

**BASIC DESIGN STUDY REPORT
ON
THE PROJECT
FOR
DEVELOPING MEDIUM WAVE RADIO BROADCASTING NETWORK
IN
THE UNITED REPUBLIC OF TANZANIA**

FEBRUARY 1987

JAPAN INTERNATIONAL COOPERATION AGENCY

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PREFACE

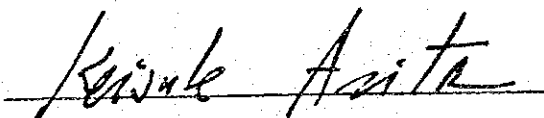
In response to the request of the Government of the United Republic of Tanzania, the Government of Japan has decided to conduct a basic design study on the Project for Developing Medium Wave Radio Broadcasting Network and entrusted the study to the Japan International Cooperation Agency (JICA). JICA sent to Tanzania a study team headed by Mr. Yukiya Saika, Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs from October 3 to 30, 1986.

The team had discussions on the Project with the officials concerned of the Government of Tanzania and conducted a field survey in Dodoma and Kigoma areas. After the team returned to Japan, further studies were made and the present report has been prepared.

I hope that this report will serve for the development of the project and contribute to the promotion of friendly relations between our two countries.

I wish to express my deep appreciation to the officials concerned of the Government of the United Republic of Tanzania for their close cooperation extended to the team.

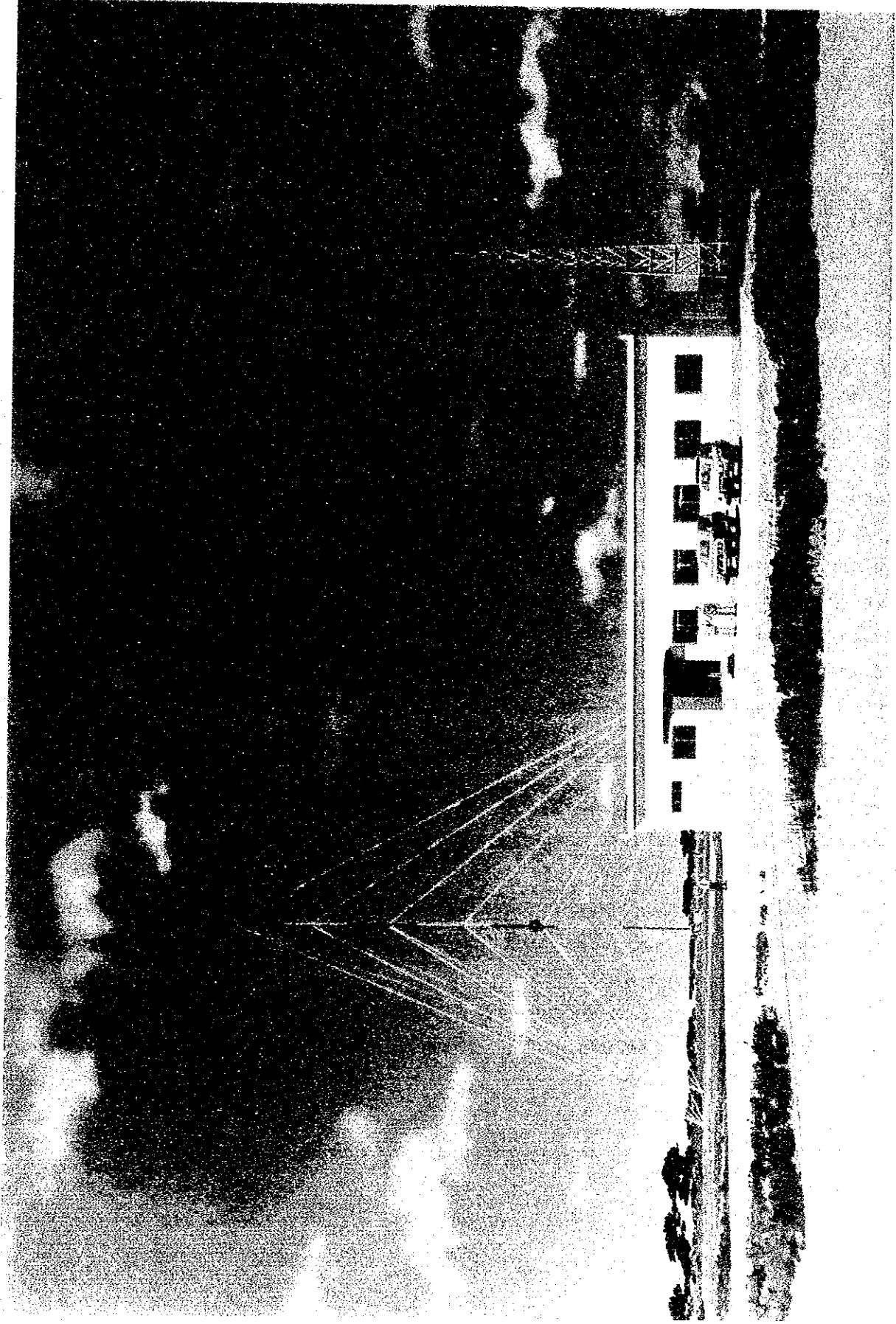
February, 1987

A handwritten signature in dark ink, reading "Keisuke Arita", is written over a horizontal line.

Keisuke Arita

President

Japan International Cooperation Agency



Perspective of Dodoma transmitting station

SUMMARY

Since its independence in 1964, the Government of the United Republic of Tanzania (hereinafter referred to as the Government of Tanzania) has been carrying out socio-economic development plans in various fields. Special emphasis has been laid on the promotion of agriculture which is the basic industry of the country, the dissemination of knowledge regarding health and hygiene, the construction of hospitals, and manpower development plan to complement adult and school education and training systems. For these items the government has long-term plans up to the year 2000.

For the promotion of socio-economic development, the government has been using a variety of media as a means of supplying the people with information with the aim of encouraging them to participate actively in national development and giving them elementary and technical education. Radio broadcasting has been effectively used because it can disseminate information to wide area at one time. Several ministries of the country have facilities and staff to produce radio programs in cooperation with Radio Tanzania Dar es Salaam (RTD).

Radio broadcasting in Tanzania, which is state-operated, is done by RTD on short and medium waves over the mainland territory. However, the areas served by medium-wave national service designed for mainland Tanzania now cover only 37 percent of the population. Though people in other areas listen to short wave radio, the truth is that reception is poor owing to the propagation characteristics of short waves. It is estimated that there are some 2.5 million receiving sets in the entire country, representing a distribution rate of almost 100 percent of households in the medium-wave service areas and 60 percent on an average in other areas.

The Government of Tanzania has requested grant aid from the Government of Japan, in consideration of the above-mentioned situation, for the construction of medium-wave radio stations in Dodoma, Kigoma and Nachingwea

where remarkable results can be expected because of those areas' relatively high population densities.

This report was prepared based on a basic design study conducted in consideration of these circumstances. The study has led to the conclusion to construct the two broadcasting stations in Dodoma and Kigoma out of the three requested. Nachingwea was left out of the project in view of the problems of transportation of materials to the proposed site and of radio program relay link, and also because of the fact that no concrete progress in that area had been made except for the ensuring of a site for a transmitting station.

The outline of the basic design is as follows. Both in Dodoma and Kigoma, transmitting stations from which medium wave broadcasting is to be transmitted will be built on the sites acquired by RTD, and buildings now under construction by RTD will be used as a studio complex where radio broadcasting programs are to be produced.

Both of these transmitting stations are designed to have a 432 m² station building, a 100 kW transmitter and a transmitting antenna of 125 m in height. Dodoma station is designed to have an omni-directional antenna while Kigoma station will have a directional antenna which suppresses wave emission to the neighboring countries on the west of Tanzania.

In consideration of the capital transfer plan now under way, Dodoma station will be provided with three production studios of large, medium and small size. On the other hand, Kigoma station will be furnished with a single production studio, a minimum requirement for producing regional programs.

Major Facilities and Equipment

Item	Major specification		Remarks
	Dodoma station	Kigoma station	
Transmitting station			
Transmitter	100 kW 603 kHz	100 kW 711 kHz	
Transmitting antenna	Omni-directional antenna Guyed wire-supported cylindrical steel mast, 125 m high	Directional antenna Main antenna: Guyed wire-supported cylindrical steel mast, 125 m high Sub-antenna: Down-lead 120 m	
Station building	The same plan for both stations: 432 m ² Steel structure External wall: Autoclaved light-weight concrete panel Roofing: Galvanized steel corrugated roofing		
Studio			
Program production facility	Three studios will be equipped, Studio 1 (large) Studio 2 (Medium) Studio 3 (Small)	One studio will be equipped.	Facilities designed for capital transfer plan to Dodoma

Project cost to be borne by the Tanzanian side is estimated about 24.8 million Tsh.

Construction at the Dodoma site will be completed in 13 months after signing of E/N by both governments including, with some overlapping, detailed design (2 months), tendering (1.5 months), manufacturing (5.5 months), transportation (2.5 months) and installation (6 months including foundation work). The completion period for the construction at the Kigoma site is 11 months after signing of E/N, with contract (1 month), manufac-

turing (5.5 months), transportation (3 months) and installation (6 months including foundation work), some of these stages being overlapped.

Rich in achievements and experience over the long period of time since the commencement of radio broadcasting services (in 1951), RTD has no problem regarding operation and maintenance of facilities and equipment provided under this grant aid project.

A request was also made that training in Japan be conducted for the RTD staff members. Though it is not an integral part of the project, the training, if carried out as requested, will help them to acquire more sophisticated broadcasting technology and program production skills. The effect of this grant aid project will then be greatly enhanced.

The completion of this project will enable 3.12 million people to listen to the radio on medium waves, thus increasing the service area to include 52 percent of the population. Radio programs broadcast from Dodoma and Kigoma Stations will contribute to the socio-economic development of Tanzania to a great extent by giving timely and appropriate information in various fields to the people who, at present, can listen to the radio only on unstable short waves.

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CHAPTER 1. INTRODUCTION

CHAPTER 1 INTRODUCTION

The United Republic of Tanzania is a typical agricultural country consisting of a mainland in eastern Africa and islands in the Indian Ocean including the Zanzibar Island. It covers an area of approximately 940,000 km² and has a population of approximately 21 million.

Radio broadcasting in the Tanzanian mainland was started in 1951 and since then strenuous efforts have been made to improve the quality of the nation's radio broadcasting in keeping with the expansion and improvement of the broadcasting facilities. Currently the nation's radio broadcasting is done by Radio Tanzania Dar es Salaam (RTD), a branch of the Prime Minister's Office.

In the metropolitan area three features of broadcasting, namely, the national service, the external service and the commercial service are conducted by using medium waves and short waves, while in the regional areas only national service is conducted in three cities, namely, Arusha Mwanza and Mbeya.

Having a land area about 2.5 times as large as that of Japan, Tanzania's transport facilities are still inadequate, which makes it difficult to quickly disseminate the government's information nationwide through such print media as newspapers.

Under these circumstances, the Government of Tanzania thinks it very effective to disseminate information quickly through radio broadcasting and thereby educate the people scattered in a very wide area in promoting the nation's socio-economic development. The Government of Tanzania thinks medium-wave broadcasting is preferable to short-wave broadcasting because the former type of radio broadcasting can be received with a low-priced dry battery-powered radio receiving set.

In actuality, however, medium-wave radio broadcasting is available only in the metropolitan area and three regional cities. Only about

7,760,000 people or about 37% of the nation's total population have access to this type of radio service. The rest of the population have no choice but to utilize short-wave radio broadcasting under rather poor reception conditions.

Accordingly, the Government of Tanzania feels it imperative to expand the medium-wave radio broadcasting network and requested the Government of Japan to provide grant aid for construction of a medium-wave radio station with a 100 kW transmitter in Dodoma in the central part of the mainland, in Kigoma at the western end and in Nachingwea near the southern border.

In response to this, the Government of Japan decided to implement a basic design study on the project and the Japan International Cooperation Agency (JICA) dispatched to Tanzania a survey team headed by Mr. Yukiya Saika, the Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs from October 3 to 30 in 1986. The survey team investigated the current state of the country's mass media, socio-economic development and broadcasting in Dar es Salaam, a new capital development plan, and the current situation of the prospective sites and their vicinity as well as radio reception conditions in each of the prospective sites. The survey team also collected related data and information there and had discussions with the representatives of the Government of Tanzania.

