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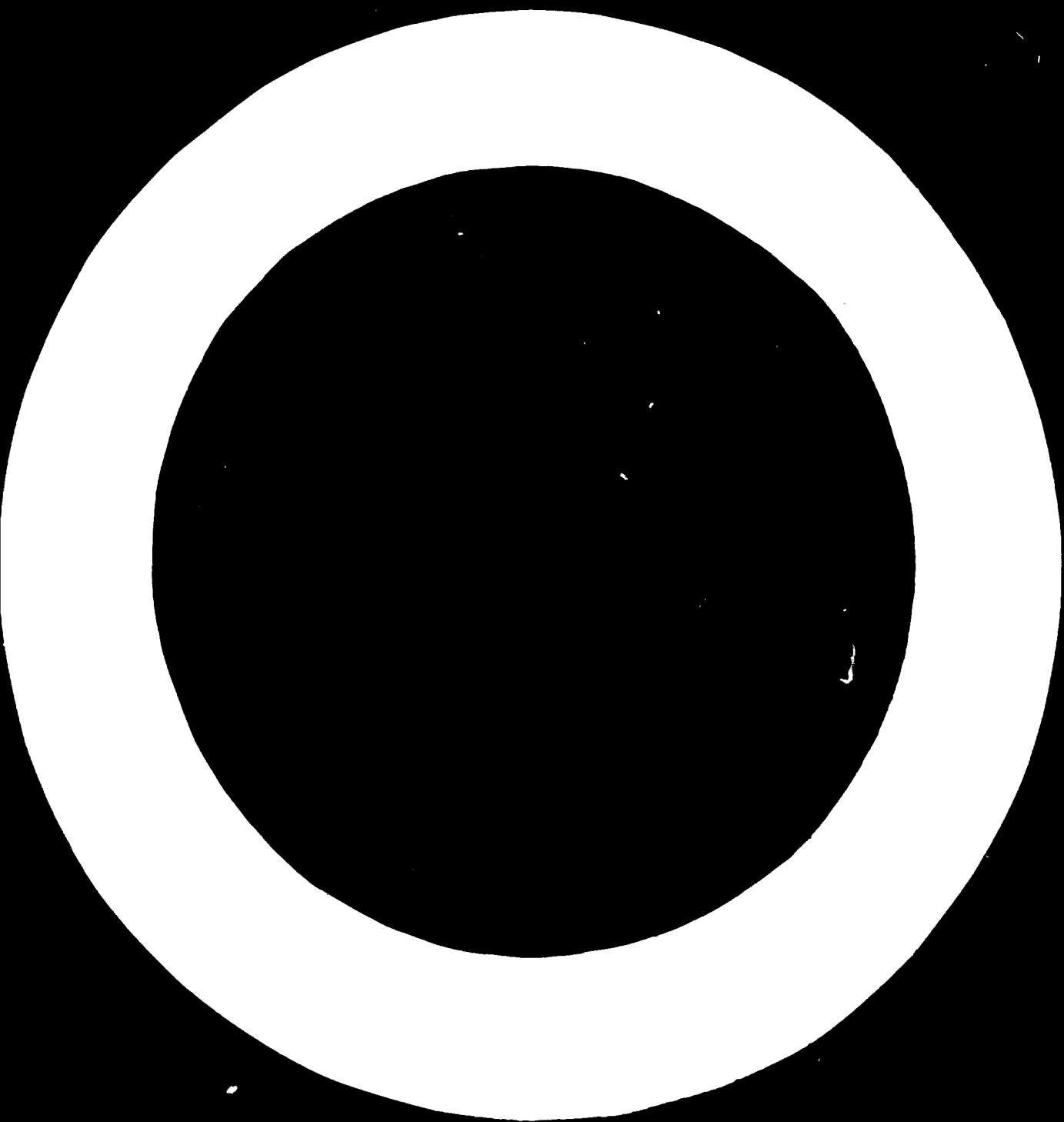
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AN OUTLINE OF THE ACTUAL STATE OF PLANS AND THE POSSIBLE POINT
OF EXPANSION OF TELECOMMUNICATIONS INFRASTRUCTURE IN KENYA

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They are also aware of the possibilities of potentialities which have been developed in the field of sound development within a fairly short period.

