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COUNTRY STUDY REPORT

STATUS OF AGRICULTURAL MACHINERY INDUSTRY IN KENYA ^{1/}

by

J.M. Wanjigi
Executive Director,
Industrial and Commercial Development Corporation,
Nairobi, Kenya

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The Republic of Kenya has an area of about 225,000 sq. miles and extends 4° each side of the equator. The country is surrounded by the Somalia Republic, Ethiopia and Sudan on the North, Uganda on the West, Tanzania on the South and the Indian Ocean on the East. It has an estimated population of 10.209 million (as at 30th June, 1968) of which 8% live in 34 towns and the rest of 92% (9.392 million) live in rural areas. Agriculture, including livestock rearing, forestry and fishing are the mainstay of over 85% of the population. Agriculture and allied activities contributed 34.5% to the total Gross Domestic Product (at Factor cost) of K £401.48 million in 1967.

SECTION I:

GEOGRAPHICAL LAND DISTRIBUTION PATTERN:

2. Total land area of Kenya is about 142 million acres. This is distributed into 8 provinces (including Nairobi Extra Province) as per land potential as given in Table I.

Table I - Geographical Distribution of Land as per Land Potential:

Name of the Province:	High* Potential:	Medium + Potential:	Low ++ Potential:	Total	(000' acres)	
					All other land	Total land area
1	2	3	4	5	6	7
Central:	2,247	38	99	2,384	1,087	3,466
Coast:	923	1,967	13,992	16,884	3,757	20,541
Eastern:	1,242	5,408	28,298	34,948	3,239	38,187
Nairobi (Extra Province):	42	-	93	134	35	169
North	-	-	31,359	31,359	-	31,359
Eastern:						
Nyanza:	3,010	85	-	3,095	-	3,095
Rift Valley:	7,472	305	30,524	38,302	3,756	43,058
Western:	1,831	-	-	1,831	202	2,033
Total (Kenya):	16,767	7,803	104,365	128,937	11,071	141,908

*High Potential: Annual rainfall of 35" or more (over 40" in Coast Province)

+ Medium Potential: Annual rainfall of 30"-35" (30"-40" in Coast Prov. & 25"-35" in East Prov.)

++Low Potential: Annual rainfall of 25" or less.

It will be seen that the major portion or nearly 81% of the land is low-potential, 13% high-potential and the rest of 6% medium-potential. The North-Eastern, Coast and Eastern Provinces have relatively more low potential land than other provinces. The Coastal belt, which extends upto 380 miles along the sea shore is fringed with coral reefs and the shore is backed by a low platform of coral rock with lagoonal clays. Beyond the

coastal region lie North-East and Eastern Provinces comprising decadent basement rocks with occasional hills, but mostly consisting of a vast level expanse. The North-East Province is mostly a barren desert, while Central, Nyanza, Rift Valley and Western Provinces are fertile and agriculturally very productive. The total land available for agricultural purposes is about 14.161 million acres.

3. In order to raise the fertility of the soil and productivity of land, the Government have started irrigation schemes, like, Mwca River, Tana River and Perkerra River Irrigation Schemes, which together provide irrigation facilities to about 9,500 acres of land. New irrigation schemes on the Kano Plains (Ahero) and Yala Swamp are making rapid progress towards completion.

Area Under and Production of Principal Crops:

4. The area under different crops and their production is given in Table 2.

Table 2 - Area Under and Production of Principal Crops:

<u>Name of the Crops:</u>	<u>Area*</u> (000 acres)	<u>+Marketed Production</u> (000 tons)
Sisal:	255.4	50.0 (51.0)
Tea:	51.2	19.7 (22.5)
Sugar:	54.2	465.9 (695.2)
Coffee:	70.9	18.8 (47.3)
Wattle (for sale as bark)	45.9	27.2 (54.0)
Pyrethrum:	11.8	1.5 (11.1)
Wheat:	328.9	175.3 (177.6)
Maize:	142.3	160.1 (235.1)
Cotton Seed:	-	- (12.5)
Raw Cashew Nuts:	N.A.	1.1 (11.6)

*Acreage relates to large farms (above 20 acres) only.

+Figures within brackets are total production for both large and small farms.