After returning to Japan, the survey team conducted analysis work based on the findings of the field survey and confirmed the appropriateness of the project for Japan's grant aid cooperation. Then the team worked out a basic design and prepared this report.

The line-up of the members of the survey team, the survey schedule and the minutes of the survey team's consultative meetings with the representatives of the Government of Tanzania are included in the appendix of this report.

CHAPTER 2. BACKGROUND OF THIS PROJECT

CHAPTER 2 BACKGROUND OF THIS PROJECT

2-1 Need to Expand the Medium-Wave Radio Broadcasting Network

2-1-1 Narrow Service Area

The United Republic of Tanzania has a land area of 942,000 km², which is about 2.5 times as large as that of Japan. She shares the 3 largest lakes in East Africa with neighboring countries -- namely, Lake Victoria with Kenya and Uganda on the northwestern border, Lake Tanganyika with Zaire and Brundi on the western border and Lake Niasa with Malawi and Mozambique on the southern border.

The country has a population of 21 million, of which 98% are Bantu consisting of more than 120 tribes. The rest of the population are Indians, Pakistanis and so on. More than 75% of the country's population are concentrated in the eastern coastal area, the southern and northern mountainous areas and the western lake areas. The central upland is relatively sparsely populated. The total number of households in the mainland is 3,440,000 -- about 530,000 in the urban areas and about 2,910,000 in the rural areas (1976 Census).

Currently three types of radio broadcasting services are offered in the Tanzanian mainland. The national service is aimed primarily at dissemination of information and technological education conducive to the promotion of the socio-economic development. There are medium-wave radio stations to offer this type of radio service -- a 10 kW transmitting station in Dar es Salaam, the capital of the nation, a 50 kW transmitting station in Mwanza near Lake Victoria, a 50 kW transmitting station in Arusha near Mount Kilimanjaro and a 50 kW station in Mbeya near Lake Niasa. Furthermore shortwave radio broadcasting using two frequencies from Dar es Salaam where two transmitters (50 kW x 2) are installed is covering all areas in the country to supplement the medium-wave broadcasting network of the national service.

The commercial service is aimed primarily at offering entertainment. In order to provide this type of broadcasting, there is a transmitting station in Dar es Salaam which has a 100 kW medium-wave transmitter and another 10 kW short-wave one. In addition, a short-wave transmitting station with a couple of 10 kW transmitters is offering in two frequencies the external service aimed at promoting friendly relationships with the neighboring African nations.

The coverage of the medium-wave broadcasting by the national service is only 22% in terms of the ratio to the total nation's land area and 37% in terms of the ratio to total population within the specified electromagnetic field intensity (Refer to Fig. 2-2-1). In comparison with this coverage, the number of radio sets which have been spread in the whole country is estimated at 2,500,000. This means that the diffusion of radio sets is 60% on the average even outside of medium-wave service areas, while it is close to 100% within the areas (See Appendix VI-2-2 (3/3)). The 60% diffusion rate implies a keen interest in radio broadcasting of the residents in regions outside of the medium-wave service areas where radio reception conditions are not so good. On the other hand, the nationwide short-wave broadcasting is listened to by many people. But this short-wave transmission's electro-magnetic field intensity is low and fluctuates widely, making it very difficult to listen to this type of broadcasting (See Appendix VII-2-1). Accordingly, the residents in the border regions are listening to radio broadcasts from the neighboring countries. So the Government of Tanzania is attaching importance to the expansion of the radio broadcasting network in these border regions such as Kigoma, Nachingwea, etc.

The Government of Tanzania is currently in the process of working out a long-term plan to expand the nationwide medium-wave broadcasting network. The Government already registered its frequency assignment plan with the International Frequency Registration Board (IFRB) in 1975.

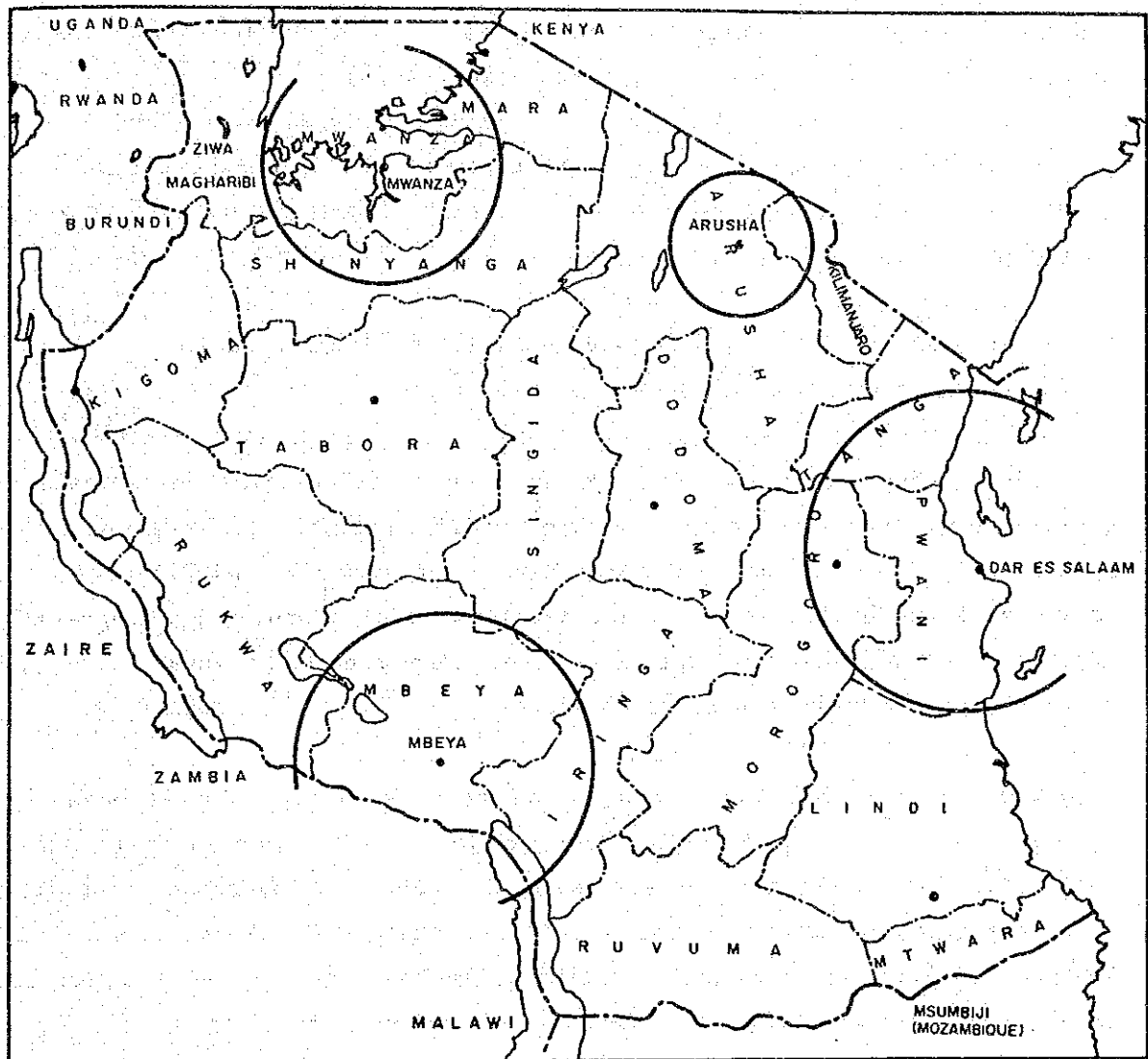


Fig. 2-1-1 Medium Wave Radio Broadcasting Coverage

The presently existing broadcasting network constitutes the first stage. According to the above mentioned long-term plan, transmitting stations having 100 kW output are scheduled to be installed at Dodoma and Kigoma as the second stage. (Refer to Table 2-4-6.)

Upon the execution of this second stage of the plan, the broadcasting service areas will cover 40% of the land area of the nation and serve 52% of the population.

2-1-2 Information Dissemination and Education to Promote Socio-Economic Development

Since independence in 1964, the Government of Tanzania has carried out socio-economic development programs in various fields. Great emphasis is specifically being placed on promotion of agriculture, dissemination of knowledge about health and hygiene, development of manpower by progressing adult and school education system. Thus, long range development programs up to the year 2000 have been established.

The Government of Tanzania hopes for the positive participation of the people to achieve its socio-economic development. In order to realize this goal, the Government has put an emphasis upon radio broadcasting, the characteristics of which are to be wide geographical coverage and simultaneous reporting as a means of disseminating the necessary information and conducting basic knowledge and technical education.

(1) Promotion of agriculture

Although Tanzania is a farming oriented country in which the total annual output of agriculture, forestry, stockbreeding and fishery amounts to 36% of her GNP, food imports make up more than 1/3 of total imports (See Appendix VI-2-1.). On the other hand, cash crops such as coffee, cotton, tobacco, tea and cashew nuts amount to more than 60% of total exports including processed products. Therefore, farming products are important for the acquisition of foreign exchange. However, in recent years production of these cash crops has decreased. (See Appendix VI-2-2.) Hence, the

Government of Tanzania has been confronted with very serious economic conditions due to the shortage of foreign exchange and sharp rise in prices.

As the Government's policies to surmount these difficulties, the Government of Tanzania has been trying to accomplish self-sufficiency in food and promote the increased production of cash crops by significantly increasing the development budget in the agricultural sector for fiscal years 1986 and 1987. (See Appendix VI-2-3.)

In order to carry out the above programs, it is essential to provide more related agricultural information and introduce farming techniques to educate farmers. To the end, the employment of not only radio broadcasting but all of the media such as newspapers, books, movies, and an increase in farmer's schools are emphasized in the programs.

(2) Dissemination of health and hygiene knowledge and repletion of medical facilities

With the prevention of infectious diseases, public sanitation, family planning and child and maternal health care as the main themes, the Ministry of Health and Social Welfare has been making efforts to disseminate health and hygiene knowledge since the 1970s. Furthermore, according to the long range plan for 1980-2000, the provision of adequate medical facilities and the recruitment of capable men to staff them are planned, aiming at prolongation of the people's life span i.e., from 50 years in 1980 to 60 years in the year 2000.

In this long range plan, priority is given to sickness prevention, with particular emphasis on preventive measures against infectious diseases. Preventive measures against malaria are also emphasized as in the past. In addition, a program of nationwide vaccination is scheduled for infants and pregnant women to protect them from various diseases such as infantile paralysis, measles, tuberculosis, tetanus, etc.

In order to execute this long range plan efficiently, it is necessary

to establish an information dissemination system by expanding the radio broadcasting network and it is also required to strengthen health and hygiene educational radio programs produced by the Ministry of Health and Social Welfare.

(3) Enhancement of adult education

Since the Illiterate Education Center was completed in Mwanza in 1964 by a UNESCO project team, group adult education has been conducted by effectively using a "person to person communication system" (Refer to 2-2-4, 2-4 for detail.) and also by using radio programs together with newspapers and textbooks.

Through the above adult education program, persons of more than 120 tribes were able to learn to read and write Swahili, and the literacy rate reached as high as 79% in 1980 (from The Economic Survey issued by the Ministry of Finance Planning and Economic Affairs in 1982). Since 1975, the Ministry of Education has been conducting an adult education program aiming at 100% literacy and referring to this as the second half illiteracy abolishment program.

Adult education through the "person to person communication system" has been conducted not only in connection with the education of illiterates but also with the aforementioned agricultural education and health and hygiene education. In the 1970s, a great achievement was made in education by such campaigns as the "Food is life" and "Man is health" campaigns, in coordinating with radio broadcasting.

As many as 17 hours a week of broadcasting time are allocated to the adult educational radio programs including programs for women. In these programs a wide range of themes such as farming education, health and hygiene education and life improvement are selected in an effort toward the local development in the future.

(4) Manpower development plan and realization of the education and training system

It is essential to develop manpower with a view to carrying out the national development programs in various fields. The Ministries of Labor and Manpower Development and Education planned to achieve a 100% rate of primary school age student attendance during the first long range plan of 1964-1980, and the target was exceeded to reach 110% in 1980. (This is from UNICEF data and those other than school-aged children seem to have been included.) A system was established to educate and train technicians of A, B and C levels which are required in various fields for socio-economic development, and various colleges were also established. (Refer to Fig. 2-1-1.) As result of the above, the availability of the required technical personnel in the 3 levels as of 1980 reached 85% on the average with the majority of them being Tanzanians. (See Appendix VI-2-4.)

