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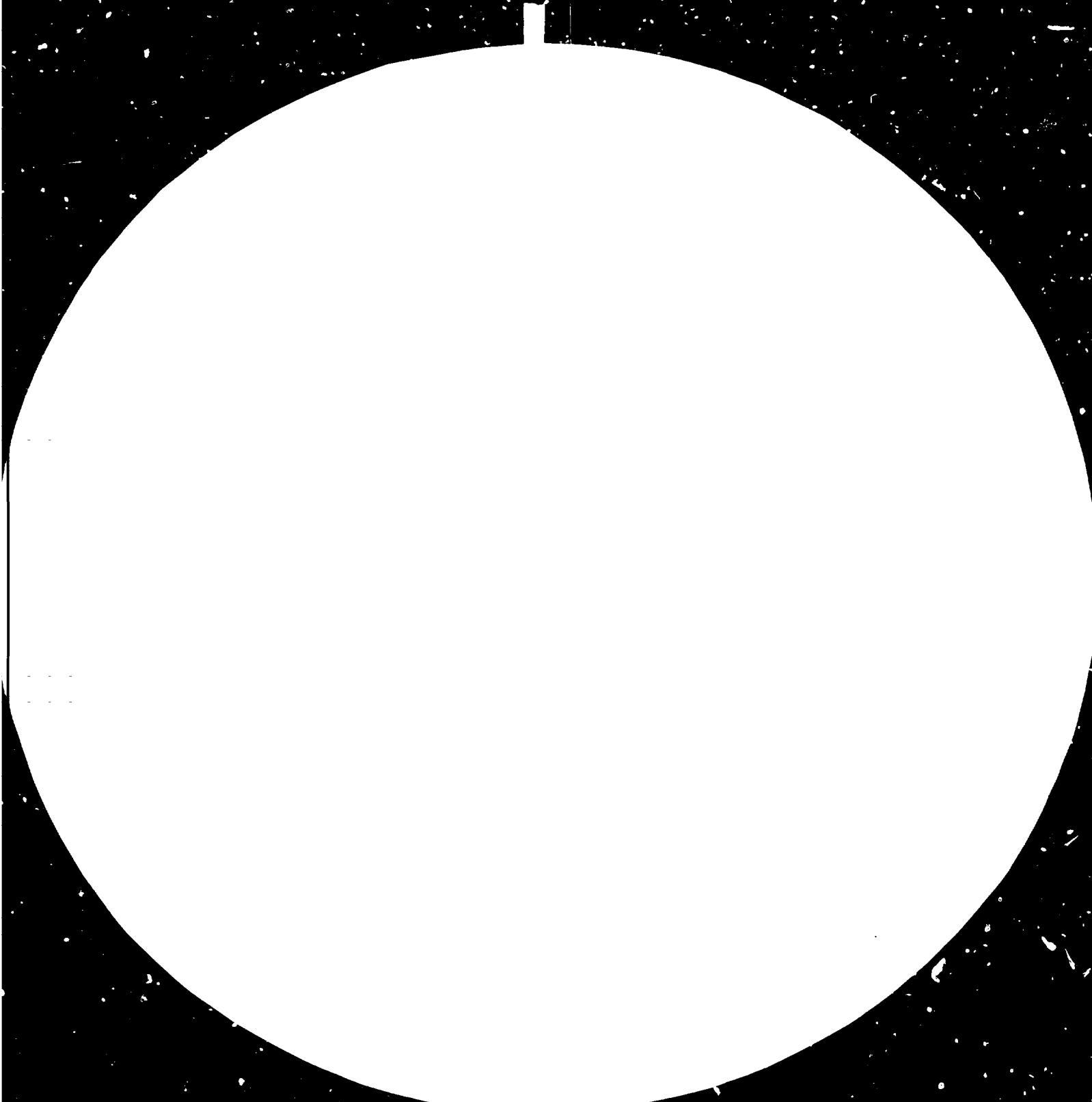