The manufacture of Telecommunication Equipment, components and a range of household appliances and particularly Sound and Television receivers can be a rewarding exercise with a promising future. Unfortunately the industries to manufacture Telecommunication Equipment and components have not yet been established. Only one or two industries for manufacturing Receivers have been established. These are:-

1. African Radio Manufacturing Company (ARMC) in Kenya.
2. Builders East Africa Company in Tanzania, but with some shops in Kenya.

The other industries manufacturing small different items are:-

3. East Africa Cables - manufactures Cables and Wires in Kenya.
4. Thomas White - Fasteners.
5. Union Carbide - Batteries and Cells.
6. A. J. Main (1968)Ltd.- Masts and Fittings.
7. Forestry Industries - Fertilisers e.t.c.

In view of the relative small scale operations of the last four Industries, I will confine my outline on the first three i.e. Sound Receivers and Cables.

I. RECEIVERS

Kenya as a developing Country with meagre resources and a large illiterate population, depends mainly on its Broadcasting media to inform, entertain and above all educate its masses. Broadcasting is thus a vital element in the nation building, as such it is only proper that local Industrial incentives should be fully exploited in order to provide low-cost, reliable battery operated Sound and Television Receivers for the KSh 46.1 Income per Capita per annum masses of Kenya.

Items like Sound receivers are no longer regarded as luxuries available only to the privileged few. They can and must be made available across a broad front. They are indeed one of the manifestations of economic progress, a yardstick by which people judge their own progress. This is clearly seen in the rural areas where people have that desire to possess their own Sound receivers. Most of them would rather work hard to possess their own receivers than for example a bicycle. It is this tendency and 'desire to possess' that provides the incentive to the rural person to work hard to cultivate his piece of land much more productively that in turn creates greater wealth and hence progress.

That there is greater demand for consumer durables like receivers e.t.c. can be reflected in the latest receiver import figures for years 1966, 1967, 1968 as shown below in Table 1.

COUNTRY	1966		1967		1968	
	Rxs.	Value	receivers Units	Value £	Receivers Unit	Value £
KENYA	17,807	261,771	2,405	280,135	2,117	210,212
UGANDA	50,542	367,601	2,704	36,841	1,581	214,110
TANZANIA	20,009	281,622	29,569	220,172	11,231	254,174
TOTAL			101,678	607,148	47,929	578,504

TABLE 1

This demand is not only confined to receivers, but also to the household electrical appliances as shown by the figures in Table 2.

COUNTRY	1966		1967		1968	
	UNITS	VALUE	UNITS	VALUE	UNITS	VALUE
KENYA	-	£ 3,736,970	-	£ 4,284,904	-	£ 4,609,475
UGANDA	-	2,072,476	-	1,801,037	-	2,255,976
TANZANIA	-	2,642,262	-	3,052,854	-	4,031,177
TOTAL						

TABLE 2

Looking through the 1968 Average price per Unit receiver it can be seen that the present price per unit receiver is far too much more expensive for the low earning majority (about 90% of the entire population.)

It thus becomes most necessary that a solution has got to be found to provide low cost receivers - both Sound and Television so that they are within reach for the low earning masses.

It is my hope that this meeting will through deliberations and discussions go along way in trying to find a solution to this thorny problem which besets most of the developing countries.

It is in realisation of this problem, that a few local companies (mentioned before) have with the aid of the Government of Kenya through Finance Companies like I. C. E. C. (Industrial and Commercial Development Corporation) and K. E. F. C. (Kenya Development and Finance Company) have come out to establish local manufacturing industries to produce items like Receivers, Cables, Batteries, masts and poles.