In accordance with the progress of the socio-economic development programs in various fields since 1980, it is estimated that the shortage of able men will become more serious. In order to enhance secondary education which is crucial for cultivating these able men, an increase in number of secondary schools as well as in number of students has been achieved based on the long-term manpower development plan. At the same time, various colleges along the above line were newly constructed and efforts have been made to train teachers for the various schools. In achieving the goals of this plan, school education through use of radio and educational broadcasting for teachers are playing important roles.

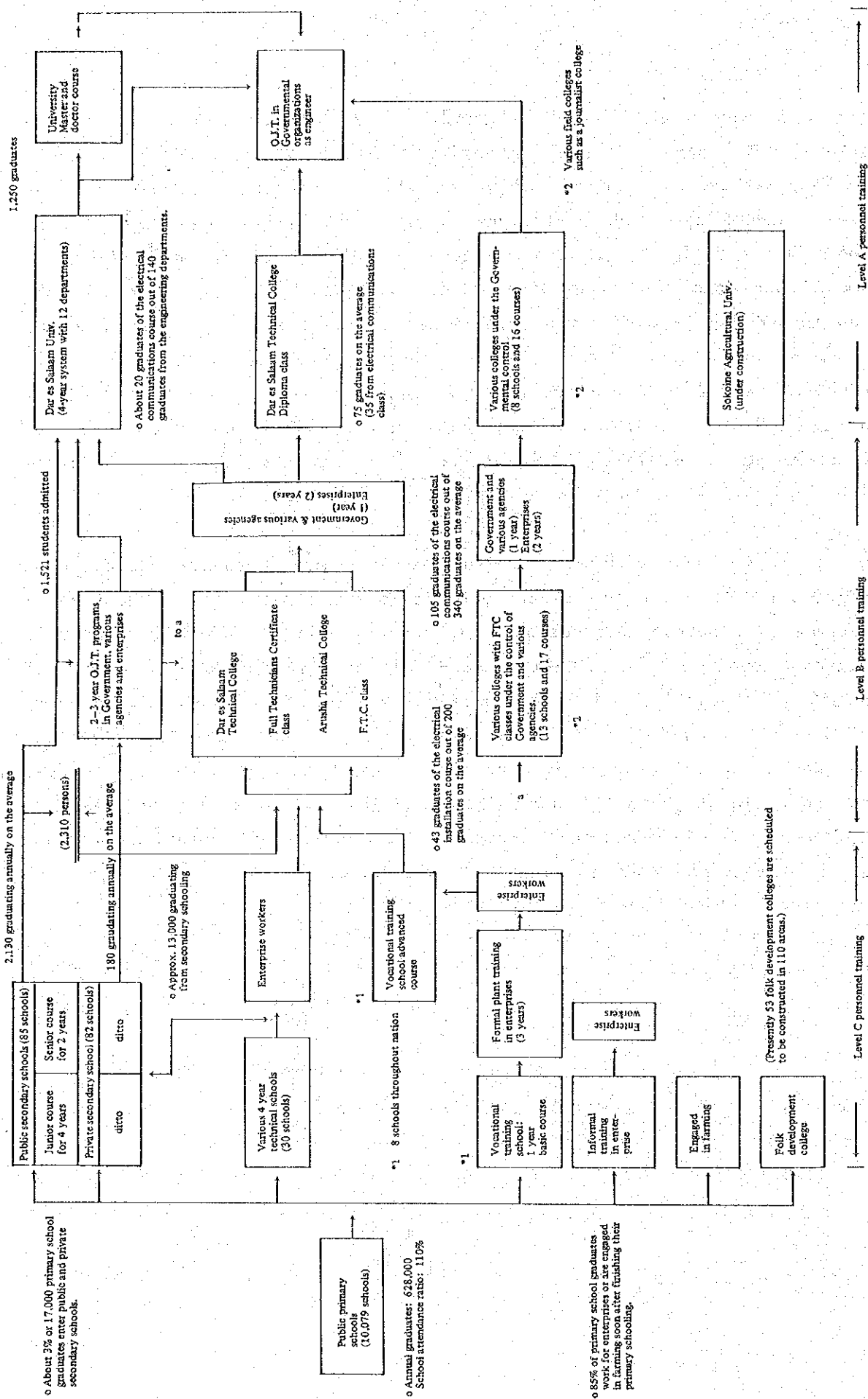


Fig. 2-1-2 Educational & Training System in Tanzania

2-1-3 New Capital, Dodoma Development Project and Radio Broadcasting

The Government of Tanzania made a master plan for a development project for the new capital, Dodoma, in 1975. The Government was planning to carry out this project from 1980 but the actual transfer started in 1985. A part of the Government offices moved there and the Diet Building is nearly completed. The national assembly has been held in Dodoma for a certain period. Together with this, maintenance of the basic infrastructure, industrial development concerning architectural materials, building of housing and public construction are under way. (See Appendix VI-2-5.)

There are various reasons for the capital transfer to Dodoma, the most important reasons are as follows:

- * The area of Dar es Salaam is restricted in regard to the future expansion of the city's economy, the maintenance of traffic facilities, progress of its industries, and hampered by a flocking of the rural populace into the city. Thus geographical conditions make it inappropriate as the political core of the nation.
- * Dodoma is located almost in the center of the country, and this city conforms to site conditions necessary for development as the new capital. In addition, Dodoma is best suited as a political key point for the Government which has given the highest priority to regional development.
- * In addition, this new capital development project will contribute to important socio-economic development for people making living by farming in the comparatively well developed central zone.

According to the aforementioned master plan, the scale of site, with the city of Dodoma at its center, will extend 40 km to the east, west, south and north directions to reach the city's periphery, thus comprising an area as wide as 6,474 square kilometers. In addition, the new international airport will also be constructed in its suburbs. (Refer to Fig.

2-1-3.) As a result of this new capital development project, it is estimated that the population of Dodoma in the year 2020 will be more than 1.3 millions whereas it was only 45,000 in 1975. In this estimate, the project launching year was 1980.

RTD (Radio Tanzania Dar es Salaam) is now constructing a studio building having 3 studio rooms so as to reinforce its functions as the zonal program gathering base and to cope with the increase in information in accordance with the progress of the new capital development project. When this plan to expand the medium wave radio broadcasting network is completed, 15% of the total radio programs will be produced here in this studio building. Moreover, RTD is now considering that this studio building in Dodoma will be expanded in the future to be the headquarters of RTD. In addition, the increase in the service area covered by the 100 kW medium wave radio broadcasts in the central zone centering on Dodoma will play a great role in pushing forward the new capital development project.

2-2 Mass Media in the United Republic of Tanzania

In order to push forward socio-economic development programs, the Government of the United Republic of Tanzania has been effectively using all of the mass media as a means of informing citizens of the national policy and instructing them in the necessary basic knowledge and techniques so that they can positively join in these development programs.

Accordingly, the radio broadcasting, an English language newspaper, a correspondent corporation, an audio visual training aid center and a journalist college are operated by the Government, and a Swahili newspaper and a mass media system "person to person communication" unique to this country are operated by the party. The Prime Minister's Office controls the above mentioned 4 media, and the State Minister is in charge of policy on mass communication. Deputy Secretary under the State Minister adjusts all of the information and are responsible for management and finance.

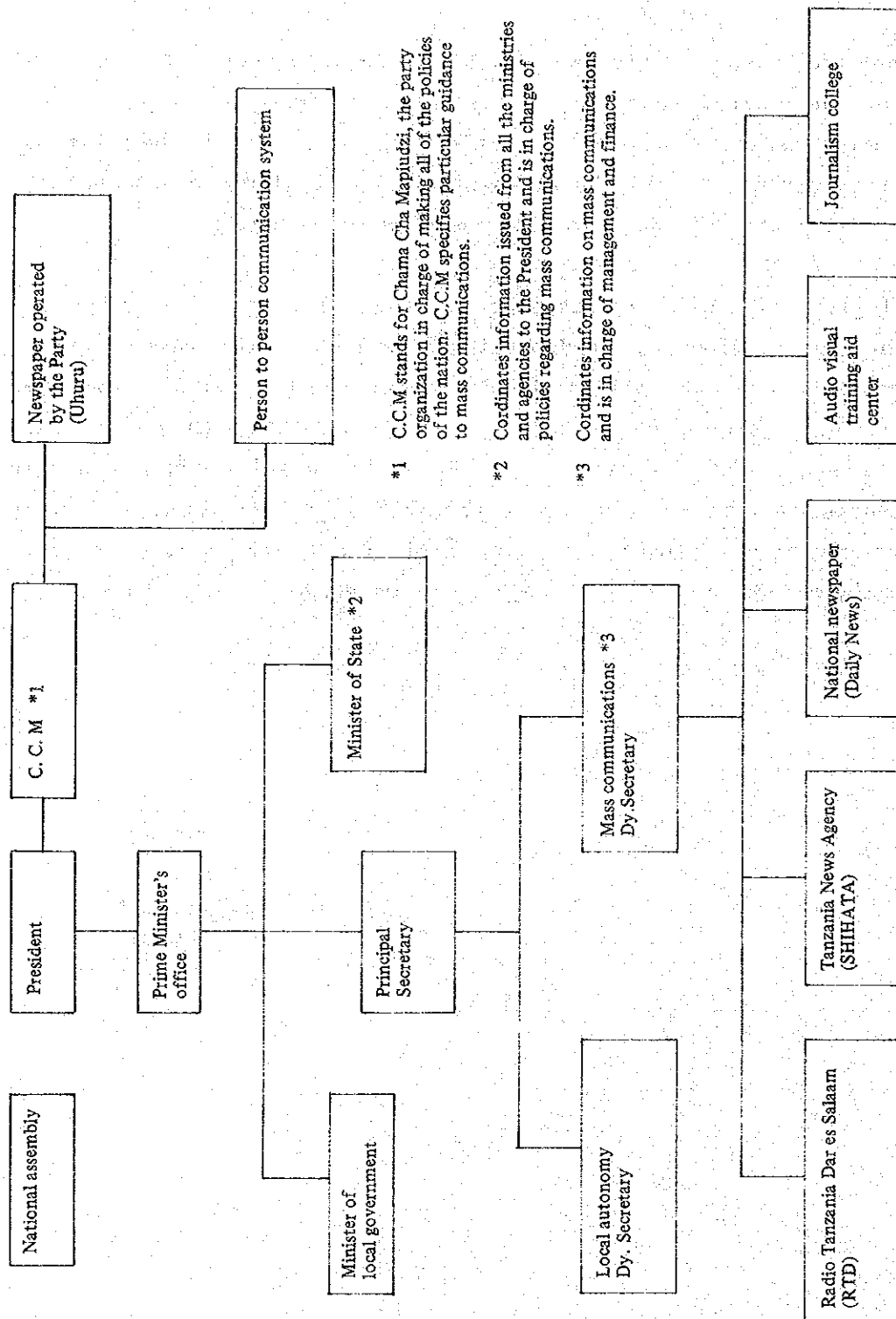


Fig. 2-2-1 Mass Media in Tanzania

2-2-1 Policy and Roles on Mass Media

In November, 1983, the 4th Mass Media Seminar sponsored by the party was held in Arusha, and 95 persons from both the mainland of Tanzania and Zanzibar, as well as from party related organizations got together and held discussions based on the Report on the Activities and Implementation of mass media. Some of the results of the discussion at this seminar were summarized in the form of recommendations to the Government and Party, who took this as guidance showing the duties and responsibilities of the mass media. These recommendations are the so-called Code for Radio Broadcasting Operations, and radio programs are produced and broadcasted along this guideline. These recommendations have become the basis for carrying out the expansion plan for the medium-wave broadcasting network.

These recommendations are summarized as follows:

a) Mission and Direction of Mass Media

- * Mass media should execute the important mission of securing and maintaining the interests of the people who are the main actors and actresses in the socio-economic development programs.
- * Accordingly, after careful analysis and understanding of the various problems Tanzania presently faces, mass media should correctly inform the people of these problems and give them chances to study them..
- * Sincere efforts should be made so that information is transmitted to local people however few they are.
- * In order to execute this important mission, the mass media should be operated by capable experts, and the staff concerned should try to improve their skills and capabilities and take leadership roles.
- * A long range plan regarding staff and installations should be

clearly and systematically formulated in order to show it to the country.