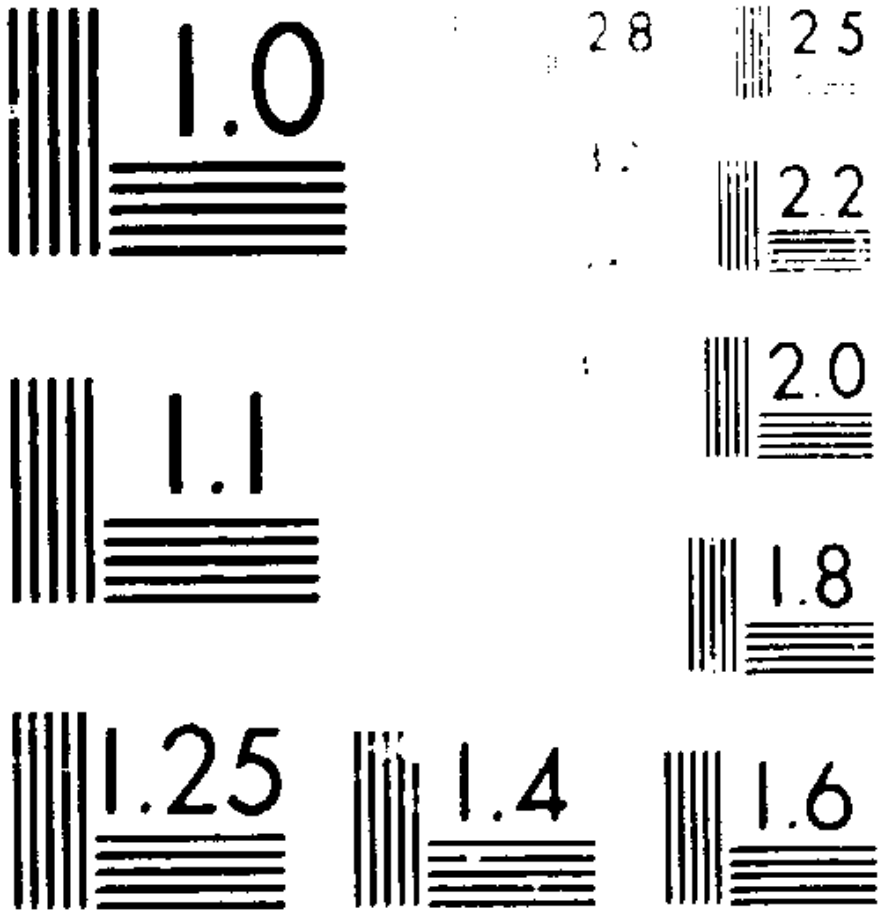
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Meeting on Exchange of Experiences and
Co-operation among Developing Countries in the
Development of Agricultural Machinery Industry

Beijing, China, 20 - 27 October 1980

COUNTRY SUMMARY - KENYA*

by

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1. Agricultural Machinery and Implements, Needs and Demands

Category I -- Implements:

The need for hand tools will continue to grow and the range of tools will probably be increased. The amount of animal drawn equipment will also increase in certain areas until it is limited by competition of land for grazing and food production.

Category II - Intermediate Machinery:

Little of this type of equipment is presently used as it has not yet been identified as being appropriate. The one exception is a hand powered sprayer used for insecticide and fungicide control where its use is highly economic.

Category III - Powered Machinery:

Simple low powered tractors have been used experimentally but the idea of them being cheap is false. It is unlikely that they will play a significant role in the future.

Category IV - Specialised Equipment:

Medium and large tractors are used in the large farm sector and by contractors. They also use the remainder of large equipment balers, sprayers and combine harvesters.

2. Estimated Demand and Present Useage

Equipment in present use is as follows:

Hand Tools - Hoe, fork hoe, cutlass, shovel, wheel-barrow.

Animal Drawn - Mouldboard plough, ox cart.

Engine Powered - Medium and large tractors, cultivating and planting equipment, sprayers, balers and combine harvesters. These are used only in the large farm sector and the tractor and plough by contractors in a part of the small farm sector.

Experimental Equipment Undergoing Development

Hand Tools - A hand pushed planter and an improved weeder are in the final stages of development together with a maize and groundnut shellter.

Animal Drawn Equipment - A multi purpose set of equipment is about to be test marketed. This will increase the versatility of the existing plough and will enable weeding, harrowing, ridging and crop harvesting to be carried out. A package of equipment has been developed for maize, potatoes and groundnuts. There is also a simple wheel and axle arrangement locally manufactured which removes the constraint on increasing the use of ox carts.

Engine Powered - Single axle tractors have been found unsatisfactory for rain fed farming. A range of low powered tractors has been tested and it has been found that those with small wheels and light weight do not operate in hard conditions. Those which operate well under all conditions have a very high cost/hp. This is greater than that of mass produced medium powered tractors. It is unlikely that these will have a large future demand due to their economics and dependance on imported fuel and spare parts.

3. Manufacture and Imports

3.1 Simple Tools and Equipment

a) Kenya is self sufficient in hoes, fork hoes, picks and shovels. It is also exporting these to neighbouring countries. It imports axes and cutlases due to the problem of supply of steel other than mild steel. It is self sufficient in ox ploughs but imports the share due to the same problems.

b) Product design capacity exists and is not a constraint but Government policy is to encourage manufacture in rural areas and due to the small size of most of these enterprises, large capital investment on sophisticated equipment is not

justified. Thus designs must be simplified to use available manufacturing facilities. Small foundries are uncommon but attempts are in hand to re-design certain machines to enable them to be manufactured from mild steel in place of cast iron.

c) Government is actively promoting external investment in Kenya but agricultural machinery manufacture does not appear to be sufficiently attractive to encourage investment.

