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COUNTRY STUDY REPORT

STATUS OF AGRICULTURAL MACHINERY INDUSTRY IN GHANA<sup>1/</sup>

by

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STATUS OF AGRICULTURAL MACHINERY INDUSTRY IN GHANA

Section 1 - General Pattern of Agriculture

A. Ghana is a rectangular country situated on the west coast of Africa and lies within latitudes  $4\frac{1}{2}$  degrees and 11 degrees North; and the  $1\frac{1}{2}$  degrees and  $3\frac{1}{2}$  degrees East longitude. The Greenwich Meridian passes longitudinally through Ghana cutting the coast at Tema Port, the main gateway to Ghana. The country has a total area of 92,100 square miles - about the same size as the United Kingdom. There are four main types of vegetation, the high forest to the southwest; the savanna woodland, coastal scrub and grassland to the north and south eastern and the strand and mangrove (See Appendix I).

The land is more mountainous in the south but is fairly lowlying towards to north. It is drained by the Volta River and its tributaries as well as the Tano, Ankobra, Pra and Densu rivers (See Appendix II). The highest peak Afadjato is only 2,905 ft. above sea level. There are three main soil groups; Forest Zone, Interior Savanna Zone and Coastal Savanna Zone, (Appendix III), all closely related to the amount and distribution of the annual rainfall. Average annual rainfall is heaviest in the South West decreasing in intensity towards the north and along the coast (Appendix IV).

B. Land Distribution by Crops and Production

Ghana is basically an agricultural country producing over 30% of the world's cocoa - produces over 300,000 long tons dried beans. This crop occupies the central portion of southern Ghana. Other perennials of importance are oil palm, coconut, citrus, and coffee, all in the south; while the North produces the bulk of the arable crops like rice, maize, guinea corn, millet and groundnuts.

Production of some of these crops during 1966 and 1967 is as follows:-

Crop	Yield in long tons	
	1966	1967
Cocoa	375,000	E. 415,000
Oil Palm	222,500	227,300
Coconut	218,900	205,500
Citrus	41,161	41,619
Coffee	19,000	20,000
Maize	352,600	277,500
G/Nuts	19,600	20,500
G/Corn	106,800	82,700
Millet	65,500	78,400
Rice	29,100	42,500

E - Estimated

Besides there are also such crops like sugar cane grown which is in the Komenda and Asutsuare areas for processing and kenaf in the Northern section to feed the jute factory at Kumasi; tobacco is also grown extensively throughout the country. (See Appendix V).

C. Distribution Pattern of Size of Holdings

The majority of the farms are owned by peasant farmers whose main tools are the hoe and the cutlass. Except for a few experimental cocoa farms that are owned by the Government all cocoa farms are owned by private individuals with holdings ranging between 0.5 to 640 acres or more. There are no co-operatives in this area. The Government owns large plantations of citrus, oil, /palm rubber and coconut in the Central and Western Regions and managed by the State Farms Corporation. These range from 200 to 5,000 acres; the rest are owned by private individuals and co-operatives and range between 0.25 to 250 acres per farm. The majority of arable farms belong to private individuals with holdings between 1/10th of an acre to 5.

Mechanisation has made it possible to establish a few farms ranging between 10 to 50 acres or more in recent years. Co-operatives are able to work 50 - 200 acre fields while State Farms keep between 100 and 4,000 acre farms mainly for maize and rice production. Generally farm sizes are greater in the State Sector followed by tree crop areas in the south.

D. Population and current agricultural practices.

The population of Ghana stands at 7,945,000 and in a developing country like this one would expect that agricultural practices would not attain the finesse of developed countries. The hoe and the cutlass are the basic tools, the bullock has a place as well as the tractor.

The Government owns State Farms which cultivate large acreages of tree crops like oil palm, citrus, cola and coconut on commercial basis. Individuals and Co-operatives are encouraged to mechanize. The Government has a Settlement Division which aims at settling both adults and the youth for farming purposes. The Ministry of Agriculture, through the Crop Production Division, offers advice on all modern scientific farming techniques - good seed, fertilizer use, and mechanical cultivation etc - and provide a tractor hire service for farmers, Government and Semi-Governmental Organizations and Institutions at moderate charges.

**Section 2 PATTERN OF FARM MECHANIZATION**

**Farm Machinery Population**

It is estimated that there are about 3,100 wheel tractors and 800 crawler tractors in Ghana for agricultural purposes. There are also about 5,000 bullock farmers mostly in northern Ghana particularly in the Kusasi District. A few agricultural walking tractors have made their debut into the agricultural field and surely have a place. The table below shows the population of tractors and other machinery in the public sector.