1. AFRICAN RADIO MANUFACTURING COMPANY (ARMCO).

Started in 1963 with only 2 people. It produced only a few 1 Band MW prototype receivers for market testing in the same year. Between 1964 and 1965 when the I. C. E. C. agreed to give support and also Daryo - a Japanese Company came in as a joint venture. Since 1966 the manufacturing side of ARMCO business has made steady progress and a variety of its products sold within the Country became known for their quality and competitive retail prices. At the moment ARMCO's cheapest Model receiver is the 6C 19B which costs about £ 6 Sterling, while the most expensive ARMCO radio is the model 12 v 211 WF for about £ 16 Sterling.

ARMCO imports its supplies of kits and components from Japan on a hand-to-mouth basis, a system that is likely to be irregular and inadequate particularly when a big contract for supply of receivers is placed by any local organisation to ARMCO.

Despite these irregularities, ARMCO's production figures for the last three years were:-

TYPE OF RECEIVER MANUFACTURED	1966	1967	1968
	(6 models)	(9 models)	(9 models)
Single Band (MW)	200 portable	700 portable	-
2 Band (MW&SW)	600 portable 2,000 table	300 portable 3,900 table	500 portable 2,500 table
3 Band (1 MW& 2 SW)	1,800 portable	6,500 portable 600 table	4,300 portable 500 table
4 Band (1MW & 3SW)	-	1,200 Semi- Table	1,400 Semi- Table
TOTAL	4,600 Sets	13,200 Sets	9,200 Sets

N.B.

The apparent backlog in production in 1968 was due to a potential importation of complete Japanese radios and ARMCO's difficulties in securing prompt daily drawback which resulted in a backlog of the production time for four months of the year.

It is encouraging to note that the whole unit's factory output has been successfully marketed and has been well received by consumers mostly local.

As a result of this successful marketing of her manufactured receivers in the face of harsh competition from giant foreign companies, ARMCO has been spurred to plan for a substantial production of a variety and range of products like Television receivers, radiograms, tape recorders e.t.c. as shown below:-

Planned Production Programme.--

ITEM	1968	1969	1970	1971	1972
Transistor Radio	2,200	22,000	33,000	44,000	55,000
Radiograms	-	1,500	2,700	3,800	5,500
Tape Recorders	-	-	500	2,000	3,000
TV. Receivers (16", 19" and 23")	-	-	100	150	200
Electric Fans	-	-	100	200	300
Toasters	-	-	100	200	300
Electric Irons	-	-	100	200	300
Food Blenders	-	-	100	200	300

The planned programme involves an increase in annual turnover as follows:-

<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>
KE 74,235	KE 209,967	KE 248,788	KE 378,122	KE 441,409

To achieve targeted production, ARMCO has to change from SKD (Semi-knocked Down) system to CKD (Completely - knocked Down) manufacturing system. SKD implies use of imported assemblies.

CKD means that small individual components are imported to be assembled and wired locally. CKD brings lower import cost; greatly increased local labour content; increased use of local material content; savings in foreign Exchange and there an increase in Gross Domestic Product.

Thus where as SKD is essentially an assembly operation; CKD is a stage of manufacture.

It is envisaged that by 1972, the direct labour force employed in the factory will have increased seven times from 35 employees in 1968 to 245 in 1972.

Savings of import costs (about 40 to 50%) will also be realised by use of CKD system.

<u>an example</u>	<u>Average imported Unit cost</u>	<u>Savings on Import cost</u>
Imported Finished Radio	SHS. K 140/-	Nil
Radio SKD	SHS. K 90/-	36%
Radio CKD	SHS. K 74/-	50%

And the local content will be also be increased as per the following example:-

Take for example the popular 2 Band table model Receiver:-

Ex-factory price	<u>SHS. K</u> 115/75
Import Cost	<u>68/-</u>
Local Content	<u>47/75=</u>

Therefore Local Content % is $\frac{47/75}{115/75} = \underline{41.25\%}$

All these examples indicate the effect CKD system has on the ultimate price of the locally produced receiver. It is therefore advisable to encourage CKD system.