- * The country should make efforts to secure the necessary staff and installations.

b) Increase in Communication with the People

- * Some ways to expand means of the transporting newspapers should be considered.
- * Special efforts should be made to expand the radio broadcasting network quickly so that all of the people can listen to the radio broadcast.
- * Efforts should be made so as to secure a stable supply of radio receivers and batteries at reasonable prices.
- * The Tanzania News Agency (SHIHATA) should be provided with sufficient vehicles and installations.
- * An audio visual training aid center is an important organization for the people's education and recreation, and should be provided with suitable installations so that its educational mission can effectively be performed.

2-2-2 Development of Broadcasting Activities

In Tanzania, RTD and RTZ (Radio Tanzania Zanzibar) are presently conducting radio broadcasting, and their brief history follows:

- * In 1951, a small scale (250 W) short wave broadcasting system was launched in Dar es Salaam by the Government during the period when it was a trust territory under Great Britain.
- * In 1956, the Tanganyika Broadcasting Service (TBS) installed a

short wave transmitter of 20 kW output at Pugu Road in Dar es Salaam and a studio building with 2 studios and a master control room was also constructed, thus starting a full scale broadcasting service. In those days, both Swahili and English were used for broadcasting.

- * In 1958, English broadcasting was commenced on 10 kW short wave, and at the same time a small scale medium wave service (250 W x 3) was also started.

The organization was changed to TBC (Tanganyika Broadcasting Corporation) from TBS for the purpose of education and public service broadcasting.

- * In 1961, Independence as the Republic of Tanganyika.
- * In 1964, Independence as the United Republic of Tanzania.
- * In 1965, a medium wave transmitting station with a high power transmitter (100 kW) was installed in Kunduchi and commercial broadcasting was begun. In the same year, TBC was renamed RTD (Radio Tanzania Dar es Salaam), thus being a governmental organ under the Ministry of Information and Tourism.
- * In 1966, a short wave transmitting station with high power transmitters (50 kW x 2) was installed in Mabibo, and external broadcasting was started.

In 1973 and 1974, medium wave broadcasting was expanded by installing 50 kW transmitting stations in the 3 regional cities of Mwanza, Arusha and Mbeya with a Japanese yen credit, and two 50 kW transmitters and one 10 kW transmitter were installed to strengthen short wave broadcasting in Dar es Salaam.

RTZ is under the control of the Government of Zanzibar Island and the service area of a transmitting station in Chumbuni covers the

entire area of the Zanzibar island.

As for TV broadcasting, Television Zanzibar (TVZ) started color broadcasting on Zanzibar Island in 1973 by installing one station channel 21, and then installed another station channel 9 at Pemba. At present both stations are broadcasting for 3 hours a day.

The I-TV system and PAL-color system are employed. On the other hand, targeting the start of broadcasting to the mainland in 1988, the TV Development Technical Committee of both RTD and Tanzania Posts and Telecommunications Corporation (TPTC) has presently been mainly studying TV system.

2-2-3 Diffusion of Radio Receivers

RTD estimates that radio receivers in this country now number about 2 millions. During this study, the team received data on the total number of receivers produced so far from both the Dar es Salaam factory of Matsushita Electric (East Africa) Co., Ltd. (started operation in 1972) and the Dar es Salaam Head Office of Philips Electronics (E.A.) Ltd. which has the Arusha factory (started operation in 1966). From the above it is certain that about 2.5 million radio sets are now in use.

The diffusion ratio of radio sets in the medium wave service areas is nearly 100% in the number of households, and nearly 60% even in regions outside the service areas. However, radio sets are very expensive items compared with prices of daily commodities, public utilities charges and the income of public servants. Results of the analysis are as follows:

a) Total accumulated number of radio sets shipped

The total number of radio sets produced by both companies so far are 3.48 millions in all of which about 1.52 millions were made by Matsushita and about 1.96 millions by Philips. Radio sets produced for export to Kenya and Uganda by both companies are

about 280,000 sets in all. Therefore, the total number of radio sets shipped inside Tanzania becomes 3.20 millions. (See Appendix IV-2-6 1/3 and 2/3.)

b) Total number of radio sets imported

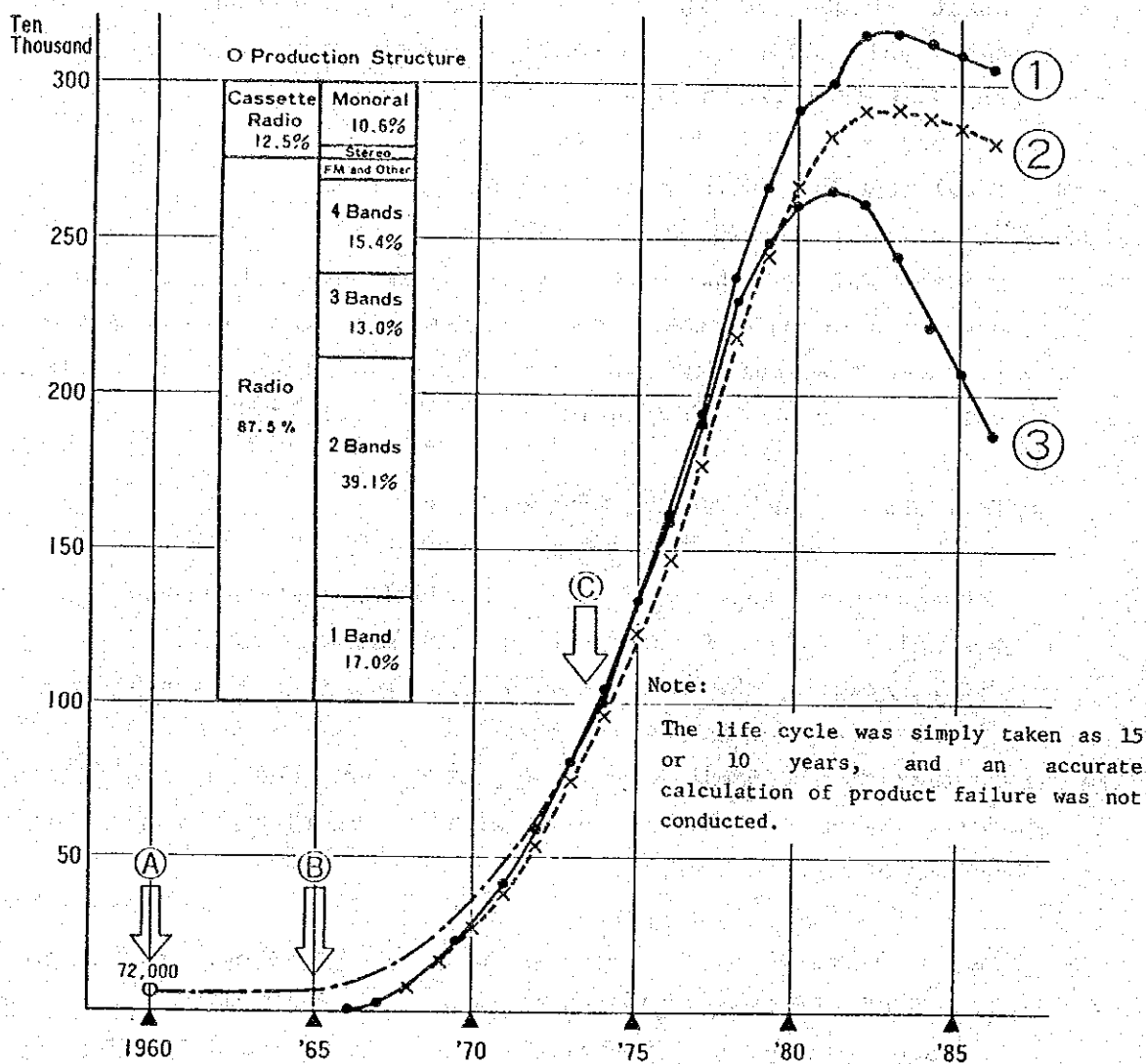
Whereas data on the above could not be obtained, presidents of both companies estimate that almost the same amount as that produced for Zanzibar and export might have been imported. This estimate was taken as a basis.

c) Estimate of the diffusion of radio sets

Consequently, approximately 3.48 million sets produced by 2 companies have come into wide use in Tanzania so far. In Fig. 2-2-2, assuming the life cycle of the radio sets as 10-15 years, (1) represents a diffusion curve for a 15 year life cycle, and (3) represents a diffusion curve for a 10 year life cycle. (2) however, shows a diffusion curve without considering the imported number of radios.

As the result, the present number in use is assumed to be about 1.86-3.05 millions, and it can be taken as 2.5 millions on the average. These curves show a downward trend from 5 years ago. This is because foreign exchange, which is in shortage, is not available for importing radio parts, thus inviting a decrease in production.

As the result, radio sets which are out of order or need to be replaced as they have reached the limit of their life cycle exceeded the number of those produced for the past several years. If this situation continues, a further drop trend will be clearer as illustrated in (3).



- ① Assuming that the number of receivers produced for both Zanzibar and export = the number of receivers imported, and that the life cycle is 15 years.
 - ② The curve for the forecast of the number of receivers assumes that the life cycle is 15 years only for receivers for the mainland.
 - ③ Assuming that the number of receivers produced for both Zanzibar and export = the number of receivers imported, and that the life cycle is 10 years.
- A From "Mass Communication in Tanzania" issued by the Ministry of Information, 1980.
 - B A 100 kW medium wave high power transmitter was installed in Dar es Salaam of Kunduchi in 1965.
 - C 1973-74, 50 kW medium wave high power transmitting stations were installed in Mwanza, Arusha, and Mbeya, and the short wave high power transmitters were increased to 50 kW x 2 in Dar es Salaam and Mabibo.

Fig. 2-2-2 Anticipated Diffusion Curves for Radio Receivers

d) Distribution structure and diffusion number of radios in regional areas

As for the distribution system, the Ministry of Trade and Industries decides the official price and allocation to the Regional Trading Company (RTC) in each region which is under control of the Government. The receivers are shipped to each market through this RTC. As for the results of its distribution to each region through RTCs, nearly 100% has been attained in terms of the number of households in the medium wave service areas such as Dar es Salaam, Arusha, Mwanza and Mbeya, and 50-70% in other regions. The production ratio of medium wave radio sets, medium/short wave radio sets and radio sets with cassettes is 17:69:14, and those are distributed to each region in the same ratio. (See Appendix VI-2-6 3/3.)

e) Price of radio receivers

Radio receivers are very expensive compared with the main daily commodity prices and public utility charges (See Appendix VI-2-7.) The least expensive medium wave portable radio is 914 TSh, and the most expensive FM stereo cassette radio is 14,501 TSh, but these items are sold at 2 to 3 times these official prices in markets. The monthly pay for the lowest rank public servant is about 1,000 TSh (See Appendix VI-2-8.), thus even the least expensive item is worth 2-3 months' pay. In spite of this, people really want to buy these items. This is because they want to keep these radio receivers just as a means of seeking information and recreation. It is said that bartering for these items takes place.

f) Shortage of battery supply

Batteries are essential items for radio receivers particularly in areas where electric power is not supplied yet. The Matsushita's factory is producing batteries but production is limited due to

the shortage of foreign exchange, likewise with radio receiver production. Thus in the market the supply is insufficient. (See Appendix VI-2-9.)

2-2-4 Mass Media other than Radio

(1) Newspapers and Correspondent Corporation

Main newspapers in Tanzania are of 2 types: The Daily News in English (issued as "the Sunday News" on Sundays) run by the Government and Uhuru in Swahili issued by the Party (issued as "Mzaludo" on Sundays). The former circulation is about 66,000 copies and the latter about 80,000 copies. Thus, the total number of both is less than the approximately 200,000 households in the capital Dar es Salaam. Moreover, the means of newspaper transporting are not well prepared yet. Thus it is considered that newspapers are available only in special areas (Arusha resort area, etc.).

In addition, weekly or monthly newspapers with circulations of between 10,000 and 15,000 copies respectively are issued by the Ministry of Education and the Ministry of Agriculture and Livestock Development for adult education and agricultural promotion.