<u>WHEEL TYPE TRACTORS</u>		<u>CRAWLER TRACTORS</u>	
Massey Ferguson TEA-20	155	C-100	109
International Harvester	200	DT.54	51
Massey Ferguson 135	162	TG.160	10
Massey Ferguson 165	306	TG.90	150
Deutz(D40 & D50)	200	BNT.60	8
Perche (Super & Master)	303	D.4	2
David Brown	224	D.6	
Zetors	1,500	D.7 & D.C	8
MTZ Belarus	34	Euclid CD.8	2
Fordson	12	Richard Continent.	6
<b>OTHER MACHINERY</b>	-	Allis Chalmers	1
Rice Combines	80		
Rice Mills	226		

Besides there are various makes, models and quantities of disc ploughs, disc harrows, disc and mould board ridgers, manure spreaders, seed drills. There are well over 200 wheel tractors in the private sector. Pages 15 to 19 of symposium of farm mechanization.

**B. Mechanization Pattern and Equipment Used**

The area available for agricultural purposes is about 24,320,000 acres; about 50 per cent of this area is in the Northern and Upper Regions. There are about 1,100,00 persons cultivating 8.8 million acres (including cocoa and other tree crops). Out of this cultivated area 120,000 acres are worked by motorised

power, 350,000 acres by animal power and the rest by manual power employing the cutlass and the hoe. Vast areas are therefore available and suitable for mechanisation. Tree crops are generally not mechanised. There are four main categories of Mechanisation:

**Government:** - Where a government organisation, institution or semi-government organisation goes into production of arable crops the government sinks in capital for the purchase of various necessary machinery for the purpose. The State Farms, Settlement Division, Brigade and the Volta River Authority are examples. In this case machinery of all types and descriptions are made available - tracklayers, wheel tractors and ancillary equipment for land preparation through to harvesting and some times even up to processing together with supporting transport facilities.

Some Co-operative Societies have endeavoured to own some few tractors and the Kusaasi Groundnut Co-operative Association buys bullocks and bullock ploughs for its members; the Emcot plough is usually used but some other makes are now appearing on the market. Row-crop tractors are the rule.

Individuals have bought quite a few tractors - row-crop and walking.

The Government has established a Mechanisation Division which offers custom hire service of agricultural machinery for land clearing and primary cultivations land as well as harvesting, /processing facilities at moderate charges to all sections of the farming community. The machinery in this set-up are all zeter wheel tractors, TG.160, 90 and BNT.60 crawler tractors and an admixture of cultivation, harvesting and processing machinery.

Massey Ferguson, David Brown, Fordson and International Harvester tractors are very popular; agency problems restrict zeter tractors only to the Government Custom Hire Service.



### Production of Farm Machinery.

The level of production of Farm Machinery is very low. The local blacksmith forges the hoe and some local matchets. He is also able to make the share and some components of the bullock plough and other machinery like disc plough cross-shaft and cultivators members for replacement purposes; he is sometimes able to weld the old broken part and straighten out distorted components. Real assembly-line production is practically nil..

One firm - Agricultural Engineers engages in the manufacture of agricultural hand tools and appliances like garden forks, rakes, matchets, head pans, watering cans feeding troughs, battery cages, feeding moppers, and watering appliances for poultry. This firm is also assembling bullock drawn implements. This firm manufactures the main frames of bullock ploughs locally and plans to manufacture all parts locally as soon as possible. The same firm is contemplating manufacturing the main frames of disc harrows and tyne cultivators out of local materials in the very near future.

Two firms are now assembling tractors imported Partly Knocked Down. These are the G.C.M.T. and John Holt Bartholomew (Lonbro) dealers in Massey Ferguson and Fordson tractors respectively. These firms are also contemplating local assembly of bullock drawn implements imported Partly Knocked Down with possibilities of complete local manufacture of same according to future demands.

### D Popularity in design and present demand.

Ghana now has to import all her machinery needs from overseas countries either direct or through local representatives. The choice of a popular design, therefore, does not exist the criterion being more of what the salesman has to offer. As a result quite a few machinery have been imported into the country that never served any useful purpose.

