - 1985 and 2.7 to 6.4 million cu. m. for 1986 - 1990 respectively (refer to remarks no. 3)

This potential wood resources can be summarised as follows:-

1) PRODUCTIVE INDIGENOUS FORESTS

a) Broad Leaved Forests	52.0 million M3 (120 - 180 M3/ha)
b) Coniferous Classed Forests	8.8 " " (40 - 85 M3/ha)
c) Open Forests	11.0 " " (20 M3/ha)
	Sub-Total
	71.8

2) INDUSTRIAL PLANTATION FORESTS (MILLION M3)

		<u>1981 - 1985</u>	<u>1986 - 1990</u>
a) Saw-wood + Plywood			
i) <u>Cypress:</u>	Clearfelling	2.847 - 2.878	3.332 - 3.369
	Thinnings	1.433 - 1.759	1.711 - 2.031
	Sub-Total	<u>4.280 - 4.637</u>	<u>5.043 - 5.400</u>
ii) <u>Pines:</u>	Clearfelling	6.662 - 7.161	5.314 - 5.711
	Thinnings	1.636 - 2.017	1.823 - 2.345
	Sub-Total	<u>8.298 - 9.178</u>	<u>7.137 - 8.056</u>
	GRAND TOTAL	<u>12.578 - 13.815</u>	<u>12.180 - 13.456</u>
b) Plywood (refer to remarks no. 4)	Cypress	0.884 - 1.542	0.763 - 1.331
	Pines	0.811 - 2.852	1.924 - 5.113
	TOTAL	<u>1.695 - 4.394</u>	<u>2.687 - 6.444</u>

#### REMARKS

- 1) FAO/UNEP (1981) Forest Resources of Africa : Tropical Forest Resources Assessment Project UN 32/6.1301-78-04 Tech. Report 2 FAO/UNEP Rome
- 2) Quantities in Potentially Industrially Productive Forests Only.
- 3) Kahuki G.D. (1979) Market Oriented Production Management of Forest Products Resources in Kenya MSc. Thesis, University of British Columbia, Vancouver.
- 4) Pulpwood estimated on two alternative rotations of 10 - 15 years and 15 - 20 years giving Lower and Upper Limits.

#### WOOD AND WOOD PRODUCTS INDUSTRY

Sawmilling is the major wood using industry in Kenya, consuming about 50% of the approximately 800,000 cu.m. of industrial wood harvested annually, the Panafrican Paper Mill, the only Pulpmill in the country consumes about 40% while the other Plywood industry accounts for approximately 7% with the other 3% going to the Fibreboard and Matches Factories.

#### SAWMILLS

It is estimated that Kenya has about 85 medium to comparatively large sawmills whose capacities vary from as low as 500 cu.m. to over 15,000 cu.m. per year of log intake.

There are 5 - 10 sawmills where annual intake is in excess of 15,000 cu.m. There are over a 1000 short term licences. Most of the sawmills are locally made, Circular Brake Down's and Roller Benches. Others have old Band Saw Brake Downs with Carriages and old Re-Saws. There are some mills which have in the past few years added new re-saws. There are about seven sawmills which have been installed, "Complete Sawmill Units." Out of these six are Japanese and one is Dutch. In the recent years there has been the introduction of Japanese Sawmills. One is fully-automatic while four are small ordinary sawmills. There back-up service and a resident Engineer provide excellent service.

The recovery rate of majority of the sawmills is below 30 - 35%. The bigger mills using Band-Saws for sawing are getting a recovery of 45% to 65%.

#### PLYWOOD INDUSTRY

There are four (4) Plywood factories in the country where annual total is about 60,000 cu. m.

The factories have intake capacities varying between 11,000 cu. m and 22,000 cu.m. per year and conversion varies 31 to 34%. The total production of plywood is about 19,000 cu. m.

While this sector relies heavily on indigenous species, they have progressively started utilization of softwood plantation timber i.e. Pines and Cypress.

The Following are 1981/1982 data:-

<u>PLYWOOD MILL</u>	<u>INPUT cu.m.</u>	<u>OUTPUT cu.m.</u>	<u>RECOVERY</u>
Rai Plywood	21,478	6,703	31.2%
Elgeyo Plywood	14,569	4,905	33.7%
Sokoro Plywood	11,525	3,891	32.0%
Kenya Veneer	11,123	3,560	33.8%
<b>TOTAL</b>	<b>58,695</b>	<b>19,065</b>	<b>32.6%</b>

The country produces plywood in excess of her requirements and imports are of grades not locally produced i.e. Marine Ply etc. Kenya exports Ply to the neighbouring countries.

#### FIBREBOARD PLANT

There is only one fibreboard plant which is run by Timsales in Elburgon using mainly Eucalyptus species and Little Wood waste from their Softwood Sawmill, which is also situated in Elbureon. The intake for 1979 was 4,076 cu.m. and 1980 3,718 cu.m.

#### PARTICLEBOARD PLANTS

There is a modern plant at Rai Plywood up-country from Nairobi using wood waste from his Plywood and sawmill operations.

There is another plant in Makuru which has old machinery and therefore, has production and quality problems.

#### MATCH FACTORIES

The biggest match factory is situated in Mombasa, which uses Pinus Patulla and Pinus Radiata Logs. The intake for 1979 was 4,500 cu.m. and 1980 was 6,736 cu.m. There is one small factory in Nairobi. The Mombasa Match Factory is putting up a second match factory outside Nyeri, which will be operating on Rawmaterial of Pines from the slopes of Mt. Abedares and Mt. Kenya.