The Tanzania News Agency (SHIHATA) was established in 1977, and presently 197 journalist editors are working while stationed in 20 regional areas. This corporation sells international and regional news which has been gathered as well as photographs which have been taken to the above newspaper publishing organizations, RTD, and book publishing companies. Their annual budget totals 31.5 million TSh, made up of a 27.5 million TSh subsidy from the Government and 4 million TSh of their own revenue.

(2) Audio visual training aid center

The audio visual training aid center is the national organ for providing printed matter, movies and tapes for the education and recreation of the people. The center issues leaflets to inform the people of the President's messages and Government socio-economic development programs as well as weekly/monthly newspapers concerning the above mentioned promotions of agriculture, health and hygiene, and adult education, in addition to school text books. Moreover, the center sells movie films and audio tapes as well.

(3) Movies

There are only 6 movie theaters in Dar es Salaam and 1 to 2 theaters in regional cities, thus numbering a total of about 20 in the nation. According to data obtained from the Tanzania Film Company, the movie distributor, admission is 40 TSh, and their annual performance income is 58.65 million TSh. From these facts, it is estimated that about 1.47 million people see movies annually. Because household type VTR's have come into wide use among high income families of late (estimated 2-300,000 sets), annual performance income in the movie industry is going down.

(4) Person to person communication

"Person to person communication" is an information delivery means unique to Tanzania. For this system, under the guidance of the Party, the National Coordinating Committee (NCC) was set up in the capital, and its suborganizations are organized in the various regions, cities and villages. In addition, the "cell," consisting of 10 families has been organized as the lowest organizational level.

This system was organized to help local adults become literate, to promote farming and to increase the people's knowledge of health and hygiene. This is a traditional means, i.e., leaders go out to each village to deliver information and then group discussions are held. Texts, newspapers, pamphlets and radio programs were used as training aids, and such

campaigns as "Food is Life," and "Man is Health" were held in the 1970s.

It is said that participants in the former campaign numbered about 2 million and in the latter campaign about 4 million, and that the expenses from 1972 to 1976 amounted to 342.2 million TSh including foreign grant aid. This system is still alive, and the "cell" is employed as a community component in the Dodoma New Capital Development Programs stated in 2-1-3.

2-3 Usage and Evaluation of Broadcasting in Various Fields

Ministries and agencies of the Government of Tanzania have used various media as a means of disseminating the knowledge required for development from the basic level to high professional levels so that socio-economic development programs in each field can be pushed forward and so that their aims can be made known to the people to ask for their positive participation. Radiocasting, because of its wide coverage and simultaneous reporting capability, has been aggressively used. Some ministries and agencies have their own program production studios and staff, and they are producing and broadcasting in cooperation with RTD members within their limited budget. The following is the actual usage and results as well as an evaluation of radiocasting by the Ministries of Agriculture and Livestock Development, Health and Social Welfare and Education.

2-3-1 Usage of Broadcasting for the Promotion of Agriculture and Stockbreeding

Since 1959, the Ministry of Agriculture and Livestock Development has been producing programs in its small studio (about 3 m x 4 m) with their own personnel in charge. So far, they have been producing 5 programs, each of 15 or 30 minutes concerning such subjects as how to cultivate crops, breed livestock, prepare food and grow fruit and vegetables. Farmers evaluated these programs highly and wrote many letters in which they said that these programs were very useful for them and they asked for information on farming and stockbreeding. These programs brought about some changes in terms of scale from small to large scale farming and from small

stockbreeding of chickens and ducks to large scale stockbreeding. Then improvements in management were brought in.

They are now producing 5 programs (four 15 minute programs and one 30 minute program) every week with 13 staff and are broadcasting 3 hours a week including repeat broadcasting hours. The aforementioned small studio is now out of order. Hence program recording is now done at RTD.

As for teaching activities concerning farming and stockbreeding, farming guidance has been made by using a tabloid (10,000 to 15,000 circulation monthly) and magazine issued by the ministries themselves. These are very popular in the local farming communities where they are unable to listen to the radio, and they are also helping the campaign to abolish illiteracy. In addition, receivers have also come into wide use in many farming areas in recent years, thus individual listening is increasing as opposed to group listening.

2-3-2 Usage of Broadcasting for Health Promotion and Sickness Prevention

Since 1964, the Ministry of Health and Social Welfare has been making efforts to promote health and prevent sickness. It produced a 15 minute program titled "Longer Life" for the public to provide information and a 20 minute hygiene program titled "Health in the Primary Schools" for primary school boys and girls.

From 1980, a 15 minute drama program and two short programs concerning important health matters were added. The contents of these programs include sickness prevention, public hygiene, family planning, child and maternal health and community forming, etc.

Presently, four staffers are producing one 15 minute program weekly in a small studio, and broadcasting just 30 minutes a week including repeat broadcasting hours. However, every time the necessity for a health related project arises, teams are increased to produce the programs. For example it is said that programing regarding the eradication of malaria in the

Dodoma area is under consideration for nationwide broadcasting.

The Ministry of Health and Social Welfare conducted an interview type questionnaire on the program, titled "The Secret of Better Health" in 1982-1984, and it received a high evaluation. The questionnairing was done in the Coast area within the medium wave service area of the Dar es Salaam transmitting station, in the Tanga area located in the north-east of the country where broadcasting is barely audible even outside of Dar es Salaam service area, in the Kagera and Singida areas where broadcasting is barely audible even outside of the service area of the Mwanza transmitting station, and in the Iringa area where broadcasting is barely audible even outside of the service area of the Mbeya transmitting station. Each area questionnaired was chosen by taking account of the distances from the 3 medium wave transmitting stations.

Main items out of the 19 items on the questionnaire are introduced in Appendix VI-2-10. The questionnaire results can be summarized as follows:

Radio receivers are spread to some extent even in areas outside the medium wave service areas, and the health and hygiene program entitled "The Secret of Better Health" was well listened to and contributed to the promotion of the people's health. Thus its broadcasting effect is high.

However, receiving conditions for the medium wave broadcasts are often poor due to geographical reasons, and the people wish the broadcasting coverage to be expanded. In addition, they feel the shortage of batteries as well as receivers and want these items to be supplied at reasonable prices.

2-3-3 Usage of Broadcasting for Adult Education

The Adult Education Department of the Ministry of Education has been conducting adult education to abolish illiteracy since the 1960s, and an Illiterate Education Center was completed in Mwanza by a UNESCO project team in 1964.

By taking the "cell" of 10 households as one unit (Refer to 2-2-4.), 40 staff members of the Illiteracy Abolishment Center have conducted teaching through group listening to the broadcast program cassettes while using such training aids as books from local libraries, local newspapers and educational movies which the staffers brought in. The program has been emphasizing in particular areas of poor radio reception since the 1970s. As a result, literacy has reached 79% (from the Economic Survey issued by the Ministry of Finance Planning and Economic Affairs in 1982), and this adult education is still going on aiming at 100% literacy. Since 1975, this program has been in position as the second half illiteracy abolishment program.

Expenses for this illiteracy abolishment program totaled approximately 250 million TSh from 1969 to 1985, and Sweden supplied equipment worth 32 million TSh of the above. Presently, 5 and 4 staffers are producing a total of three 15 minute programs a week at the Adult Education Department of the Ministry of Education and the Mwanza Illiterate Education Center respectively, and they are broadcasting adult education programs for 90 minutes a week including repeat broadcasting hours. Present programs cover broad adult education including a teacher's program to train teachers, a farming program, a daily life program (cooking and sewing), etc.

Besides, the Adult Education Department of the Ministry of Education started the establishment of Folk Development Colleges in 110 areas from 1976, and 52 Colleges have been constructed up to now.

2-3-4 Usage of Broadcasting for School Education

School education broadcasting started in 1954, but it has been suspended during this fiscal year to improve the content of the programs, and the 8 staffers are now reviewing it so as to start again from the next fiscal year.

Programs broadcasted up to last year were:

- * for primary schools : four 25 minute programs, Monday through Friday

- * for secondary schools : two 25 minute programs, Monday through Friday over external broadcasting
- * for colleges : one 30 minute program, Monday through Friday
- * Programs for Universal Primary Education (UPE) were also broadcasted from 1977. UPE is to employ excellent persons from among the primary school graduates as teachers through on-the-job training.

Usage of programs is on an individual listening basis. One radio receiver is provided to about 7 classes in primary schools. It is preferable to increase the number of these receivers but they are too expensive to buy. In addition, there are various problems such as failure of receivers and the lack of batteries, thus teachers' own radios are often used. On the other hand, a method to teach the subject matter of the programs in class after listening to the broadcasts is not taken so often, because they do not comply with the curriculum of each school.

2-4 Present Status of Radio Tanzania Dar es Salaam (RTD)

2-4-1 Organization

RTD, under a director-general appointed by the President through the recommendation of the State Minister, consists of a personnel/administration department with 273 staffers, a program production department with 70 staffers, a news department with 52 reporters and an engineering department with 186 staffers.

Refer to Fig. 2-4-2 to Fig 2-4-5 for detailed organization and list of staffers as well as their functions.

Relationships between RTD and the ministries and agencies concerned, illustrated in Fig. 2-4-1, are as follows:

* Management Committee

The Management Committee, consisting of the director-general and four department chiefs, always keep in mind not only the aims of the Prime Minister's Office and the national organs concerned but also the listeners' expectations, opinions, requests, problems, etc., regarding the programs and is responsible for the execution of national service, commercial service and external service.

* Program Advisory Committee

As for the planning, production and presentation of programs, five program advisory committees that deal with school educational broadcasting, adult educational broadcasting, commercial broadcasting and two types of religious broadcasts (Christianity and Islam) are organized to make recommendations to RTD. Except for the School Educational Program Advisory Committee organized jointly by RTD and the Ministry of Education, members of the other four program deliberation committees are appointed through consultations with other organs concerned on their recommendation. These 5 committees function under the director-general and are normally reshuffled once every three years.

* TV Development Engineering Committee

The Engineering Department of RTD, aiming at the commencement of TV broadcasting in 1988, established a TV Development Engineering Committee with TPTC, which is under the control of the Ministry of Communications and Works, and they are mainly studying TV system.

* Ministry of Finance Planning and Economic Affairs

Eight out of the 20 accounting staffers in the Personnel/Administration Department are from the Ministry of Finance Planning and Economic Affairs, and expenses are funded from the Treasury and are subjected

to a severe audit every year by the above ministry. In addition, staffers in charge of accounting for the equipment and spare parts in the engineering department are also from the above ministry.

* Ministry of Labour and Manpower Development

As for personnel matters, RTD makes a request for the necessary manpower to the Manpower Development Department in the Ministry of Labour and Manpower Development, and then the Department supplies the required staff members based on a long term plan of manpower development. Accordingly, the chief of the Personnel/Administration Department is also from the Manpower Development Department.

In addition, staffers of pay scale MS6 (See Appendix VI-2-8 for public servant pay rank.) or over are nominated by the President and staffers of MS 5 or under are appointed by the Minister of Labour and Manpower Development.