5. It may be mentioned in passing that the productivity of land since Independence in 1963, has marked a great improvement. For example in the case of maize, productivity of land on certain progressive farms has increased from 3-5 bags of maize per acre to 20 bags. So has been the case with tea, sugar-cane, cotton and other cash crops. This has been mainly due to the adoption of improved agricultural practices, such as application of fertilizers and improved seeds and use of improved implements, especially by the small farmers.

Size of Holdings:

6. As stated earlier, the total land available for different agricultural purposes is about 14,161,000 acres. Of this, large farms which number 2,745 account for an area of about 5.8 million acres and the rest of the land is occupied by small farms. Over a million acres of land in Eastern, Central, Rift Valley, Nyanza and Western Provinces have been acquired from large farmers, cut into 31,689 economic size holdings and allotted to different families in the now famous One-Million Acre Settlement Programme. The 2,745 large farm holdings are divided into different area categories as follows :-

Table 7 - Distribution of Large Farms in Different Area Groups:

<u>Acreage:</u>	<u>Number of Holdings in 1967:</u>
20-49	309
50-124	260
125-249	267
250-499	329
500-745	261
750-999	216
1000-1249	184
1250-2499	463
2500-4999	219
5000-9999	106
10,000-49,999	117
50,000 and Over	14
Total:	2,745

7. There are about 900,000 small farms (each having an area of less than 20 acres), in Nyanza, Western, Coast and Eastern Provinces; their number in Central and Rift Valley Provinces being rather small. The average size of holdings is approximately 8.42 acres, though it varies from as small as 3.61 acres in Fort Hall District of Central Province to as high as 18.52 acres in Elgon Nyanza in Nyanza Province. The farming potential of small farms, which until 1963 was unsatisfactory mainly on account of fragmentation into more than one parcel and sometimes even 9 parcels, has considerably improved on account of consolidation of land holdings, undertaken by the Ministry of Lands & Settlement. This and other schemes, like demonstration-cum-training provided to farmers in the application of fertilizers, use of improved seeds, soil conservation schemes etc. have had a telling impact on the productivity of the small farms sector. From a more or less subsistence production, they have started yielding substantial marketable surpluses.

Agricultural Practices:

8. Agriculture in Kenya particularly on large farms is highly mechanised. The large farms are operated on a highly commercial basis, using modern techniques of farm management. They employ a large range of wheel tractors, crawler tractors, harrows, self-propelled combines and tractor-drawn harvesters, sprayers, grass slashers, trailers etc. Every year they spent substantial amounts of money on additions and replacements of mechanical equipment; for example during 1967/they spent K £2.109 million for the purpose. During 1964 these farms used 42,826 tons of (nitrogenous and phosphates) fertilizers to 549,550 acres, and the amounts of fertilizers used continue to increase.

9. The average size of small farms being only 8.42 acres, the application of mechanised farming is rather slow and problematical. Normally, the small farmers use ox-driven ploughs, hoes, cultivators, hand-operated planters, drills, machetes etc. However some of the small farms in Western, Nyanza, Central and Rift Valley provinces, own tractors and apart from ploughing their own land, rent tractors to others. In order to facilitate the progress of mechanisation of small farms, the Agricultural Finance Corporation, an autonomous body of the Ministry of Agriculture, Kenya has been advancing loans to small farm-holders for the purchase of tractors since early 1967. By the end of 1968, the Corporation had advanced K £291,000 as loans for purchase of 216 tractors with auxiliary

equipments, like, disc ploughs and harrows etc. These loans have no doubt infused new technology in the small-scale agriculture and helped in expanding their productivity.

SECTION II:

PATTERN OF FARM MECHANISATION:

Equipments used & Their Population:

10. As stated in Section I, agriculture in Kenya, particularly on large farms is highly mechanised. According to the Statistics Division, which conducts Agricultural Census on a yearly basis, the number of tractors and combine harvesters on large farms is as follows :-

Table 4 - Number of Mechanical Equipment on Large Farms:

<u>Particulars of Mechanical Equipment:</u>	<u>1964</u> <u>(Nos.)</u>	<u>1965</u> <u>(Nos.)</u>	<u>1966</u> <u>(Nos.)</u>	<u>1967</u> <u>(Nos.)</u>
<u>Tractors:</u>				
Wheel:	4,976	4,886	5,345	5,894
Crawler:	807	843	800	723
Total:	5,783	5,729	6,145	6,617
<u>Combine Harvesters:</u>				
Self-propelled:	483	502	575	596
Tractor Drawn:	444	408	455	446
Total:	927	910	1030	1042

11. The number of other agricultural implements and machinery in use is not available. It is however felt that on an average, at least 1.5 ploughs, 1 harrow and 1 trailer is available for each tractor. In other words about 6600 trailers, 6600 harrows and 9900 ploughs (to be mounted on tractors) would be available on large farms. It is also reported that the large farms spend K £2.109 million on replacement and addition to their stock of mechanical equipment each year.