Some of these have stood the test of the times and achieved some measures of local acceptance. In the field of bullock drawn implements the Emcot ridger has been accepted for ploughing and cultivation jobs. A more versatile version - say a tool frame to take a plough cultivator and seeding boxes would be a definite welcome if not a pressing need. About 3,000 bullock ploughs are sold annually with definite room for expansion. The Massey-Ferguson and Ford tractors are in popular demand for farming purposes in the private and co-operative fields. The Deutz, zetors, David Brown and International Harvesters are in government set-ups and have not that much popularity with private organisations who have not been able to handle to advantage as yet. The International Harvester is very popular in the timber extraction field.

**B. Future demand (1975-1980) and trend in design.**

There is bound to be an increase in demands for agricultural machinery of the right type for application in the growing of sugar cane, cotton, tobacco, kenaf, rice and maize which are being pursued closely with expansion programmes to feed both humans and manufacturing industries. I estimate that about 200 wheel tractors will be required annually in the private sector alone with possibilities of attaining the 400 mark annually between (1975-1980). The demand will be for the row-crop type tractor which must be sturdy enough to do the work and stand a reasonable degree of abuse and misuse. This tractor should be rather simple in design with simple controls. Present tractors require almost university graduates to operate them as a result of over sophistication. Over simplification must be avoided. Hydraulic Power steering, multistage hydraulic control drives and remote control parts need careful attention and should be eliminated as much as practically possible.

Section 3 MANUFACTURING INDUSTRIES AND ANCILLARY FACILITIES

(a) Farm Machinery Manufacturing Industries.

At the moment there are no farm machinery industries as such existing in Ghana. One firm, Agricultural Engineers Limited, has just made a beginning towards establishing a farm machinery manufacturing industry. They are now manufacturing simple hand tools, garden tools and some parts of bullock-drawn implements. They hope eventually to embark on manufacturing certain parts of tractor-drawn implements. Assembling some partly knocked down, imported water pumps is now carried out and it is hoped to start manufacturing some components of the pumps locally in the very near future.

Two companies are assembling Fordson and Massey Ferguson Tractors imported partly knocked down. The same firms intend assembling bullock drawn implements imported partly knocked down.

(b) Other Allied Engineering Industries.

One steel mill has been established at Tema for the production of mild steel rods, angle irons, and some flat sheets. This steel factory will cast few component parts to specific prescriptions requested, but these are exceptions rather than the rule. There is an aluminium processing plant but the ingots are exported.

Building Materials - About six factories come under this category. Their products include terrazzo, concrete, metal products and woodwork, laminated blocks, tiles, concrete pipes and marble stones.

Electrical and Electronic - Five establishments exist in this field. Their products include electrical plugs, sockets, adaptors, electrical record players, gas cookers, air conditioners and refrigerators.

Metals - There are some 34 establishments under this category. They provide vehicle bodies, louver frames, water tanks, pails, steel machine cabinets, bolts and nuts, galvanised corrugated iron sheets, wire gauze netting and mesh, brass butts and hinges, head pans, shovels, iron gates, frames and balustrades, razor blades, zip fasteners, imitation jewellery, matchets and other hand tools.

Furniture - Quite a large number of furniture making enterprises. Their products include all types of household furniture, window and door frames, office and school furniture, kiosks, etc.

Rubber - Factories that manufacture rubber products number six. Their products include mattresses, polythene foam, removed tyres suspensions, floor mats, cushions, sponge, slippers, glues and adhesives. They also use rubber in the manufacture of canvas shoes, tennis shoes and beach sandals, and outer covers (tyres).

Wood Processing - Factories in this group employing 30 or more people number over 20. Their products include logs, lumber and veneer, sawn timber, plywood and hardboard.

Cooling System - Three companies have been granted permission to assemble air conditioners and refrigerators in Ghana.

Batteries- Two companies are engaged in assembling car batteries.

Paints and Varnish - Permission for the manufacture of paints, varnishes, lacquers, enamels, thinner putty and oil strain has been granted to an English Company.

Neon Signs - There is one company that manufactures neon signs of which there is little demand at the moment.

Rubber and Metal Stamps - A well established Ghanaian company has for some time been making rubber and metal stamps of very high quality.

Petroleum Products - A wide variety of petroleum products including petrol, kerosene and lubricating oil are produced in the country by the Ghana and Italian Petroleum Company Limited (GHAIP). Crude oil is imported from the USSR, Nigeria and Libya for the company by the Ghana Supply Commission and the distribution of the products of the company is done by the same government agency.

(o) Ancillary and Supporting Industries

A jute factory sited in Kumasi processes kenaf and Urena Lobata into jute bags for cocoa and other products. Most of the Jute requirements of this factory is imported from Pakistan.