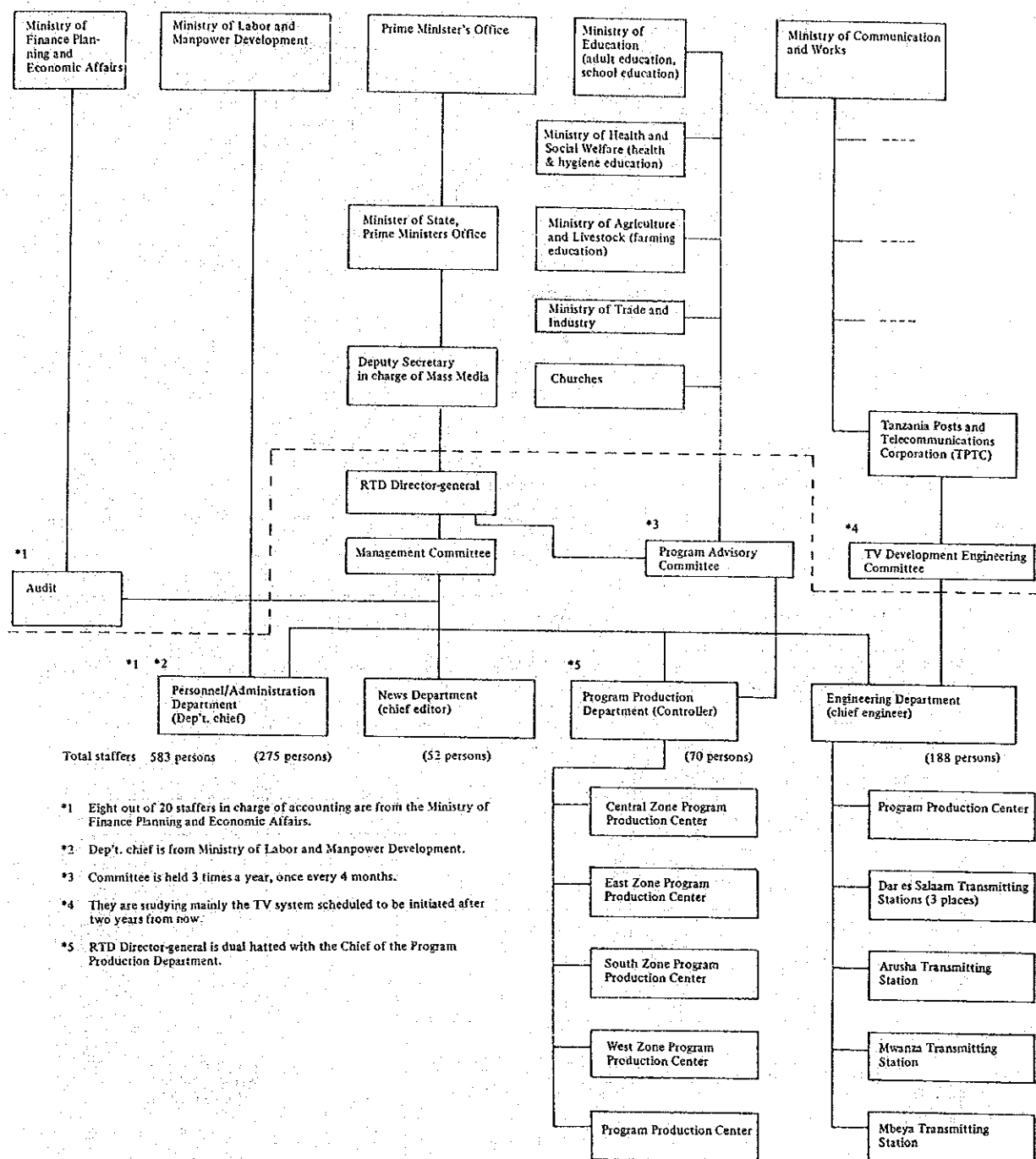
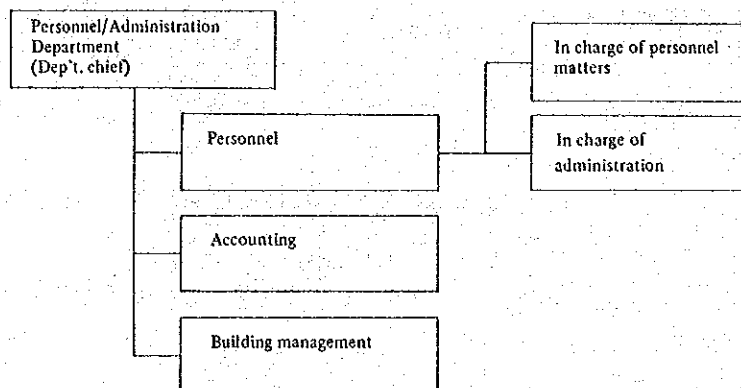


Fig. 2-4-1 Relations between RTD and Ministries & Agencies Concerned



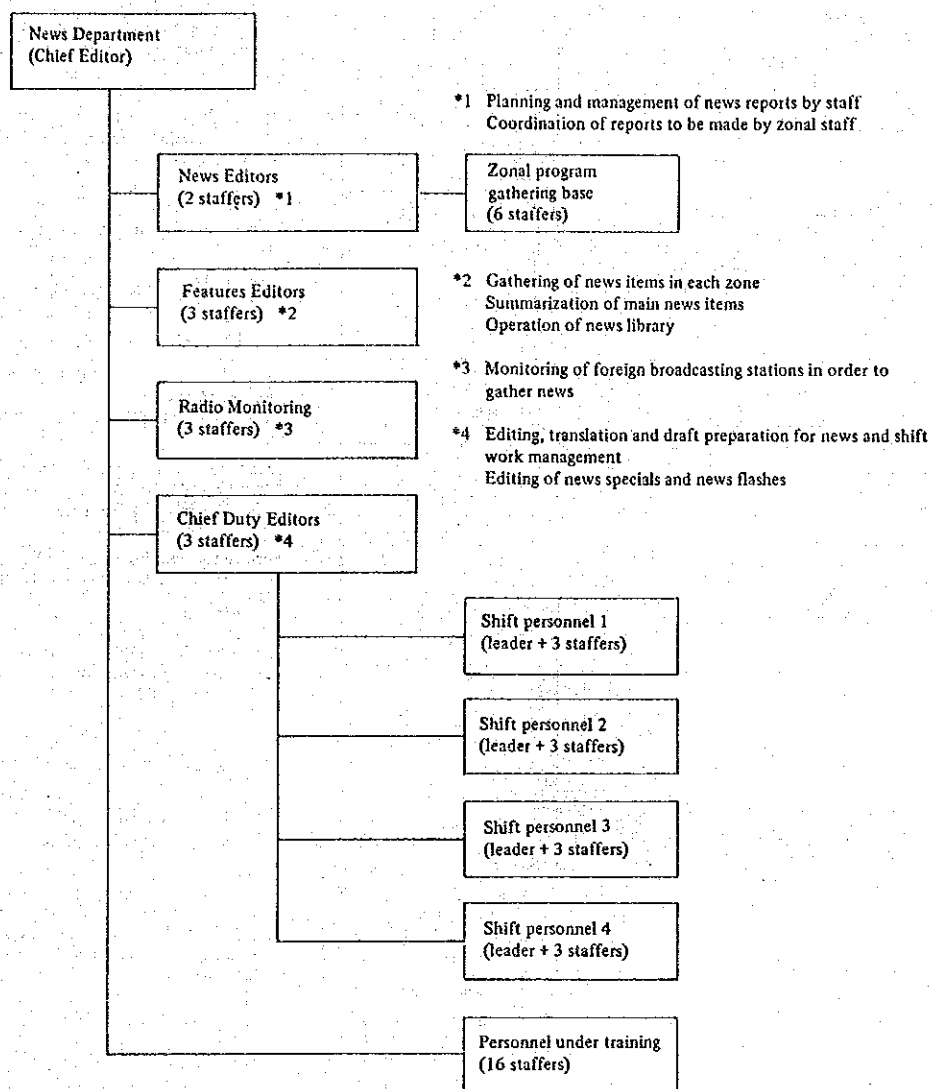
Assignment & Function and Pay Scale of Personnel/Service Department

Assignment & Function	Pay scale				
	MS10~MS13	MS5~MS9	MS1~MS4	MU	OS, NT
o Personnel Princ. Senior, Assist.	1	1	1		
o Accounting I, II, III, Assist. I, II, III		1	11	3	
o Service, Registration work I, II, III Assist. I, II, III			13	9	
o Secretary, Typist III			4	8	
o Telephone Operator Senior I, II, III			1	4	7
o Material supply III, Assist. I, II, III			5	3	
o Receptionist Senior I, II, III					63
o Commissionaire, Janitor, Gardener					37
o Driver I, II, III					33
o Watchman I, II, III					24
Total	1	2	35	27	164

Note: Out of a total of 273, 201 persons are commissionaires, gardeners, drivers and watchmen, amounting to as much as 74%.

RTD total 229/Watchmen for local transmitting stations, etc. 44/Grand total 273.

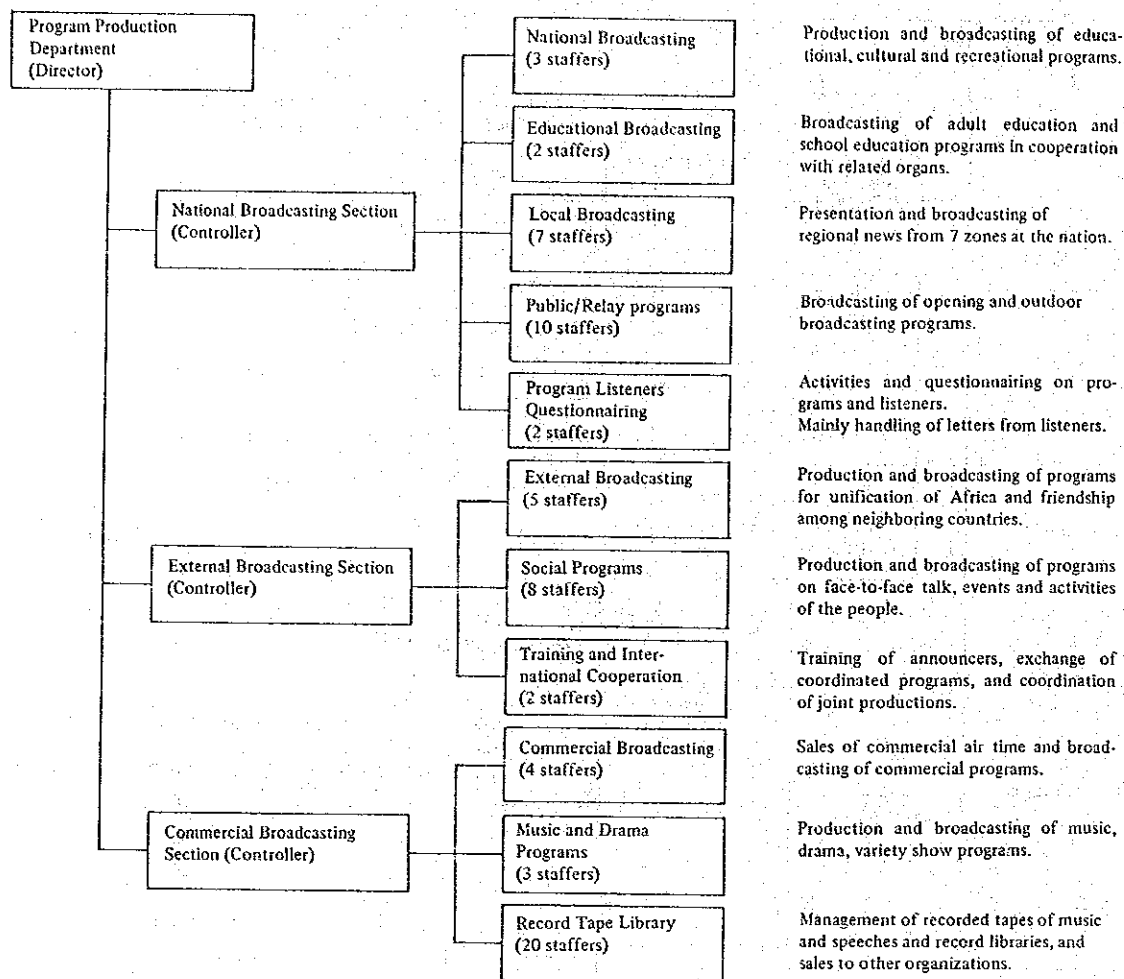
Fig. 2-4-2 Organization and Personnel Formation of
RTD Personnel/Administration Department



Function & Assignment	Pay scale			
	MS10~MS13	MS5~MS9	MS1~MS4	MU
o News Editor, Senior	2	8		
o News Editor, I, II, III		6	9	
o Journalist, Assistant I, II, III			27	
Total	2	14	36	