2. PHILLIPS EAST AFRICA - RECEIVERS

Another local company that manufactures receivers locally is the Phillips East Africa. It started in 1966 as a joint venture between Phillips company of Holland and the three East African Countries forming the Community.

Though the actual manufacturing plant is at the moment in Arusha (Tanzania), this company has got very much dealings in Kenya, and in fact are now setting up a manufacturing plant for household bulbs and gramophone records in Nairobi (Kenya). Phillips (E.A.) is expanding very much, and this expansion can be reflected in their annual production figures over the past three years.

<u>YEAR</u>	<u>RECEIVERS (IN PCE)</u>
1967	40,000
1968	50,000
1969	75,000

and in 1970 they project to produce in the region of 1,00,000 sets in different models. They are also going to manufacture one of the types of 1 Hand Receivers on East African Market. Most of these 1 hand receivers will be only MW and others only MW, and they will cost in the region of 10 sterling.

Besides manufacturing 1 hand Receivers, they are manufacturing mono cells type UM1 in Dar-es-Salaam which are sold over East Africa.

MARKETING

Most of the Phillips products are consumed within East Africa with little to Zambia and Ethiopia. Phillips (E.A.) sells through multi sellers system.

In Tanzania through the state Trading Company.

In Kenya and Uganda through T.O.M. Twenteche Overseas Company.

A breakdown of interstate consumption of Phillips receiver products is as shown below:-

<u>COUNTRY</u>	<u>CONSUMPTION PERCENTAGE</u>
KENYA	40%
TANZANIA	35%
UGANDA	25%

This indicates that Kenya is the biggest consumer.

MATERIALS:

About 39% of all the components and materials used in manufacturing Phillips products is local content. The rest is imparted from Overseas mainly Holland. About 15% to 20% increase in local content is expected in every near future.

LABOUR

The Arusha plant has about 75 employees. About 98% of them are local people and the remaining 2% is composed of management and very highly skilled personnel.

Almost all the staff present in the plant, particularly on the job within the industry. A Telecommunications Training Officer has been employed to help in training staff. He also assists in training E. A. Cables and Telecommunications staff in Kenya and Uganda, Sarawak. Consumer's technical staff are also taken to the factory for some particular training suitable for the consumer needs.

On the whole Philips (E.A.) is expanding its network throughout the whole of East Africa rapidly.

II

CABLES

The only Company which manufactures cables in Kenya is EAST AFRICAN CABLES LTD.

This company started in 1960. It manufactures the following:-

- (a) Four core plastic Under ground Main cables.
- (b) House wiring cables including cables for lighting and Power circuits.

Telephone cables cannot be manufactured by E. A. Cables because the company does not have the required highly sophisticated equipment both for manufacturing process and for testing.

QUALITY CONTROL

The cables are manufactured in tight quality Control as specified by the British Standards of Specifications (Enfield).

MATERIALS

Imports most of their main materials like copper rods, PVC and steel wire from Overseas.

The other material like cotton, fillets polythene rapping and cable reels and drums are available locally.

MARKETING

East African Cables Ltd. has quite good local and interstate market. It exports its products to Uganda, Tanzania and Zambia.

Locally the consumers are the Municipal Councils for House wiring and the East African Power & Lighting for their Under Ground power cables.

The greatest portion of the cables is sold through Enfield Cables company to the neighbouring states like Uganda, Tanzania and Zambia.

The Company is expanding aggressively and has capacity for expansion since it has a large manufacturing plant building and runs only one manufacturing shift. Can easily double the output by running a second shift.

The annual turnover for East African Cables is quite low.

STAFFING.

The company employs about 50 workers of which 45 are local employes doing the actual manufacturing processes and operatives while the remaining 5 are of management.

TRAINING FOR STAFF

Semi-skilled, operative and manipulative staff are trained on the job. Majority of semi-skilled staff have come from the technical institutes like Kabete, Shigalagala e.t.c. A few persons have worked as apprentices at the Kenya Polytechnic and return to perform more skilled duties when they graduate through their courses. It is however difficult to find a direct entry employee who is experienced in Cable manufacturing process.