State Boat Yards Corporation (Secondi and Tema) - Apart from the building of fishing vessels, launches and pleasure boats, the corporation repairs vessels and trades in fishing gear and spare parts.

State Cannery Corporation, Nsawam - At the present this cannery produces canned jam, marmalade, alcoholic drinks and a variety of vegetable products including tomato juice, garden eggs and okro.

Glass Manufacturing Corporation, Aboso - In addition to bottles and jars the factory produces sheet glass, both plain and frosted, louvre blades, a large variety of tumblers, tankards, bowls, plates and ash trays.

Tyre Service Corporation, Accra - This Corporation carries out tyre retreading services with a capacity to produce approximately 25 tyres per eight-hour shift. The Corporation has recently been sold to Ghanaian interests.

Vegetable Oil Mills Corporation, Accra - The head office in Accra administers the operation of six oil mills situated at Esiam (Western Region), Asesewa (Eastern Region) Denu (Volta Region), Atebubu (Brong-Ahafo Region) Tamale (Northern Region) and Bawku (Upper Region). These produce Copra oil (refined and unrefined), palm kernel oil, palm oil, groundnut oil and shea butter.

Food, Drink and Tobacco - There are a few establishments in this category. Their products include confectionery, coffee, jam and jelly. Two cigarette-making and other tobacco products-making plants are in operation, one at Takoradi and the other at Tema.

Leather and Plastics - Establishments operating in these fields number 4. Their products are imitation leather, sandals, travelling bags, leather wallets, brief cases, belts, polythene bags, floor tiles, etc. Approval has been given for the establishment of a tannery at Kumasi. The company proposes to manufacture sole and shoe leather.

Shoe Manufacturing - Apart from a Government shoe manufacturing project which is nearing completion in Kumasi, two other private companies have been granted permission to manufacture ladies, gents, children's shoes and sandals.

Toilet Preparations - These are manufactured by a large number of factories. Their range of products cover talcum powder, pomades, perfumes, cosmetics, tooth paste, pressing oil and waxes. A few factories produce incense.

Textile - There is quite a number of establishments in this field. They produce handkerchiefs, beddings, scarves, towels, napkins, mosquito nets, cotton prints, khaki and white drill, nylon fishing nets.

Clothing - There are many establishments in this field. Their products include ladies blouses and skirts, shirts, underwear, socks, Pullovers, cardigans and children's wear.

Transportation - Trucks, cars, buses and special purpose vehicles are assembled by four companies in Tema and Accra.

Candles - There are two companies already engaged in the manufacture of candles for domestic use.

Section 4

POLICY TOWARDS AGRICULTURAL MACHINERY INDUSTRY

A. Incentives by the Government.

The policy of the Government of Ghana is to encourage private enterprise within the framework of a welfare state. This is well outlined in a statement by the Chairman of the National Liberation Council in March, 1966, which divides the economy into four main sectors:-

- (i) Private Sector - This will remain the largest sector in terms of number of persons engaged and gross output. This sector is open to both Ghanaians and Non-Ghanaians.
- (ii) Joint Private/Government Sector - The establishment of Joint Private/Government business enterprises will be purely on voluntary basis. No private enterprises will be forced to accept Government participation.
- (iii) Government Sector - Active state participation in economic activity will be limited to certain basic and key projects. Healthy competition will be encouraged and if it becomes necessary for the state to assume ownership of an enterprise in the best interest of the country as a whole, properly conducted negotiations will be carried out with a view to arriving at an amicable settlement. Any disputes arising out of this will be settled at international institutions including the International Chamber of Commerce, and the Centre for the Settlement of Investment Disputes set up by the World Bank.

- (iv) The Co-operative Sector - The National Liberation Council will promote an efficient and properly organised co-operative movement. Its activities will be purely economic and it will not be allowed to involve itself in politics. Producer co-operatives will be promoted but marketing co-operative will be established first.