12. The number of agricultural machinery and implements in use on small farms is also not available. However, according to reliable sources, about 600-700 tractors are available on the small farms.

13. Thus the total farm machinery population in respect of tractors and harvesters in Kenya is as follows :-

Table 5:

<u>Mechanical Equipment:</u>	<u>No. in use in 1967:</u>
<u>Tractors:</u>	
Wheel & Crawler:	7,200
<u>Combine Harvesters:</u>	
Self-propelled & Tractor Drawn:	1,140
<u>Trailers:</u>	
Harrows:	7,200
Ploughs (to be mounted on tractors):	9,900

Manufacturing Industries:

14. There are 8 factories in Kenya, making agricultural machinery and farm implements, viz: ox-driven ploughs, hoes, disc ploughs (to be mounted on tractors), harrows (to be mounted on tractors), grass slashers, coffee spraying machines, trailers for tractors and spares for ploughs and harrows. The names of these factories are given below :-

- i) Messrs. Ideal Casements (E.A.) Ltd., Nairobi
- ii) Leading Engineering Works Ltd., Nairobi
- iii) Hughes Ltd., Nairobi
- iv) Messrs. Burns & Blane (Kenya) Ltd., Nairobi
- v) Messrs. Silver Star Engineering Works, Nairobi
- vi) Messrs. Ndume Products Ltd., Gilgil
- vii) Heat Exchangers Ltd., Nairobi
- viii) Messrs. Trailors Ltd., Nairobi

Apart from these organised factories, there are a number of large scale farms, who make their own trailers in their tool-rooms at the farms. Trailors are also made by Messrs. Hertz & Bells, Nairobi, one of the organised foundry works, though only on a sporadic basis.

15. These factories are well-equipped with general-purpose machines. The estimated capacity and production of these factories for different items are given in Table 6.

Table 6 - Annual Capacity and Production of Agricultural Implements & Machinery in Kenya:

Agricultural Implements & Machinery:	Unit of Quantity	Annual Capacity (Single Shift) Quantity	Annual Production (1968) Qty	Annual Production Value (ex-factory)	Ex-factory Price per unit of Quantity (£)
1. Ploughs - Single Ox Furrow:	Nos.	10,000	12,000	48,000	4.0
2. Hoes:	Dozens pcs.	100,000	50,000	150,000	3.0 (per dozen pcs.)
3. Ploughs (to be mounted on tractors):					
(a) 3 Disc type	Nos.	N.A.	400	55,600	122.50-145.0
(b) 4 " "	"	"	400	66,640	143.75-175.0
4. Harrows (to be mounted on tractors):					
(a) 14 disc	"	N.A.	25	3,125	125.0
(b) 18 "	"	N.A.	25	4,625	185.00

Machinery in Kenya (contd.):

Agricultural Implements & Machinery:	Unit of Quantity:	Annual Capacity (Single Shift) Quantity	Annual Production (1968) Quantity	Value (ex-factory)	Ex-factory Price per unit of Quantity (£)
5. Coffee Spray Machines (to be mounted on tractors):	Nos.	N.A.	50	17,500	350
6. Grass Slashers:	Nos.	N.A.	25	3,750	150
7. Spares of Ploughs like rear wheels, stabilizer bars, shafts, disc handles etc:	-	-	-	10,000	-
8. Driers for tea, coffee and grains:	Nos.	100	41	82,000	Average price is £2,000
9. Low Speed general Farm Trailors:					
(a) 3 ton capacity:					
i) Non-tipping:		N.A.	90	21,900	210.0-260.0
ii) Tipping: "		"	155	42,247	251.0-265.0
(b) 5 tons capacity:					
i) Non-tipping:		"	35	10,950	310.0-315.0
ii) Tipping: "		"	65	27,580	350.0-471.0
(c) 5-7 tons capacity Tipping: "		"	20	10,000	500.0
(d) 8 tons capacity Sugarcane: Trailors: Nos.	Nos.	"	30	17,700	590.0
(e) 10 tons capacity Nos.	Nos.	"	4	5,600	1,400.0
(f) Tea bodies for chasis: Nos.	Nos.	"	33	11,550	350.0
(g) Turn-Table Trailors (3-8 tons Capacity) Nos.	Nos.	"	40	24,000	450.0-1,000

+ The factory works two shifts.

