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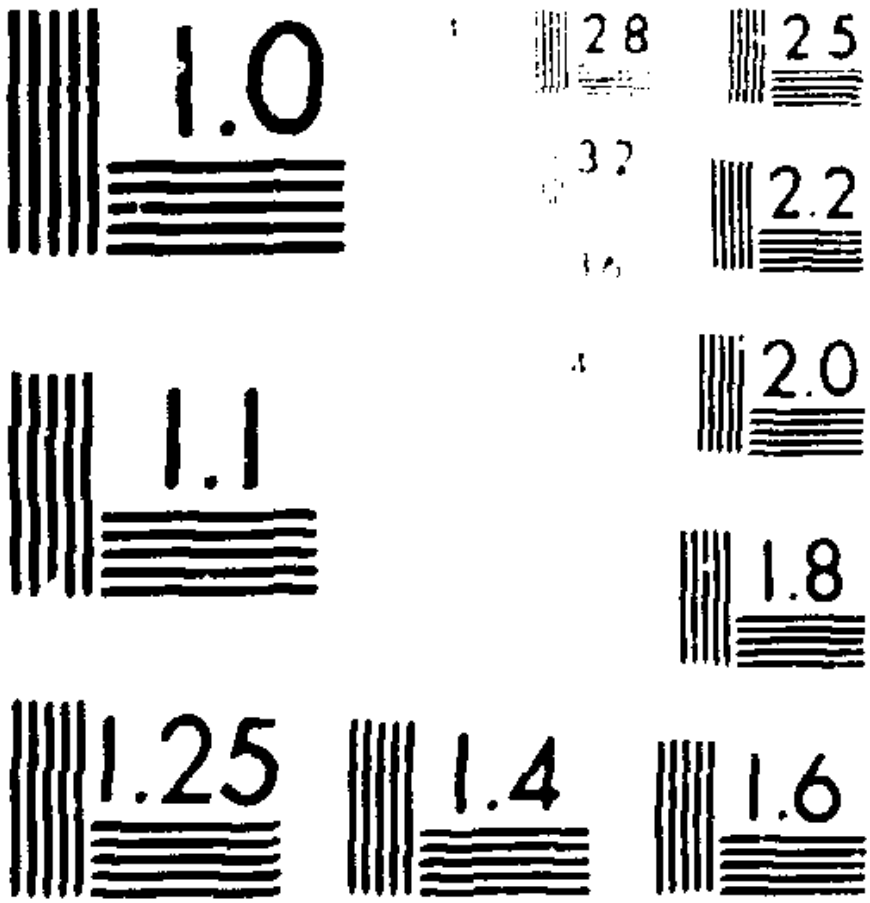
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United Nations Industrial Development Organization

ENGLISH

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 - NIGERIA*

by

Taiwo Abimbola**

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** Principal Agricultural Engineer, Federal Department of Agriculture, Lagos.

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COUNTRY SUMMARY - NIGERIA*

Addendum

by

T. Abimbola **

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A survey of Agricultural Implements in Nigeria revealed that they could be classified as follows:

(a) Traditional implements:

(i) Hoe: used mainly for weeding, planting, lifting, ridging and other land preparation operations.

(ii) Other land preparation traditional implements such as cutlas, matchet, axe, rake and shovel. These are mostly locally fabricated by blacksmiths.

(iii) Harvesting implements such as: sickle, knife and basket.

(iv) In parts of the North, locally fabricated ox-drawn ploughs are in use for primary tillage only. The use of oxen for drawing other non-tillage implements is still very rare.

(v) Other simple implements are shellers, dehuskers and cutters.

A common characteristic of these implements is that they typify low productivity and consume many man-days for operations that take a fraction of that time using more modern implements. It is estimated that over 95% of agricultural production in Nigeria is carried on by the use of these traditional implements.

(b) Conventional imported implements:

(i) Ploughs

(ii) Disc ridges and harrows

(iii) Seed drills and planters

(iv) Harrows

(v) Tractor

(vi) Fertilizer spreaders

The proliferation of makes and models has created a number of problems to the users such as:

(i) lack of spare-parts or maintenance and repair facilities (after sales service)

(ii) hand-outs and users instructions accompanying these implements are in foreign languages other than English

(iii) a high rate of breakdown of many of the items of equipment

(iv) peasant farmers seemed unaware of the existence of these implements as their usage seemed to be restricted to government or state owned farms, tractor hire unit (THU's) Agro-services centres and a few affluent farmers.

(c) Endogenously Developed Appropriate Implements

This category of implements is different from the first category in the sense that the traditional implements are inefficient and therefore not conducive to an agrarian revolution. The endogenously developed implements cover two types:

(i) Adapted imports: These are imported implements that have been adapted to the peculiar needs of Nigeria through research and modification. It is critical for the equipment used to be appropriate not only for the crop, but also for the ecology and soil conditions to which it is applied. Accordingly, in the Institute of Agriculture where Agricultural Mechanization Improvement Programme have been undertaken the following implements have been tested:

(a) a sorghum/millet thresher

(b) maize shellers

(c) a Brazillian made sugar canecrusher

(d) evaluation of groundnut lifting devices, etc.