Grand total 52 persons

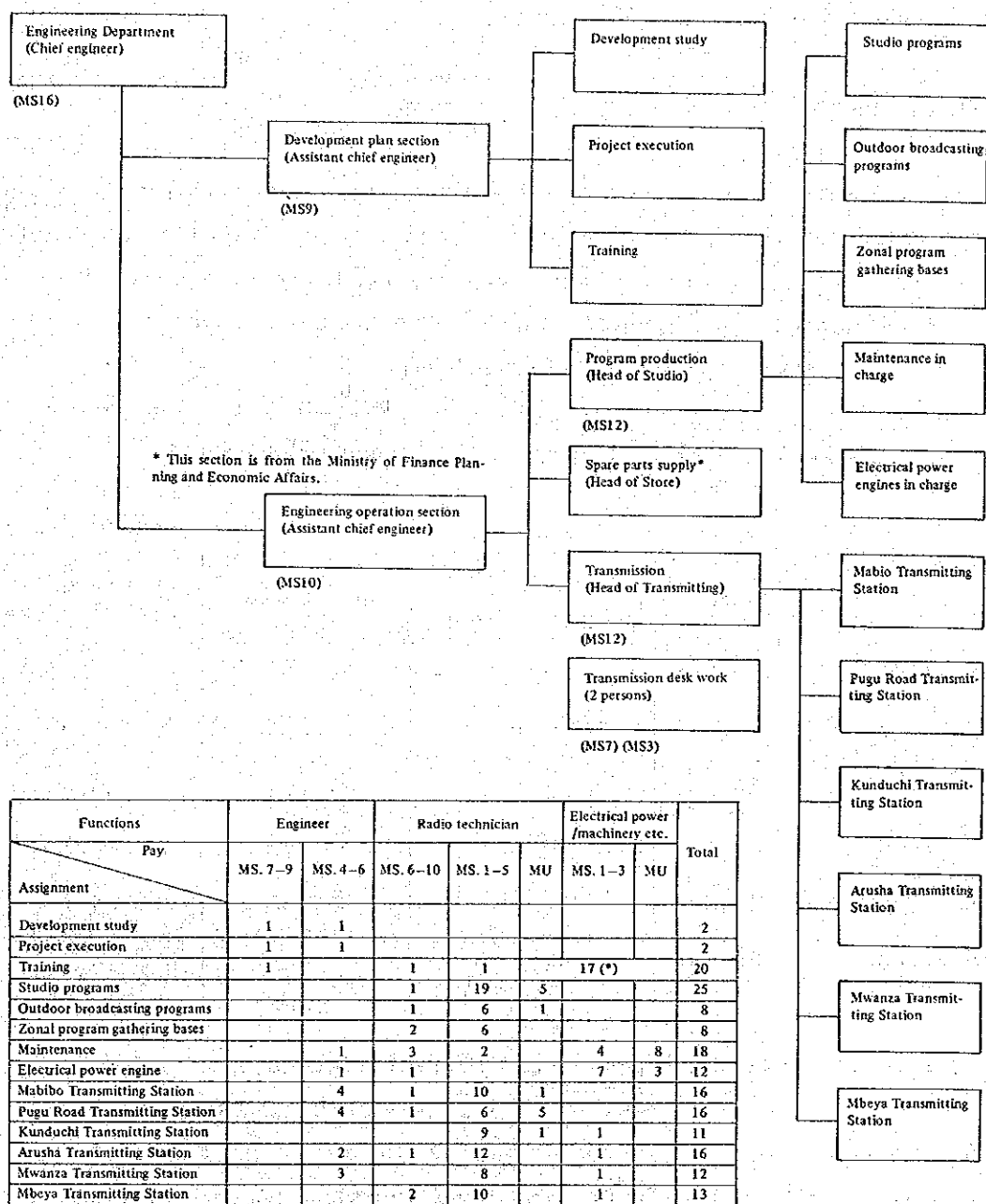
Fig. 2-4-3 Organization and Personnel Formation of RTD News Department



Function & Assignment	Pay scale			
	MS10~MS13	MS5~MS9	MS1~MS4	MU
o Program Director, Controller	2			
o Program Coordinator Senior I, II	2	12		
o Program Officer I, II, III, Assist.		9	24	1
o Record Librarian Senior I, II, III		1	5	
o Assistant Record Librarian Senior I, II, III			8	6
Total	4	22	37	7

Grand total 70 persons

Fig. 2-4-4 Organization and Personnel Formation of
RTD Program Production Department



Managers above head and office workers concerned with transmission (total 179 - 7 / grand total 186)
 (*)

Fig. 2-4-5 Organization and Personnel Formation
 of RTD Engineering Department

2-4-2 Budget and Operating Expenses

(1) Budget and Settlement

RTD is concerned with national broadcasting, hence all of the expenses are disbursed by the Government of Tanzania. The fiscal year starts in July and ends in June, and 20% supplementary budget was recognized for each fiscal year '81/'82, '84/'85 and '85/'86. Changes of budget and settlement in the past 5 years are listed in Table 2-4-1.

Table 2-4-1 Changes of RTD Annual Expenses

(Unit: thousand TSh)

Fiscal year	Budget	Ratio over previous year	Settlement	Ratio over previous year
1981/1982	28,995	- (%)	28,783	- (%)
1982/1983	29,195	0.7	28,225	1.9
1983/1984	36,532	25.1	37,704	33.6
1984/1985	47,610	30.3	53,569	42.1
1985/1986	56,529	18.7	55,738	4.1
1986/1987	108,567	92.1	-	-

(2) Details of Operating Expenses and Characteristics

A breakdown of RTD's annual expenses is shown in Fig. 2-4-6. This fiscal year '86/'87 the budget shows an increase of 94% over the actual results in fiscal year '85/'86.

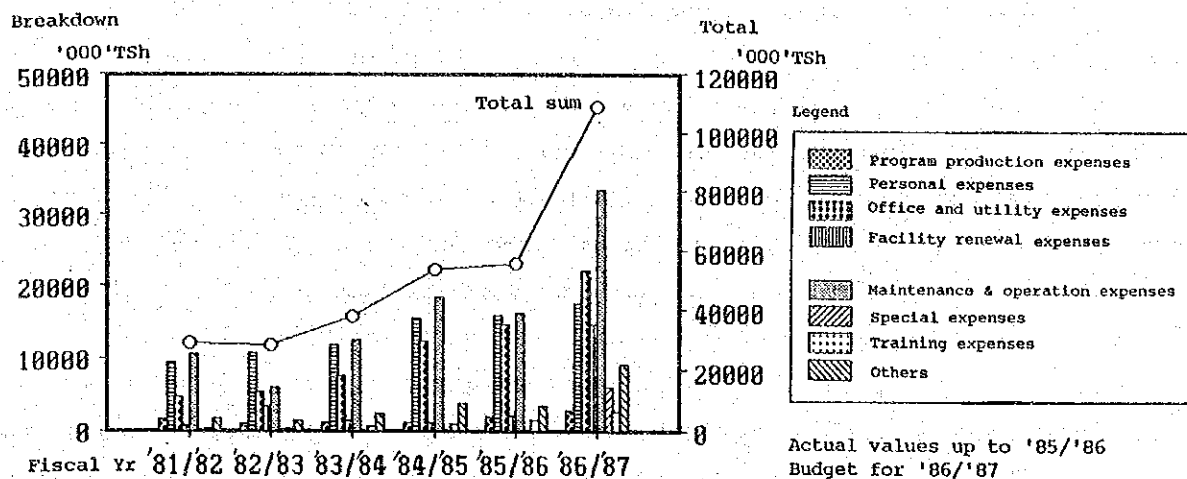


Fig. 2-4-6 Changes of RTD Annual Expenses

In the various expenses, a 10.4% increase in personnel expenses, a 38.2% increase in program production expenses and a 52.3% increase in office and utility expenses were added to the budget to cope with the about 30% average annual price hike. (See Appendix VI-2-1.) But, the 76.2% increase in training expenses, the appropriation for special expenses, the 18.2 times increase in facility renewal expenses and the doubling in maintenance & operation expenses are characteristic of the fiscal year 1986/87 budget.

These increased appropriations are expenses for training the staffers required for the construction of the Dodoma and Kigoma broadcasting networks, special expenses for construction of the Dodoma and Kigoma studio buildings and maintenance & operation expenses for renewal of existing RTD facilities and their maintenance.

As far as the budgetary allocations for this fiscal year are concerned, the Government of Tanzania appropriated funds for the execution of the project, and emphasizes in keeping and managing broadcasting services by renewal of the existing facilities.

(3) Revenue from Commercial Service

RTD conducts not only a national service but also a commercial service from which air time charges are charged. Revenues from this commercial service are composed of charges for program sponsoring, spot advertisements, studio rents, advertisement preparation, etc., and this revenue amounts to about 10% of the annual expenses of RTD as listed in Table 2-4-2.

RTD, however, is a national broadcasting organ, and these revenues are all treated as part of the national revenue, thus they are not directly related to the annual budget of RTD.

Table 2-4-2 Revenue from Commercial Service Over Annual Expenses of RTD
(Unit: thousand TSh)

	1981/82	1982/83	1983/84	1984/85	1985/86
RTD annual expenses	28,783	28,225	37,704	53,567	55,738
Revenue from commercials	2,354	3,892	4,357	4,160	-
Ratio	8.2 %	13.8 %	11.6 %	7.8 %	-

2-4-3 Broadcasting Programs and Programming Control

(1) Broadcasting Features and Purpose

RTD broadcasts three service features ; national service, external service and commercial service by medium wave, short wave and FM. The purpose of each service is as follows:

1) Purpose of National Service

By providing chances to acquire basic knowledge and skills in various fields, the people are encouraged to positively join in

the socio economic development of the nation. This will contribute to national unification, the construction of socialism, the maintenance of culture and the improvement of productivity.

2) Purpose of External Service

For the purposes of supporting African liberation, contributing to the efforts of African unification, and promoting friendship and cultural exchange with neighboring countries, External service is broadcasted mainly in English, and some south African languages are also included. This service is mainly for neighboring countries but for English speaking Tanzanians and foreigners in Tanzania as well.

3) Purpose of Commercial Service

For the purpose of encouraging the appropriate use of domestic products and services. Entertainment programs with advertisements with the above aim are provided for the people.

(2) Program Contents and Programming

In Table 2-4-3 are analyzed the programming of weekly programs according to each broadcasting feature.

Table 2-4-3 Analysis of Weekly Programming of RTD

Program category		National service	External service	Commercial service
A	News	14 hr 00 min (11.1%)	6 hr 45 min (12.6%)	7 hr 35 min (15.0%)
B	Current affairs	20 hr 55 min (16.6%)	9 hr 25 min (17.5%)	9 hr 55 min (19.5%)
C	Documentaries	1 hr 00 min (0.8%)	2 hr 30 min (4.7%)	
D	Adult education	14 hr 30 min (11.5%)		
E	Dramas	1 hr 00 min (0.8%)	1 hr 00 min (1.9%)	1 hr 00 min (2.0%)
F	Programs for women	3 hr 00 min (2.4%)	1 hr 30 min (2.8%)	
G	Programs for children	3 hr 00 min (2.4%)		
H	Religious programs	3 hr 25 min (2.7%)	0 hr 30 min (0.9%)	
I	Sports programs	2 hr 45 min (2.2%)	0 hr 30 min (0.9%)	2 hr 15 min (4.4%)
J	Traditional music	6 hr 55 min (5.5%)	1 hr 00 min (1.9%)	1 hr 15 min (2.4%)
K	Light entertainment programs	55 hr 30 min (44.0%)	23 hr 35 min (43.8%)	28 hr 45 min (56.7%)
L	Liberation movement programs		7 hr 00 min (13.0%)	
Total		128 hr 00 min	53 hr 45 min	50 hr 45 min.

Characteristics of each service are as follows:

1) National Service

National service allocates about 29% of its broadcasts to news, news documentaries and dramas for the purpose of the establishment of the national aims, the construction of socialism and enlightenment regarding socio economic development. About 19% is devoted to such educational programs as adult education programs required for participation in socio-economic development, programs for women and children. School educational broadcasting is now suspended to renew the programs but it will be restarted next fiscal year. With the programs divided roughly into news,

education and entertainment, they are composed of 27.7%, 20.6% and 51.7% respectively.

2) External Service

External service is significant in that about 13% of the entire programs or 7 hours a week is allocated to programs that promote friendship and association with neighbouring countries.

This service is also for English speaking Tanzanians and foreigners. Thus educational programs in English for secondary schools were broadcasted for three hours a week until last year. Presently, the programs are composed of 30.1% for news, 13% for friendship and association with neighboring countries, 10.3% for education and 46.6% for entertainment.

3) Commercial Service

Commercial programs are composed of 34.5% for news, 2% for education and 63.5% for entertainment, thus entertainment programs are weighted most. 17% (mostly light music) of the programs is sponsored, which encourages the appropriate use of domestic products and services in addition to the advertisements. Revenue from this commercial service becomes national revenue.