16. Almost all factories in Kenya are subsidiaries of International Companies and are well-equipped with general-purpose machines. Their products therefore compare favourably, both as regards quality and price with those produced elsewhere by their principals. Moreover, the Ministry of Agriculture has set up an Agricultural Machinery Testing Centre at Nakuru (in Rift Valley Province), which examines the suitability of all agricultural machinery and implements, including tractors, disc ploughs, harrows etc. both imported and locally produced. In addition single ox-furrow ploughs and hoes produced in Kenya are also tested and approved for quality by this Centre.

17. No wonder therefore that the said factories in Kenya, apart from meeting the internal demand of the country are able to export their products to countries like Uganda, Rwanda and Zambia. For example, about 6,000 or 50% of single Ox-Furrow Ploughs, produced in Kenya are exported to Uganda and Zambia. Similarly, about 80% hoes are consumed in Kenya, the balance of 18,000 dozen are exported to Uganda and Rwanda. In the case of Trailers, Drums and Disc Ploughs, about 10% of production is exported to Ethiopia and Uganda.

18. It may be mentioned that none of these factories produces all the parts required for the finished products. For example, cast iron wheels and bolts and nuts required for single furrow ploughs are being imported. Similarly in the case of tractors, ploughs, discs and bearings are being imported. Wheels for trailers are imported. These parts and spares are presently not being made in the country and have therefore to be imported. However, as the country advances industrially, and factories for production of these parts and spares are set up, the local content of these finished products will correspondingly increase.

Import Policy for Agricultural Machinery and Implements:

19. The importation of single ox-furrow ploughs, hoes and trailers is not allowed. These items have therefore been placed under the category of licensing items. Imports of all other items viz: tractors, disc ploughs, harrows, cultivators, drillers, binders, combines, movers, etc. are allowed duty free into the country.

Imports:

20. The import of agricultural implements in the categories 'others, including disc ploughs, harrows, cultivators, drillers etc.' (corresponding to International Trade Classification 712-1-9); lawn movers; coffee cleaning, grading and sorting machines; sisal machinery, 'others, including binders, combines, movers etc.' (corresponding to International Trade Classification 712-2-3, 712-2-1, 712-2-2 and 712-2-9), 'Tractors, other than road tractors for tractor-trailer combinations'; 'other wheeled tractors' (corresponding to International Trade Classification 712-5-1 and 712-5-2) for three years, i.e. from 1965-67 and principal countries of import are shown in Table 7.

TABLE 7 - IMPORT OF VARIOUS AGRICULTURAL MACHINERY AND IMPLEMENTS DURING 1965-67

I.T.C.	Particulars of Items:	1965		1966		1967		Average Imports during 1965-67		Principal Countries of Import
		Qty (Nos)	Value K£	Qty (Nos)	Value K£	Qty (Nos)	Value K£	Qty (Nos)	Value K£	
712-1-9	Others, including Disc Ploughs, Harrows, Cultivators, Drillers etc.	-	206,369	-	272,408	-	349,016	-	275,931	U.K., Australia, France, U.S.A. & W. Germany.
712-2-1	Coffee Cleaning grading and sorting machines	-	9,803	-	28,112	-	68,111	-	35,342	U.K., Switzerland & U.S.A.
712-2-2	Sisal Machinery	-	28,088	-	7,858	-	8,240	-	14,729	UK., U.S.A.
712-2-3	Lawn Mowers	1,307	18,307	1,900	27,199	1,160	14,715	1,456	20,074	U.K., Australia & U.S.A.
712-2-9	Others, including Binders combines, Mowers etc.	-	139,440	-	192,455	-	339,642	-	223,846	U.K., W. Germany. U.S.A., U.K. & Italy
712-5-1	Tractors, other than road tractors for tractor-trailer combinations	87	461,173	50	326,698	32	362,682	56	383,518	
712-5-2	Other Wheeled Tractors	763	626,999	978	868,160	741	742,460	827	745,873	U.K. & U.S.A.