While a few have been modified.

(ii) Implements Developed for the Nigerian Farmer

The implements in this category seem to have the greatest promise for the rapid development of agriculture in Nigeria because they are tailored to the needs of the small farmers who are responsible for the bulk of Nigeria's agricultural output. The two institutions concerned with this are the International Institute of Tropical Agriculture, Ibadan and the Institute of Agricultural Research, ABU, Zaria where implements have been designed and developed to improve the efficiency of performing the following operations:

(a) Planting: The following three different planters were developed and tested:

(1) Auto-Feed Punch Planter - (hand operated planter) which is considered ideal for planting maize, cowpea, soya, sorghum, etc.

(2) Rotary Injection-planter

(3) 4-Row Injection Planter

(b) Spraying of Herbicides: This enables the farmer to carry 15 to 20 litres of herbicides per hectare. This deals effectively with the problem of weed control.

(c) Harvesting: A simple hand lever was developed to ease cassava root out of the soil.

(d) Post Harvest Implements: Designed specifically for the small farmer are for maize shelling:

(1) I.A.R. sheller designed and developed at ABU for local manufacturer

(2) The Kwara Sheller, Kwara State Ministry of Agriculture.

(e) Prime Movers

Sources of the Agricultural Implements in use in Nigeria

(a) The Local Blacksmith: The local blacksmiths, at the moment supply tools for over 95 per cent of all farmers in the country. Some of these are: hoes, cutlasses, knives, sickles, axes, etc.

(b) Local Manufacturers: The implements developed in IITA are being commercial through the following manufacturers:

Manufacturer	Implement Manufactured
(1) Emmanuel Cunical Enterprises, Ibadan	1 row rolling injection planter
(2) Mr. Olukayode Oyo	4 row willing injection planter - rice
	Auto feed jab planter
(3) Oke Osun Purethought Engineering Enterprises, Ibadan	Auto feed jab planter
	1 row rolling injection planter
	4 row rolling injection planter
	Fertilizer band applicator
(4) Steel Works Ltd., Ibadan	Auto feed jab planter
	1 row rolling injection planter
	4 row rolling injection planter
	Fertilizer band applicator
	Cassava lever
	Rice pedal thresher

(5)	Western Nigeria Technical Co. Ltd. Ibadan	Cassava lifter 1 row rolling injection planter 4 row rolling injection planter

(c) The Research Institutes and Universities: In the years ahead, this source will become the most important one especially in the development of prototypes of appropriate implements for comercialization (Nahimal Centre for Agricultural Mechanization in Ilorin, IITA and IAR).

(d) Imports: The imported implements appear to have had a rather insignificant impact on Nigerian Agriculture due to the fact that -

(1) most of them are not designed for the small farmer;

(2) they are generally beyond the reach of the average farmer;

(3) the amount of farmers education that should precede adoption by farmers has rarely been done for many implements.

Information available indicate imports of the following six categories of agricultural machinery:

(1) For preparing and cultivating the soil

(2) For harvesting, threshing and sorting

(3) Tracked or half tracked without equipment

(4) Wheeled without equipment not exceeding 40 brake horse power

(5) Wheeled without equipment exceeding 40 brake horse power

(6) Appliances complete.

The most important country sources of Nigeria's tractors and agricultural implements in descending order of importance are as follows:

(1) United Kingdo

(2) United States of America

(3) Federal Republic of Germany

(4) Italy

(5) France

(6) Belgium and Luxembourg

(7) Canada

(8) Spain

(9) Denmark

(10) India

(11) Brazil

Recently, there has been an increase in the influx of Indian and Chinese agricultural implements into Nigeria.

Important Distributors

(1) Leventis Motors

(2) Agricon (Nig) Ltd.

(3) BEWAC (Nig) Ltd.

(4) R.T. Briscoe

(5) Rau-Imax (Nig) Ltd.

(6) WATECO

(7) U.T.C. Motors (now involved in local assembly) - FIAT Tractors

(8) NITECO (now involved in local assembly) STEYR Tractors

(9) Yakon Enterprises - Universal Tractors

Self sufficiency in Food is presently the main objective of the Federal Ministry of Agriculture and of course this is in the priority list of the Federal Government Programme under the special name of "Green Revolution". It has been recognized that in order to improve the living standard of the peasant farmers who form the majority of the farming population and to improve the nutritional level of the teaming masses of the nation at a low cost the nation's agricultural production system must be mechanized and dynamic steps must be taken to achieve this. Several programmes and projects have been embarked upon by the Federal Government towards achieving this laudable objective. Efforts are being made to introduce agricultural mechanization techniques at all levels to the farmers. The major constraints that have been identified are:

(i) Lack of essential farm machines and implements.

(ii) Lack of adequate technical manpower for the maintenance and utilization of farm machines.