CONSUMER ORGANISATIONS - MARKET

Since any Industries manufacturing Telecommunication Equipment cannot expand in isolation without the consumer or Market, I feel proper to include in my paper very brief reports of Development plans for two of the major consumers i.e.

1. East African Posts and Telecommunications Corporation - for mainly Telecommunications Equipment and components.
- and
2. Voice of Kenya - for Broadcasting Equipment including Sound and Television Receivers.

EAST AFRICAN POSTS AND TELECOMMUNICATIONS CORPORATION (E.A.P.T.C.)

Provides postal, tele, radio, radio-call, telegraph, telex, money order and Savings Bank Services in Kenya, Uganda and Tanzania mainly. It also provides International telecommunication services through the East African External Telecommunication in which it has a controlling interest.

Posts and Telecommunications Corporation is undergoing big development between 1969 and 1974. During the Plan period, development expenditures in Kenya will average more than KSh 1.0million per annum; mainly from new income, depreciation provisions and loans from the World Bank. This represents a significant expansion in development as compared with previous years.

Development programme for Telecommunications is based on the telephone growth trend of approximately 8% per annum - taking into account the known future development of industrial and residential areas in Kenya. The goal is to provide an additional 20% of the general capacity to meet fluctuations in demand

and to restore the equipment which has been depleted over the past years.


Presently the telephone services suffer from the following deficiencies:-

- (i) inadequacy of automatic exchange switching equipment.
- (ii) inadequacy of exchange and subscriber line plant.
- (iii) Delays in the completion of trunk calls due to the inadequacy of trunk equipment.

These deficiencies were caused by the low rate of development expenditures during the period from 1958 to 1963.

In 1967 the World Bank agreed to loan E. A. P. & Telecommunications K£ 4.6 million plus increase in investment expenditures; and it is hoped that when completed, the major deficiencies will have been removed, and also major manual exchange will be converted to automatic working and provision for subscriber trunk dialling system.

At the moment there are 1,372 Trunk circuits, covering a total of 204,400 circuit mileage. The network is going to be extended by opening new routes and using UHF Radio Relay System. A wide Band Microwave Route is to be introduced between Kampala (Uganda) and Dar-es-Salaam (Tanzania) via Nakuru, Nairobi, Mombasa towns in Kenya. A Tropospheric Scatter system is shortly going to operate around the Lake Victoria between Kampala, Mwanza and Dodoma - using two hops. It will have a capacity of 10 radio channels. The whole project i.e. with 2 links is going to cost just under £ 500,000 sterling.

(see figure  for the actual locality of these towns).

EXCHANGE SERVICES

Presently there are just over 100,000 Telephone sets in East Africa. About 60,000 of these are exchange lines and the rest P. A. Exs. and Secretarial sets.

All the main centres within East Africa have automatic exchanges; but the minor centres have manual exchanges. Just started most recently is the Trunk Dialling between the three major East African Cities i.e. Nairobi, Kampala and Dar-es-Salaam - this means that an exchange operator in Nairobi can dial a Kampala Number and vice versa. Subscribers Trunk Dialling system is starting in Nairobi by October this year, and about 6 months later in Kampala and Dar-es-Salaam.

There are plans to convert the whole extensions to exchange to automatic working.

By May 1970, the Earth Satellite stations belonging to External Telecommunications will be opened. This station which is situated on Mt. Margaret and costs K£ 1.5 million will provide circuits to Europe, India, Pakistan and later to Hongkong and Nigeria.