21. In order to iron out seasonal fluctuations in imports, we have taken the average of the imports of agricultural machinery and implements for three years 1965-67 to represent the normal level of imports. To obtain the break-up of imports for different individual items in categories "others, including Disc Ploughs, Harrows, Cultivators, Drillers etc" and "others, including Binders, Combines, Movers etc." (corresponding to ITC 712-1-9 and 712-2-9), we have relied on information derived after discussions with reliable dealers of farm machinery. The average level of imports of different individual items are given in Table 8.

Table 8 - Imports of Agricultural Machinery:

<u>Particulars of Items:</u>	<u>Quantity No.</u>	<u>Value K £:</u>
i) Disc Ploughs 3 & 4 Furrows:	130	20,000
ii) Harrows (11 sizes from 4'-6" to 13')	150	75,000
iii) Cultivators 9'	51	6,200
iv) Seed Drills 5'-13':	260	76,700
v) Coffee Cleaning, grading and sorting Machines:	-	35,300
vi) Lawn Movers:	1,500	21,000
vii) Sisal Machinery:	-	14,729
viii) Combines 8'-12':	40	190,000
ix) Tractor for trailer - tractor combination:	50	340,000
x) Wheeled Tractors:	800	721,000

Present Annual Consumption:

22. The total present consumption (1968) of different items of Agricultural machinery has been worked out by adding current production and imports (projected for 1968). In cases of item not being imported the sales of locally produced items in the country have been taken to represent the domestic consumption. It may be mentioned that some quantities of driers for tea and coffee during the last three years have been received by the Government of Kenya from foreign Governments on long term loans. The average value of imports of driers during the last two years has been estimated at K £100,000. This has been taken into consideration, while estimating present consumption. Based on such calculations and assumptions, the current consumption of different items of agricultural machinery are as follows :-

Table 9 - Consumption of Different Items of Agricultural Machinery During 1968:

<u>Name of the Item:</u>	<u>Quantity</u> <u>(Nos)</u>	<u>Value:</u> <u>K £</u>
1. Tractors for tractor - trailer combination:	40	272,000
2. Wheeled tractors:	800	720,000
3. Trailers (3-5 tons capacity)	400	152,000
4. Disc Ploughs (3-4 Furrow):	850	130,000
5. Harrows (4'-6"-13')	200	82,700
6. Cultivators:	50	6,100
7. Seed Drills (5'-13')	260	76,700
8. Combines (8'-12')	40	190,000
9. Lawn Movers:	1,500	21,000
10. Driers for coffee, tea and grains:	85	170,000
11. Coffee cleaning, grinding and sorting machines:	-	35,300
12. Sisal Machinery:	-	14,700
13. Single Furrow Ox-Ploughs:	6,000	24,000
14. Hoes:	40,000 Dozens	120,000

Future Demand:

23. The demand for agricultural machinery from large farms comes mainly for replacement purposes. Since there is no possibility of any increase in the number of large farms, their demand would be confined to making up for depreciated stocks of agricultural machinery and implements.

24. Ever since Independence, the Government of Kenya through the Ministry of Agriculture has been consistently striving to mechanise small scale agriculture. For this purpose, the Agricultural Finance Corporation since 1967 has been advancing loans to small scale farmers for the purchase of tractors and auxiliary equipment such as ploughs and harrows. As stated before, loans amounting to K £291,000 for the purchase of 210 tractors with auxiliary equipment had been advanced till the end of 1968. This scheme is still continuing. Other allied measures such as training of farmers in improved agricultural practices at Farmers Training Centre, supply of hybrid and synthetic seeds etc., have also been introduced with a view to increasing productivity and making Kenyan produce competitive in the world market. As a result, the demand for tractors, ploughs, harrows, seed drills, cultivators etc., has been rising at a very high rate. The dealers estimate the demand to increase by about

8% per annum during 1968 - 75 and 10% from 1975-80. In other words, the demand will go up by 71.5% during 1975 over 1968 and by 61% during 1980 over 1975.

25. It may also be mentioned that due to competition amongst coffee producing countries, the demand for Kenya coffee is expected to remain more or less stagnant. As a result, the demand for coffee driers and grinding and sorting machines would remain at the present level during the next 7 years. The international market for sisal has also been declining due to competition from synthetic fibres. The demand for sisal machinery is therefore expected to fall at least by 10% p.a. during the next 7 years. The place of sisal is progressively being taken by cotton and other crops in Kenya.