In addition to this the Capital Investment Act, 1963, sets out some benefits some of which are listed below:-

- (a) Guarantee Against Expropriation - The Capital Investment Act, 1963 guarantees that no investment under it will be subject to expropriation by the Government. In the event of a take-over by the Government in the interest of the public, adequate compensation in the currency in which the investment was made will be paid. In case of dispute over compensation, the matter will be referred to an arbitrator appointed by both parties. If the parties are unable to reach amicable settlement, the matter will be settled through the agency of the International Bank for Reconstruction and Development.
- (b) Transfer of Profits - There is no restriction on the transfer of profits to the country of origin of an investment after payment of tax on the investment has been made. There is also no restriction on the remittance of capital to the country of origin of an investment in the event of a sale or liquidation of the approved project.
- (c) Remittances Abroad - Provision is made for remittances to be made abroad by expatriate personnel engaged on an approved project to meet certain requirements and commitments; e.g. maintenance of families, insurance premiums and contributions to provident and pension funds.
- (d) Capital Allowances - Capital allowances are made on expenditures incurred on certain approved projects. These are:-
- (i) an initial allowance of 25 per cent in respect

of expenditure on machinery, plant, furniture, fixtures and fittings. Thereafter there is an annual allowance of 15 per cent;

(ii) an initial allowance of 20 per cent in respect of expenditures on buildings, structures and roads. Thereafter there is an annual allowance of 10 per cent.

(f) Allowance for Scientific Research - Where an investor has made capital expenditure on scientific research on an approved project, in determining the chargeable income of such a person, an amount of 20 per cent of such expenditure will be deducted from that income for five years starting from the year in which the expenditure was made.

(g) Export Projects - Tax concessions are given on projects that produce goods for export, use local raw materials or produce to replace commodities originally imported:-

(i) Materials, spare parts, fuel and raw materials used or consumed by the approved project and which are not produced in sufficient quantities in Ghana are exempted from import and customs duties and purchase tax.

(ii) Goods produced by the approved project are exempted from export or excise duties up to 100 per cent provided that such goods are first cleared through customs.

(h) Deferment of Registration Fees and Stamp Duty - Payment of registration fees and stamp duty on capital may be deferred for 5 years where the undertaking of a company that has a share capital or an increase of the capital of such company is included in an approved project.

(i) Exemption from Property Tax and Rate - The Act exempts an approved project from property rate for a period of 5 years where a warehouse, factory or workshop is constructed or



acquired and repairs made on it for the purpose of the approved project provided that the acquisition or improvement took place after the commencement of the Act.

#### OTHER INCENTIVES TO INVESTORS

##### Relief to Timber, Mining Companies and Heavy Industries

Timber, mining and heavy industrial concerns pay a reduced rate of tax of N¢0.31 in the N¢0.75 for every pound retained in Ghana and N¢0.48 in the N¢1.15 for every pound not retained in Ghana, provided they satisfy certain conditions laid down by the Government of Ghana.

Employees of timber and mining concerns are exempted from the rent element, 10 per cent or 15 per cent of annual salary, added to the income of the employees of other concerns who are given the free use of an unfurnished or furnished accommodation owned by the employer.

##### Government Loans

As an incentive to investment, the Government may exempt from income tax, the interest payable on any loan charged on the public revenue of Ghana.

##### Tax Exemption

Income tax exemption granted under the Capital Investment Act, 1963, is considered as an exemption under the Income Tax Act.

#### FACTORY SITES

To give positive help to industrialists in the acquisition of land for their projects, Government has developed and plans to develop more sites outside the main urban centres of Ghana. Essential services - power water and various amenities - will be provided, and sites will be made available for lease to industrialists at agreed rentals. The centres receiving most attention at the moment and where large numbers of sites have already been allocated to industrialists include Tema, Accra, Sekondi-Takoradi, Kumasi and Tamale. At Tema, nearly all the 700 odd acres earmarked for development by the Tema Development

Corporation have already been developed and allocated and plans are nearing completion for extension by a considerable acreage.

The allocating authority for factory sites is the Ministry of Lands and Mineral Resources, P.O.Box M.212, Accra.

Agricultural Machinery imported into the country are tax free when unassembled. This applies also to spare parts which are also on the open general licence.

Newly established industries enjoy periods of grace within which no tax is applied on their profits. Some of the firms complain that imported metals and metal parts do attract import taxes; but this may be due to the fact that some of these items are not easily identifiable as being products for manufacture and there are no port customs ware houses for these firms at the moment.

#### Research, Design and Development and Testing Institutions

The Council for Scientific and Industrial Research exists to conduct research studies into various scientific and industrial problems. However, not much has yet been done in the field of agricultural machinery. The Ministry of Agriculture has, over the years, conducted adaptability tests and has selected and accepted some machinery that meet local conditions. These include tractors, disc ploughs, disc harrows, mould board ploughs and ridgers, combine harvesters and a host of other implements; and a policy of standardization is now vigorously being pursued by the Ministry with the assistance of the newly formed Steering Committee on Mechanization.