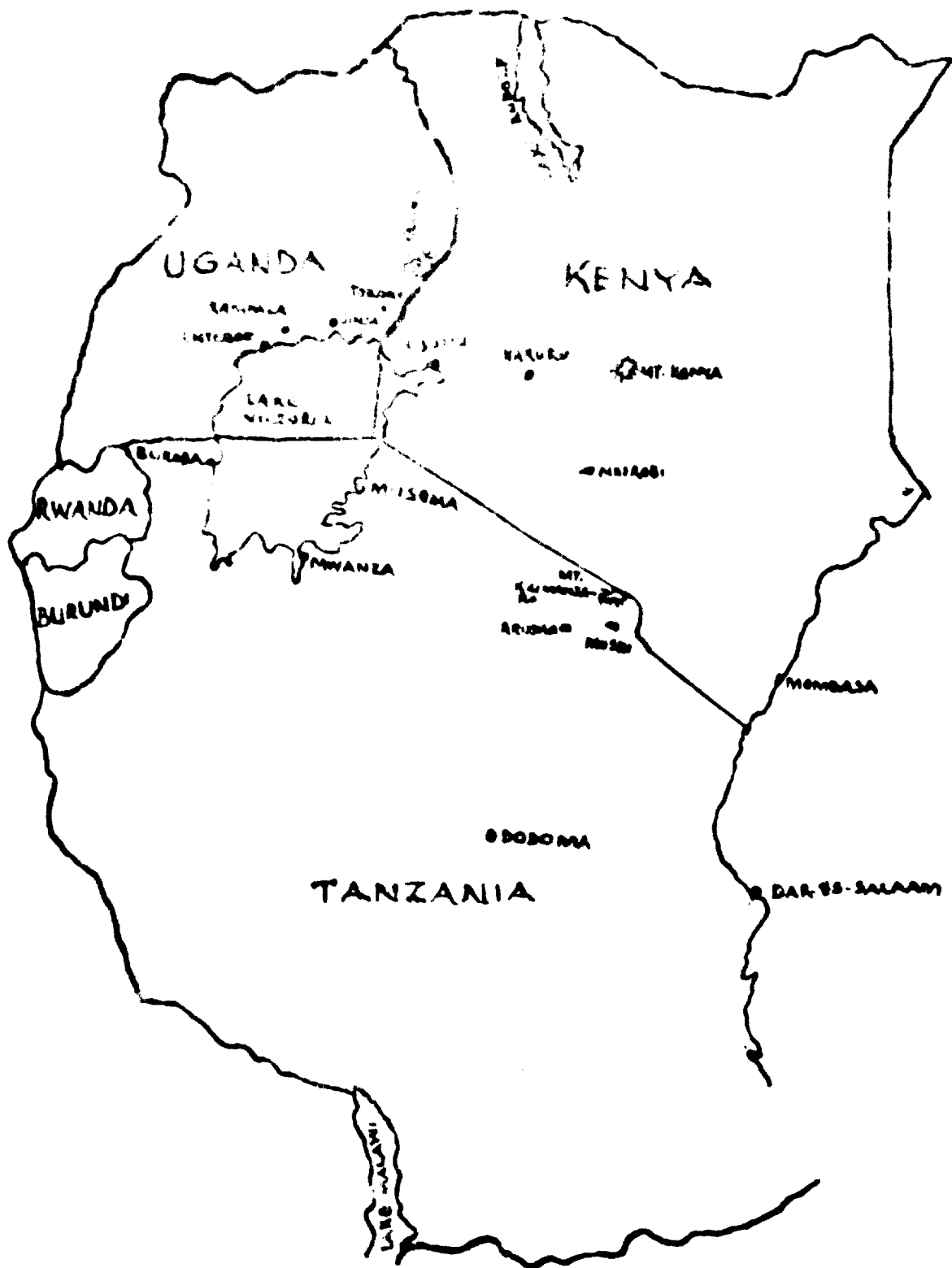


FIG. 1

With all these expansions and Development, the E. A. P. and Telecommunications is going to spend more than K£ 5.8 million by 1974.

STAFF TRAINING

E. A. P. & Telecommunications has a very well organised training school at Mbagathi (Nairobi) Kenya. The annual output is about 80 Technical officers and much more than this figure of operators.

Recently Regional Training schools were established to cater for each state i.e. Uganda, and Tanzania have established their own Regional Training Schools. Large numbers of semi-skilled employees are taught on the job, and simple courses are arranged at the School - refresher courses.