26. Taking all these factors into consideration, the demand for agricultural machinery during 1975 and 1980 is expected to be as follows :-

Table 10 - Estimated Demand of Different Items of Agricultural Machinery During 1975 & 1980:

<u>Name of the Item:</u>	<u>1975</u>		<u>1980</u>	
	<u>Quantity</u> <u>(No)</u>	<u>Value</u>	<u>Quantity</u> <u>(No)</u>	<u>Value</u>
1. Tractors for tractor - trailer combination	70	467,000	110	752,000
2. Wheeled Tractors:	1,370	1,236,000	2,200	1,990,000
3. Trailers (generally 3-5 tons capacity):	690	261,000	1,110	420,000
4. Disc Ploughs (3-4 Furrow):	1,460	223,000	2,350	359,000
5. Harrows (4'-6" to 13')	340	141,000	550	227,000
6. Cultivators:	90	10,500	145	16,900
7. Seeds Drills (5'-13'):	450	131,500	720	211,700
8. Combines (8'-12')	70	326,000	110	525,000
9. Lawn Movers:	2,570	36,000	4,140	58,000
10. Driers for coffee, tea and grains:	120	240,000	140	280,000
11. Coffee cleaning, grinding & sorting machines:	-	17,000	-	17,000
12. Sisal Machinery:	-	7,000	-	-
13. Single Furrow Ox Ploughs:	10,300	41,200	16,600	66,400
14. Hoes:	68,600	Doz. 205,800	109,760	Doz. 332,000

GOVERNMENT'S POLICY TOWARDS AGRICULTURAL MACHINERY INDUSTRY:

A. Incentives by the Government:

27. Kenya is primarily an agricultural country and as such industries directly connected with agriculture receive great encouragement from the Government. Broadly speaking, the Government of Kenya promotes all those industries, which increase the country's productivity, save foreign exchange and infuse modern technology and management. Kenya being short of trained man-power resources, the Government through the Ministry of Commerce & Industry and the Industrial & Commercial Development Corporation promotes joint ventures with foreign industrialists so as to take advantage of their modern technology and business management expertise. For this purpose, the Government has framed a very attractive policy towards foreign capital embodied in the Foreign Investment Protection Act which affords local industries the necessary tariff protection, whenever necessary and allows the repatriation of capital and profits as desired. Financial assistance by way of loans or equity participation are also afforded to certain key industries.

i) Government's Policy Towards Foreign Capital:

28. The Kenya Government welcomes foreign investors/industrialists who risk their capital to increase industrial production and employment in the country. Such industries are generously protected under the Foreign Investment Protection Act. Where the investment is accepted because the project is likely to contribute to the development of the country, the foreign investor can get an "Approved Status Certificate" from the Government. This Certificate authorises the owner to repatriate profits, dividends and capital, whenever he wishes, regardless of any exchange restrictions, which might otherwise apply. As a general guide, the conditions that have to be satisfied before an application for an Approved Status Certificate is granted can be summarised as follows :-

- a) the proposed project will lead either to the earning or saving of foreign exchange; or
- b) the investment will result in gain in technical knowledge, that would be of overall importance to the economic development of the country.

ii) Financial Assistance by way of Loans and Equity Participation:

29. The Industrial & Commercial Development Corporation (ICDC), which is an autonomous body of the Ministry of Commerce & Industry extends financial assistance to new industries and where necessary participates in equity capital. However, several factors are considered before ICDC decides whether or not to participate in a given industry. These factors include :-

- a) The need to increase the country's local productivity, thereby reducing unnecessary import of goods, which continue to drain the foreign exchange resources of the country;
- b) The need to strengthen the agricultural base;
- c) The need to create new job opportunities and thereby relieving the country of the burden of unemployment;
- d) The need to acquire African interest and/or control in economic activities of the country, which are largely supported by African incomes;

- e) The need to attract such industries into Kenya, which could be supported largely by local market;
- f) The need to take advantage of modern technology and technical expertise of the foreign industrialists.