(iii) The high cost involved in farm mechanization operations such as bush clearing, land development and preparation and post harvest processing and storage.

In an attempt to overcome these problems the Ministry under a special programme for boosting food production is providing assistance to farmers through the supplies and sales of farm machinery and equipment to farmers co-operatives at highly subsidized rates. Efforts are being intensified to increase the hectarage of cultivable farmlands all over the Federation by assisting the farmers to clear the bush and prepare the farmland under the Agricultural Bush Clearing

and Land Development scheme of the government. There are other supporting programmes such as the establishment of Agro-Service Centres, the training of tractor operators and mechanics and the local fabrication of simple agricultural tools, machines and implements. The basic outlines of these programmes will be briefly discussed later as they are potential programmes and projects that are capable of bringing a fruitful result to the aspirations of the ministry of some timely assistance and co-operation of well meaning International Organizations are secured. It might be pertinent to indicate at this juncture that the Federal Government is already engaged in joint ventures with two tractor production companies, namely STEYR and FIAT. However, the present production capacity is much below the nation's demand level for agricultural tractors and implements. A bright future is however anticipated when the steel complex gets into production.

In the light of the present circumstances already discussed it is actually ripe at this stage to consider a proper planning not only for the satisfaction of our present requirement but also for a better future especially in the distribution, utilization and maintenance of the different types of agricultural equipment. Both the immediate interim measures to meet present demand and the strategies to satisfy the self sufficiency in immediate future will definitely involve some co-operation with well meaning International Organizations in ensuring the successful implementation of the following projects of the Federal Ministry of Agriculture.

1. <u>The Local Fabrication of Agricultural Equipment</u>

A number of simple agricultural tools, equipment and machines both locally designed and imported ones which may contribute to the

improvement of food production have been identified. Some have already been commissioned for local fabrication for the purpose of testing and sales at prices that the farmers can afford. Among those already identified are: - Punch planters, hard operated, Injector planters, maize shellers, rice threshers, groundnut decorticators, fertilizer spreaders, weeders and cultivators. The Federal Ministry of Agriculture will welcome the co-operation and the assistance of such International Organizations on the establishment of joint ventures with interested foreign companies already in the agricultural machinery production industry. A study to investigate the feasibility of such a venture is being considered for commission by the Ministry.

2. Agro-Service Centres

For the effective utilization and maintenance of agricultural machines and equipment in a mechanized agro-system especially in a developing nation like Nigeria, the proper organization of functional Agro-Service Centres is also essential. Already there are about 182 Agro Centres located in different parts of the country. In realization of the importance such centres that are well organized, the Ministry is proposing a reorganization of such centres to be established in all local government areas of the Federation. Two classes, A and B Centre types are being proposed. The Class A types are to serve as Zonal Headquarters to a number of Class B types. It is worthwhile to note that any meaningful re-organization of these centre will require the expertise of International Organizations which have been involved in similar operations that have been successful. Such organization may have to be involved in the initial management of the Centres during which it is hoped that enough experience and technical know-how will be imparted to the Nigerians who will eventually take over the management.

3. Crop Processing and Storage Facilities

It has been recognized that about 25 per cent crop losses is incurred every year due to poor handling, and storage. The country is presently lacking the essential facilities for proper handling of crops both in number and the appropriate capacities. The Ministry will therefore welcome the co-operation of International Organizations on the set-up of joint ventures with foreign companies that have reputable experience on crop handling and storage first on the supply and later the local, fabrication of these facilities. It is hoped that such companies shall be willing to engage in a sincere transfer of technology to their Nigerian counterparts.

4. Manpower Development in the Field of Agricultural Mechanization

This is one of the major requirements in Nigeria. There is presently an accute shortage of the personnel in the lower and middle level cadres of agricultural mechanization personnels. The need for a dynamic increase both in number and quality of this cadre of personnel has been recognized by the Federal Ministry of Agriculture. Hence, an immediate attention is being given to it. There is a proposal to establish a number of Farm Mechanization Training Centres which will be sub-zonal stations of the proposed National Centre for Agricultural Mechanization, Ilorin. These training centres will provide training facilities for tractor operation and Agricultural Mechanics. A programme of this nature will require the co-operation and technical assistance of International Organizations that have successfully implemented such programme in other countries. Like the other projects already discussed, such organizations should be ready to be involved in the planning, administration, training of Nigerians who would become trainers in this centres, and the transfer of technical experience to the Nigerians who will eventually take over the overall management of the centres.

5. Bush Clearing and Land Development

The Federal Ministry of Agriculture's recognition of the high cost of clearing bush and preparing land for agricultural production purposes in the tropical Africa has provided financial assistance to farmers for a number of years. The Ministry will, therefore, welcome the assistance of International Organizations in identifying reputable foreign companies that might be interested in the joint venture. With the set up of such companies it is anticipated that the development of farmland for a productive agrarian revolution can be achieved.

This conference is hereby invited to look critically into these areas of Agriculture mechanization development in Nigeria for possible advise, co-operation and technical assistance.