#### PRE-FABRICATED HOUSES

In the last 10 years this secondary industry has certainly grown. The demand of these houses for small scale farmers, site offices for construction companies, camps for road contractors, schools, hospitals and government offices and housing for government officers and staff in the rural areas.



These are produced by the following companies; Timsales, Economic Housing Group, Yacoob Dean & Co. Ltd., G.D. Brothers, Forest Industrial Training Centre mainly, but now a lot of the smaller mills have also started which very encouraging.

#### FURNITURE MANUFACTURERS

The furniture factories vary in their size and operations and the the type of furniture they make. Previously almost all the furniture was made from indigenous hardwoods. But now as the hardwoods are getting scarce, there has been the introduction of softwood plantation furniture of Cypress. This has been mostly introduced and promoted by Economic Housing Group as Knock Down Furniture to go with their Pre-Fabricated houses.

There are big furniture manufacturers like Messrs. Silentnight, McCrae's Ltd., Victoria Industries, Leonard Moore and many others. There are over 350 Furniture manufacturers apart from the village industry of furniture makers.

#### JOINRY MANUFACTURING

Joinry manufacturing has been usually made by the major timber merchants who bought timber from the sawmills directly and then supplied to the big and small contractors. This is still in practise. But most of the big building contractors have installed their own Joinery workshops. There are also five (5) Parquet Flooring manufacturers and block boards are also manufacturers.

#### PULP AND PAPER INDUSTRY

The first integrated pulp and paper mill was started in 1974/75 and currently produces about 50,000 metric tons of paper from Kenyan Plantation Forests. The main species Pines (about 80%) and Cypress. Small quantities of Eucalypts are also used. In addition to the integrated pulp and paper mill which produces both packaging and writing paper, there are two paper mills in the country producing about 6000 metric tons each of Kraff paper from Re-cycled Waste Paper.

In 1980, the pulp and paper mill took about 375,000 cu.m. Kenya exports paper to the Middle East and African countries.

#### THE FUTURE DEVELOPMENT PLAN BY GOVERNMENT AND PRIVATE SECTOR

Forest Departments re-forestation plans have been mentioned under wood resources. Apart from this there is a strong trend by the Government for the farmers to plant more trees in their farms for the preservation of Soil Erosion and the Conservation of Environment. Tree seedlings are given out free by the Forest Department to the farmers during the long rains i.e. March/April. Most of these are Cypress and Pines. The pruning and the thinning of the plantations should be done regularly. Due to labour and money problems some of the plantations are not pruned and thinned in time, thus retarding the growth of the plantations and lowering the quality of harvested wood.

As for the private sector there is no apparent development due to the financial problems facing the private sector.

The Forest Department mill at Nakuru called the Industrial Training Mill is at the moment in the process of installing a training sawmill with the aid of the Finish Government, whose aim will be to train man-power for the local sawmills. After the completion of this training, they will instal another modern mill for the forest department which will be a commercial mili.

#### PROBLEMS ON WOOD AND WOOD PRODUCTS INDUSTRY

I wholly appreciate the recommendations made by Mr. Albert Mazel, Unido Consultant to Kenya and agree with him, that there are many problems. As timber or forests are being destroyed almost all over the world. We i.e. the Human Race must make the maximum use of a tree. Agreed that the softwood plantations of Pinus and Cypress are planted with a view of harvesting same as Sugarcane or wheat, but surely we cannot misuse or dis-respect the trees we are felling by getting such a low recovery in our sawmills. As if this is not enough we in Kenya hardly make use of the waste wood i.e. Offcuts, Sawdust and Rejected Timber. There are very few sawmills which are near heavily populated areas, where they can sell the Offcuts for firewood at a throwaway price, but this is only 20 - 25% as the royalty of softwood in Kenya is not cheap (and why should it be that to grow forests cost money) for majority of the sawmills in Kenya, and I am sure others will agree that in a lot of sawmills, sawdust and other wastes are heaped together and set alite just to burn away.

Firstly we must and have to replace absolute equipment so that the recovery of the sawmills must increase. The waste must be utilised to make fairly valuable end products such as Charcoal Briquetting and Cement Bonded or Cement wood wool boards for ceiling and also for pre-fab housing pannels. Cement bonded have an advantage of being water proof. Unido should help to set up a pilot project especially in charcoal briquetting. As seeing is believing and once this starts (this will have to be done the sooner the better) and a lot of forests would be saved which get destroyed just for making charcoal.

To produce 1.5 cu.m. of charcoal in the earth Kilns as traditionally done requires 8 to 10 cu.m. of wood. In Kenya annually 8,000,000 cu.m. of wood is used for making charcoal, as all the rural and most of the urban low income group use charcoal for their daily use.

There certainly is a lack of capital in the developing countries. This certainly is not easily going to be sorted. We do have a scheme of industrial training levy. All the wood-based industries contribute towards it. The problem is lack of training facilities and personnel to train. We have committees, which are trying to solve this problem.

Finally the stress should be to modernize the sawmills. Have modern softwood furniture made of good quality and exported to the Middle East and introduce the use of Kiln Dried Timber, which in turn improves the quality of Kenya timber for the building and furniture industries. Plywood and Fibre Board in Kenya is self-sufficient except one of the Plywood mills should be encouraged or helped to produce Marine Ply.

The extraction of Turpentine from Pine Roots should be considered as well, as most of our softwood plantations are Pine. Joinery manufacturing from the softwood plantations as the indigenous Cedar Forests are becoming scarce.

The developing countries certainly need a lot of assistance from the developed countries Financially and Technically.