3.2 Intermediate Equipment

There is a small amount of this equipment (hand sprayers) in use and all is imported.

3.3 Powered and Specialised Machinery

a) All tractors, combine harvesters and balers are imported but some are fitted with locally manufactured tyres, fan belts and filters. Several companies manufacture ploughs and harrows but the high carbon steel soil contacting parts together with the bearings are imported. Parts of sprayers are manufactured, plastic tanks, framework but pumps, valve nozzles are imported. Trailers are manufactured apart from bearings which are imported. Tyres are all manufactured in Kenya.

b) Kenya does not have basic raw materials hence all steel is imported and rolled before use by manufacturers. This situation cannot therefore be changed.

c) Accurate detail of the numbers and size of plants manufacturing equipment is not available. A recent survey did not distiguish between local assembly, part and complete manufacture. The manufacturers in many cases did not specify numbers.

d) The main problems facing the industry are the demands from the farmers for a product at a price they can economically justify at a time when the cost of mild steel has increased significantly (90% in one year).

3.4 Basic Facilities and Ancillary Industries

a) Most basic facilities exist in Nairobi. Foundries are normally used for off work with little production runs.

b) Specialist companies producing pressings etc. exist.

c) Constraints which exist are due to the ranges of make and model of agricultural equipment which exist. The volume of sale of each type is small and thus there is insufficient justification for large scale investment.

d) It is Government policy to have free trading but some attempts to standardise soil contacting parts of cultivating equipment could rationalise the range and could then lead to the justification of local manufacture. This would not in any way inhibit innovation in design.

4. Design, Development, Adaptation Testing and Evaluation

The Ministry of Agriculture has established an Agricultural Machinery Testing Unit in Nakuru together with four sub-centres. This unit field tests existing equipment. It carries out modifications and adaptations to suit local conditions. It then encourages local manufacture on a pilot basis of items found acceptable. It has, with the help of local companies, developed some new designs and taken them through prototype to limited production stage.

5. Engineering and Manufacturing Technology

a) The Ministry of Industry has an Industrial Survey and Promotion Centre which has just completed a survey on the Development of the Agricultural Machinery Industry in Kenya. It recommends the setting up of a centre to design and assist manufacture of a wide range of agricultural machinery.

b) This centre is at the stage of proposal and no other is presently existing.

c) It is suggested that there be greater liaison between the Ministries of Agriculture and Industry.

6. Repair, Maintenance and Spare Parts

The main problems arise due to the large number of makes and models of equipment on the market. The number of say tractors sold by each dealer limits the number of spare parts he can justify. In addition there is a tariff on spare parts which increases their cost while agricultural equipment is imported duty free. Some parts are manufactured locally, these consist of filters, fan belts, tyres, brake linings, shock absorbers and spark plugs.

7. Policy, Planning Strategy and Co-ordination

Government policy in developing a strategy is at present limited to guaranteeing the price to the farmer of some basic crops. The large farm sector operates in a

competitive market for farm machinery and parastatal or other organisations provide credit. In the manufacturing sector the large companies operate in the competitive market while government assists the establishment and management of some small industries under the Kenya Industrial Estate.

An interministerial working group of Agriculture and Industry would be very useful as there is insufficient liaison at present.

8. Inter-regional Co-operation

a) Kenya is at present co-operating with other countries by being host to a very large number of visitors from many countries. Some equipment developed in Kenya has been exported to other countries for experimental purposes.

b) The major areas of assistance which could be of general benefit would be the standardisation of as many components as possible which would enable rationalisation of production to be carried out.

9. Role of UNIDO

a) The main role UNIDO could play would be the provision of expertise for the following areas:-

i) Re-design of existing equipment for easy and economic manufacture.

ii) Advice on production processes to obtain even quality of output.

iii) Advice on marketing and distribution.

10. Specific Proposals and Recommendations

Specific proposals on farmers future needs should come from the Ministry of Agriculture. These will state quarterly, technical performance required and maximum price. The Ministry of Industry should then study the best means of achieving this production at the lowest price possible and go into the various stages of prototypes whose performance would be measured by the Ministry of Agriculture. During this stage the economic aspects of large scale production would be calculated. It should be stated that the wishes of the two sectors are somewhat opposing. The individual farmer wishes the fewest items necessary for increasing production whilst the manufacturer wishes the greatest range possible.