VOICE OF KENYA

MINISTRY OF INFORMATION AND BROADCASTING

Voice of Kenya is charged with the responsibility of educating, informing and entertaining the masses through both radio and Television.

About 80 to 90% of Kenya's population is concentrated in the rich agricultural areas of Rift Valley, around Nairobi, around the Lake Region and along the Coast. Of this population only about 80% receive Voice of Kenya's Medium Wave Services.

Although there is shortwave also, the intention is to increase MW coverage by installing a number of small Relay or Booster stations so as to cover almost the entire country (see Radio Coverage Development Plan by 1973 Fig. 2.1). This programme is projected to cost about K£ 155,000 over the plan period. When completed it is anticipated that about 90% of the entire Kenya population will be able to receive the National Service and Medium Wave; and the appropriate Vernacular broadcasts on short wave. Radio Studio facilities and Radio Mobile Units will cost about K£ 70,000 to improve radio programmes.

Television Service too is expanding fairly rapidly though the high cost of Television Receivers restricts consumer demand. And this is the most crucial factor which this meeting has to bear in mind. As I stated before the income per capita per annum for Kenya is about K£ 46.1³ while the cost of a Television Receiver averages K£ ----- see data -----

From this it can be easily seen that a greater number of the members of the public cannot just afford a Television Receiver. It is therefore imperative that either:-

- (a) a reduction of customs duty charged per Unit Set imported and thereby lose national revenue or
- (b) to manufacture locally cheaper Television Receivers.

To me the second alternative is the ideal one and indeed agrees with the purpose of this meeting - a solution has to be found through discussions at this meeting.

TELEVISION RECEIVERS

COUNTRY	1966		1967		1968		AVERAGE (1968) VALUE PER UNIT
	UNIT	VALUE	UNIT	VALUE	UNIT	VALUE	
KENYA	2,638	124,560	1,552	72,307	1,690	67,473	
UGANDA	1,826	56,248	1,488	46,367	1,826	50,795	
TANZANIA	80	4,597	12	858	78	4,179	

DATE :

Voice of Kenya main tasks are:-

- (a) how to improve the present Services, and
- (b) how to extend Television Services to areas not yet covered by the present Service arrangements.

The first is a project for the replacement of the present 5KW to 10KW (this has already been replaced) and then to increase 10 times the output power of the relay Stations from 500W to 5KW. These two stations serve the central and western parts of the country respectively; they will improve the Television Service throughout Kenya and ultimately extend it to the television service along the coast (at Mombasa). The Transmitter Sub-line is already running. The studies come up early next year.

Besides these two relay stations, there are other relay stations in the form of shielded repeaters. These are Mazara - 97 miles from Nairobi, Baringo - 70 miles from East coast station; and Voi Relay Station to receive from the 5KW Coast Transmitters at Mazaras and relay to areas around Voi itself - 90 miles from Mombasa.

When all these projects are completed, about 70% of the population of Kenya will be able to receive a good Television signal. (See the attached Television Coverage Development Figure B.).

There is also the Kenya Institute of Mass Communication now just into operation for the purpose of providing training for the engineering, programming, production, Sales, radio and Television management courses. The school is equipped with the necessary laboratory and production equipment to facilitate in training the technical and production staff to acquire better skills which are very necessary for the effective mass media. The School caters for the whole Ministry of Information and Broadcasting and there are plans to make it international to include other nearby African states as a Mass Media College.

The whole Development Plan over 1969 to 1973 will cost in the region of K£ 1.9 million.

CONCLUSION

Kenya has the raw materials necessary for Industrial development. It has cheap labour to be trained and moulded to acquire manufacturing skills. It has the capacity and markets both within and around; and above all it has the stability - a factor that is very conducive to economic growth. What Kenya needs is the understanding from the developed countries to give us the necessary encouragement through technical assistance and know-how which are prerequisite for a country's economic advancement. Kenya is confident that as a result of meetings like this, we from developing countries will learn and benefit from the deliberations which will be for the benefit of mankind as a whole.





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