30. It is under this policy that the Corporation has invested K £1,164,472 or about 68% of its resources in large and medium-scale ventures. Thus all potential agricultural implements and machinery industries could be sure of receiving financial accommodation from the ICDC so long as these could prove to be economically viable and technically feasible.

iii) Protection to local industries:

31. The Government of Kenya affords tariff protection to all such industries, which can satisfy the entire local demand and whose products are comparable in price and quality with those of imported products. It is under this policy that import of single furrow ploughs, hoes and trailers has been placed under licence. Apart from tariff protection to nascent industries, the Government also considers applications from existing industries for duty draw-backs for imported raw materials.

Research & Testing Institutions:

32. Research has a crucial part to play in the development of agriculture. Thus far the Kenya Government have placed increasing emphasis on production-oriented research such as the development of hybrid and synthetic seeds (for maize, wheat, pyrethrum, sugar-cane, coffee, tea and cotton) and training of farmers in mechanisation at such institutes as Egerton College, Imbu Institute of Agriculture, Narosurra Farm Mechanisation Scheme, Naivasha Dairy Training School and Animal Health and Industry Training Institute etc. The aim of this research has been to improve yield and quality of crops. The only research in implements has been the setting up of the Agricultural Machinery Testing Centre & Soil Conservation Station at Nakuru (Rift Valley Province). This Centre, which started early in 1955 provides testing facilities to farmers for examining the suitability of agricultural machinery and implements, like tractors, ploughs, grass slashers, hoes and ox-driven ploughs, both indigenously produced and imported.

33. Not much seems to have been done in terms of developing new technology and new equipments or carrying out research into ideally suited mechanisation practices both for small and large farms so as to reduce production costs. However, the Ministry of Agriculture is alive to this problem and suggestions for setting up a research-cum-extension services unit so as to develop and promote hand, animal draft and power machinery for small and large scale farms are being seriously considered. The proposed research-cum-extension services unit will have two main objectives viz:

- i) to examine the present equipment and implements being used on small and large farms and recommend after field experiments and research the type of implements and machinery most suited to local conditions. It would be necessary to carry out extension services so as to bring home to the farmers the advantages of recommended farm machinery;

- ii) to set up a workshop for fabrication of proto-types of recommended farm machinery. Apart from supplying proto-types, it will be essential to provide technical advice to the local manufacturers.

Perhaps a start in this direction could be made from the existing Machinery Testing Unit and Soil Conservation Station at Nakuru. The staff, land and machinery facilities there could be entrusted with programmes of research, investigation and education.

SECTION IV:

PROPOSAL FOR AGRICULTURAL MACHINERY INDUSTRY:

34. The Industrial & Commercial Development Corporation, an autonomous body of the Ministry of Commerce & Industry is exploring possibilities of encouraging agricultural machinery industry, particularly the assembly of tractors in Kenya. The Corporation is in touch with German Consortium of Industrialists, which is expected to submit a detailed feasibility study shortly. In case the study confirms the economic viability of this project, the I.C.D.C. intends to participate in equity capital of the project.

35. It may be mentioned that the present consumption of lawn mowers, harrows and seed drills is too small to justify the encouragement of their local manufacture. However, by 1975, the demand in respect of each of these items will have gone up sufficiently and it would be possible to undertake their manufacture locally, unless production techniques mark a dramatic change.

36. The existing factories making ox-plough, hoes and disc ploughs, driers for tea, coffee and grain and trailers will also be able to expand their operations in response to rising demand for their products.

Ancillary Facilities:

37. It has been mentioned in Section II that the existing factories do not manufacture all the parts required for manufacture of different items of agricultural machinery. For example the manufactures of ox-driven ploughs import cast iron wheels & bolts and nuts. The manufacturers of disc ploughs have to depend on imports for discs and bearings. Similarly, wheels for trailers have to be imported. Most of these ancillary facilities have not yet been developed, mainly because the present demand for them is too small to warrant their local manufacture. It may, however, be mentioned that automobile tyres and tubes will shortly be produced in the country and the project for them has already been approved by the Government of Kenya. There is a factory already in Kenya manufacturing belts and nuts, but so far it has not been producing those sizes of belts and nuts, which are required for ox-driven ploughs. This factory has now made arrangements for the production of desired sizes and the bolts and nuts will now be obtained from the local factory.

38. The development of ancillary industries is directly related to the status of parent industries. As major parent industries develop and the demand for ancillary parts and spares rises, ancillary industries would automatically develop in the process of general industrialization.





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