The Universities at Kumasi and Legon are pursuing research studies and are also testing some agricultural machinery. They have invented a few tools and machinery; so also have some individuals but because of the total absence of any established testing institutions no scientific data on performance of any sort is available. Trials by farmers and their remark are the basis for acceptance.

(c) Need for the Future

Ghana does not at the moment manufacture her own agricultural machinery and therefore has to look to outside supplies. It appears more sturdy machinery incorporating stump jump devices would be most preferable under existing conditions.

These should be simple implements; of improved design which can be made in villages, improved plough shares, bodies and frames and harness. Local industries should be developed to conserve foreign exchange.

There should be research into proper tillage and seeding practices resulting in the selection of the right machine for the right job, timeliness, water conservation and maintenance of soil structure; harvesting, storage, and processing methods which result in less of grains and other farm produce should be investigated. All these call for the establishment of research institutions on agricultural machinery.

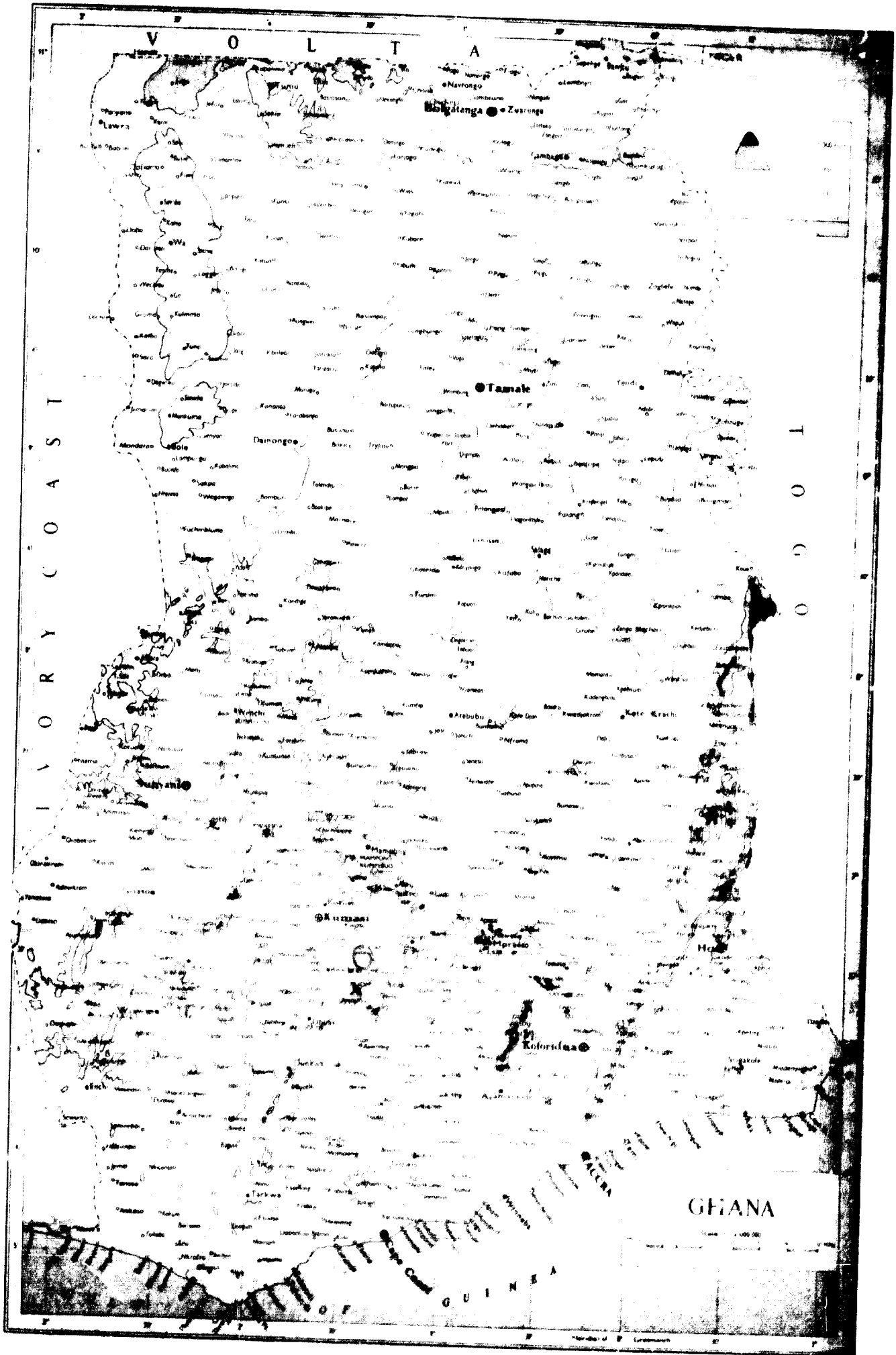
The country obviously is going to expand demand for agricultural machinery with the development of more land. Manufacturing industries should think seriously of extending their activities into Ghana while indigenous Ghanaians should be encouraged to develop their own local industries.







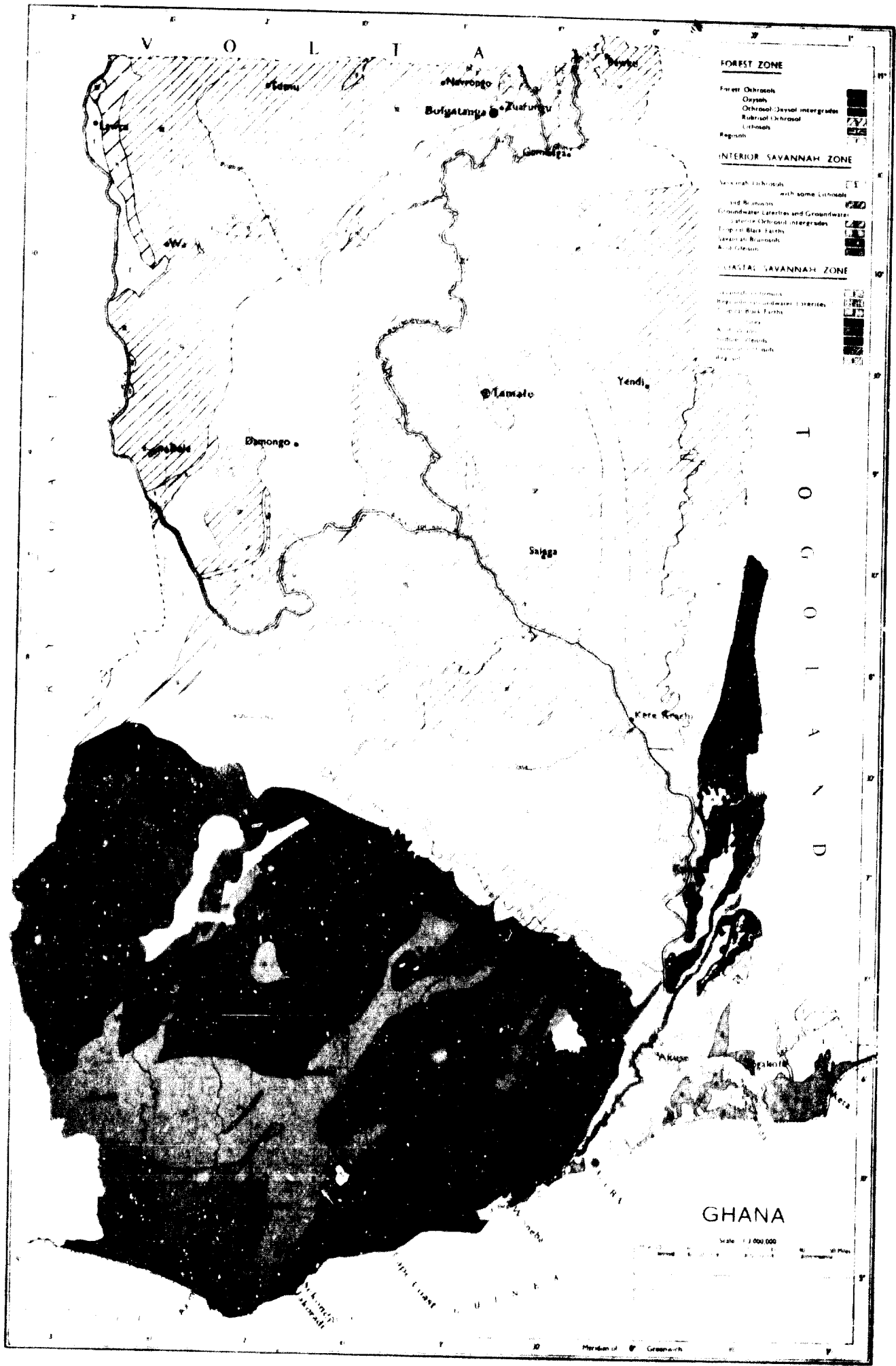
# PHYSICAL



APPENDIX II







APPENDIX III



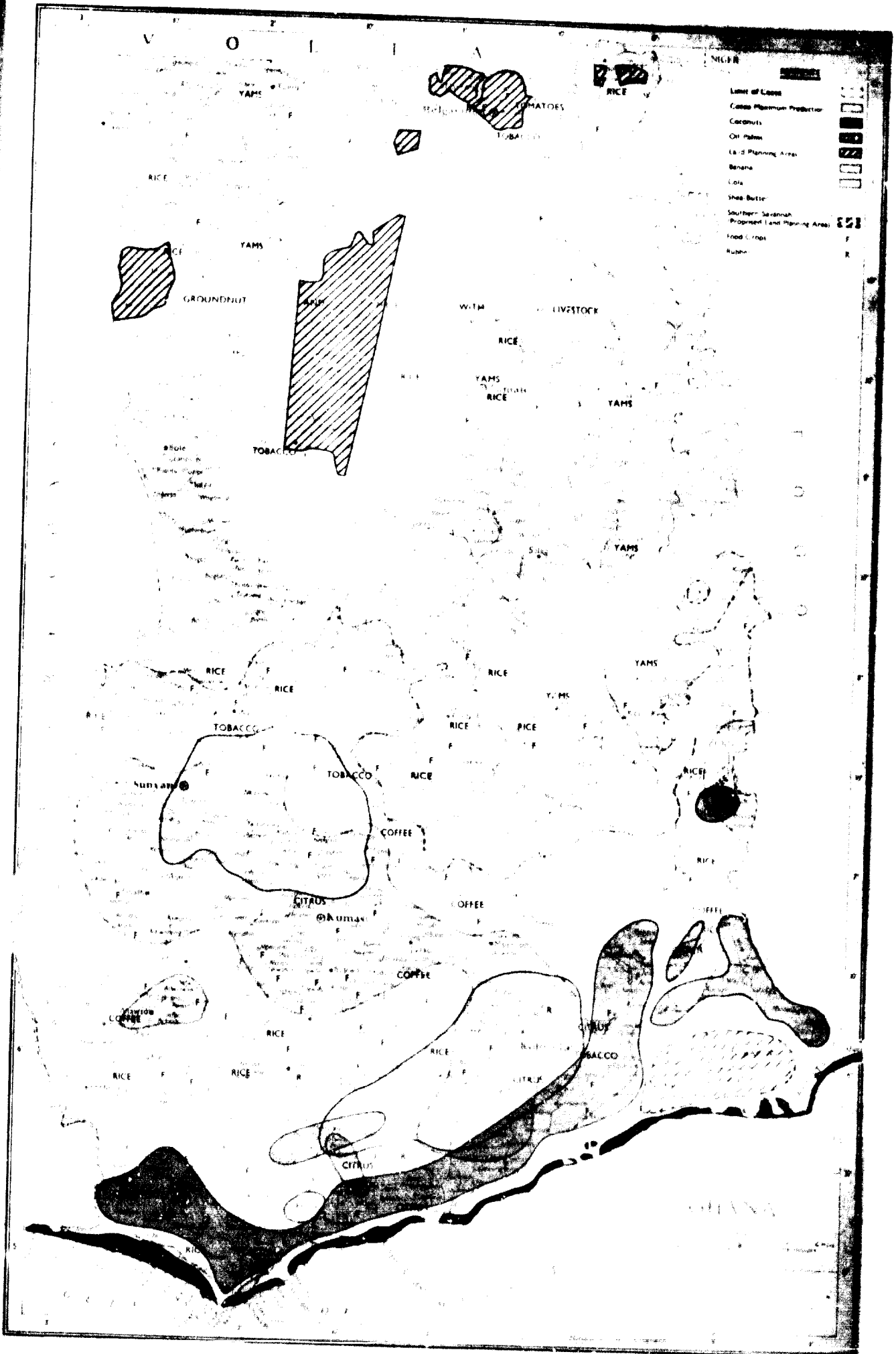
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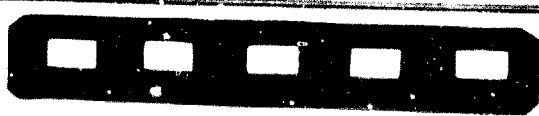
APPENDIX IV



# AGRICULTURAL PRODUCTS



APPENDIX 7





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