Contents and programming are as stated above. In addition, RTD keeps a record tape library consisting mainly of recorded music program and news programs such as speeches made by the President. RTD utilizes them as program materials and also sells them to outside organs..

(2) Broadcasting Hours and Frequencies

Broadcasting hours and frequencies of the above three broadcasting features are listed in Table 2-4-4.

In Dar es Salaam Station the national service is conducted using 531 kHz medium wave, and 4785 kHz and 9685 kHz short wave (which are the frequencies for national service) and besides, 657 kHz medium wave, 5050 kHz short wave and 92.8 MHz FM (which are the frequencies for commercial service) by applying blank time of commercial service. This is because the transmitter output of 657 kHz is 100 kW (transmitter output of 531 kHz is 10 kW). Thus it is intended to expand the service area.

FM broadcasting is conducted around Dar es Salaam by means of emitting FM transmitting waves without direction for the program transmission link between the studio and the transmitting station.

Table 2-4-4 RTD Broadcasting Times and Frequencies

Broadcasting feature	Around the capital		Regional station	
	Frequency	Broadcasting time	Frequency	Broadcasting time
National service	531 kHz	6:00-24:00	720 kHz	6:00-24:00
	4785 kHz		(Mwanza)	
	9685 kHz	8:00-18:00	1215 kHz	
	657 kHz		(Arusha)	
	5050 kHz	6:00-16:00	621 kHz	
	(FM) 92.3MHz		(Mbeya)	
External service	1035 kHz	6:00- 7:30		
	7165 kHz	12:00-13:30		
		18:00-22:15		
	(FM) 89.9 MHz			
Commercial service	657 kHz	16:00-23:15		
	5050 kHz			
	(FM) 92.3 MHz			

(note): Broadcasting hours of External Service on Saturday and Sunday are 6:30-7:30 and 12:00-22:15 respectively.

2-4-4 Network Facilities and Operating Conditions

(1) Transmitting Facilities and Operating Conditions

There are RTD Headquarters (office building and program production facilities) and transmitting stations at three locations in Dar es Salaam, and medium wave transmitting stations in three regional cities. These are summarized in Table 2-4-5.

Table 2-4-5 Transmitting Stations of RTD

Transmitting station		Transmitter		Broadcasting time		
		Frequency	Power	National service	External service	Commercial service
Around capital	RTD HQ	FM 92.3 MHz FM 89.9 MHz	50 W 50 W	6:00-16:00	EXT	COM
	Pugu Road	1035 kHz 5050 kHz 7165 kHz	10 kW 10 kW 10 kW	6:00-16:00	EXT EXT	COM
	Mabibo	531 kHz 4785 kHz 9685 kHz	10 kW 50 kW 50 kW	NAT NAT 8:00-18:00		
	Kunduchi	657 kHz	100 kW	6:00-16:00		COM
Local	Mwanza	720 kHz	50 kW	NAT		
	Arusha	1215 kHz	50 kW	NAT		
	Mbeya	621 kHz	50 kW	NAT		

Note: NAT 6:00-24:00
EXT 6:30-7:30, 12:00-13:30, 18:30-22:15
6:30-7:30, 12:00-22:15 (Saturday, Sunday)
COM 16:00-23:15

National service by the medium wave network covers 22% of the area of the country within the specified electric field intensity (60dB) and 37% in terms of population. These areas are shown in Fig. 2-1-1.

1) Around Dar es Salaam

Around Dar es Salaam, there are three transmitting stations at Pugu Road, Mabibo and Kunduchi.

Pugu Road transmitting station is located very close to RTD HQ, equipped with one 10 kW medium wave transmitter and five 10 kW short wave transmitters, and is transmitting mostly external services and commercial services. Broadcasting programs transmission from studios in RTD HQ are sent through wire cables.

Mabibo transmitting station is located about 8 km north of RTD HQ, equipped with one 10 kW medium wave transmitter and four 50 kW short wave transmitters, and are transmitting mostly national services. Program transmission links from RTD HQ is by wire cables.

Kunduchi transmitting station is located about 30 km north of RTD HQ, equipped with two 50 kW medium wave transmitters, and is mainly transmitting commercial services. Broadcast programs from RTD HQ are transmitted by a 50 W FM transmitter in RTD HQ.

In addition to the above, there is a 50 W FM transmitter in RTD HQ, which is transmitting external services.

Every transmitting station is provided with an emergency generator in case of service interruption to commercial power.

2) Regional Stations

RTD installed medium wave radio stations in the three regional cities of Mwanza, Arusha and Mbeya besides the capital from 1974 to 1975 with Japanese yen credit.

In each broadcasting station the location of the transmitting station which is equipped with a transmitter and antenna is

several kilometers away from the receiving station equipped with program production facilities and transmission links which are led in. The transmitting power of each transmitting station is 50 kW and each station is equipped with a 10 kW standby transmitter and an engine generator (350 kVA).

Each receiving station does not have an announcer studio but is equipped with microphones, a control console, disc player and a tape recorder to edit the programs gathered at the zonal program gathering base, and the broadcast programs which are sent by using program transmitting line (TPTC's line) from Dar es Salaam HQ is also sent to the transmitting station through this control console. In case of the failure of this program transmitting circuit, each receiving station is provided with a receiver to directly receive short wave services from the RTD transmitting station in Dar es Salaam.

Broadcast program transmission between the receiving station and the transmitting station is conducted by means of a wireless link exclusively used for this purpose using UHF wave.

3) Operation and Maintenance of Facilities

Basic working rotation in each transmitting station is a three shift system which consists of four teams, each having two staffers as discribed below.

Team A	06:00-14:00
Team B	14:00-22:00
Team C	22:00-06:00
Team D	Standby

While on duty, important matters such as equipment condition are all recorded in the technical equipment trouble record, and these matters are confirmed when the shift is changed. Periodic maintenance, as well as problems, causes and actions taken in

case of a failure of equipment are all recorded herein.

These data are summarized weekly and reported to RTD HQ, and at the same time the data are kept filed on an individual equipment basis in each transmitting station.

Maintenance in the transmitting station is conducted by every one, and periodic inspections and maintenance have been executed based on the instructions specified by RTD. A transmitter is inspected once every month, and the five transmitters in Mabibo transmitting station for example are checked for overheating, loose contacts and leaks of air and water according to the following schedule:

No. 1 transmitter on the 1st and 2nd of every month

No. 2 transmitter on the 3rd and 4th of every month

No. 3 transmitter on the 5th and 6th of every month

No. 4 transmitter on the 7th and 8th of every month

No. 5 transmitter on the 9th and 10th of every month

And antennas are repainted and their guy wires are replaced once every three years.

(2) Program Transmission Network

The existing telecommunication trunk lines of TPTC run east to west and south to north on the mainland of Tanzania as illustrated in Fig. 2-4-7, and both trunk lines cross in Dodoma. In addition, another trunk line runs north along the coast from Dar es Salaam.

These trunk lines use microwave, and each has a large capacity line of more than 120 channels. Small capacity lines of less than 120 channels

using UHF wave are used to connect these trunk lines and surrounding cities, etc.

All of the broadcast programs of RTD are sent to each of the transmitting stations in Arusha, Mwanza and Mbeya from Dar es Salaam HQ through Dodoma. Hence, only a downstream line equivalent to a 1 channel telephone line is leased exclusively as a transmission line.

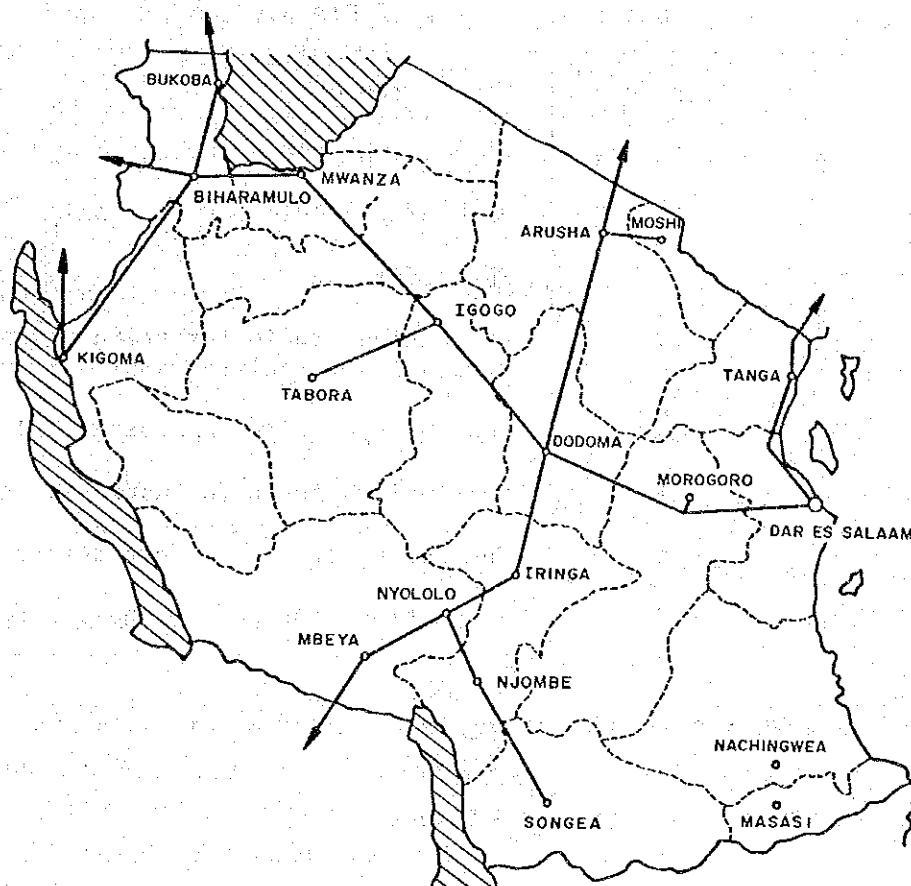


Fig. 2-4-7 Telecommunication Trunk Line Network
on the Mainland of Tanzania

2-4-5 Program Production Facilities and Operating Conditions

(1) RTD Headquarters

1) Program Production Equipment

Program production is conducted mostly in the 8 studio rooms of RTD HQ.

Table 2-4-6 List of RTD Studios

Name	Area (m ²)	Main purpose
Studio 1	64	Production studio for music and dramas
Studio 2	27	Recording studio for VIPs only
Studio 3	27	Tape editing
Studio 4	27	Production studio for training and external service programs
Studio 5	27	Continuity studio for commercial service
Studio Blue	18	Continuity studio for national service
Studio Red	18	Continuity studio for external service
Studio Yellow	11	Production studio for school broadcasting

In addition to the above, RTD has 2 outside broadcasting vans. The outside broadcast programs are sent from the fields concerned to RTD HQ using VHF or UHF wave.

Broadcast programs of the three services are all sent from each continuity studio which is exclusively used for live broadcasting.

2) Master Control Equipment

This equipment is used to select and switch broadcasting programs from the output of each studio and from the fields of outside broadcasting through transmission lines or wireless lines in compliance with broadcasting times, and to send them to the three transmitting stations around Dar es Salaam and three regional stations.

Moreover, the recording of news and other program material sent in over the telephone from zonal program gathering base as well as the regular program exchange with RTZ are conducted there. The main input and output channels of the master control equipment are as follows:

Main input channels	18
---------------------	----

* RTZ receiving line	1
* Outside broadcasting receiving lines	5
* Field pick-up receivers	4
* Studio receiving lines	8

Main output channels	14
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* RTZ transmission line	1
* Transmission lines to Pugu Road transmitting station	3
* Transmission lines to Mabibo transmitting station	2
* Transmission lines to regional transmitting stations	6
* FM program transmitting lines to the transmitting stations	2

3) Power Source Facilities

The receiving capacity of commercial power source is 150 kVA but there is no emergency generator in RTD Headquarters. Instead, an emergency generator in the Pegu Road transmitting station is used in the case of service interruptions.

4) Operation and Maintenance of Facilities

Basically a three shift system with 4 teams is employed as the studio working rotation of a total of 25 staffers. In addition, eight staffers are in charge of outside broadcasting.

If equipment failures occur during the day shifts, they should be recorded in the equipment trouble report and submitted to the maintenance group.

The maintenance group repairs the equipment and results should be recorded in the maintenance inspection record. Finally, this should be kept in the maintenance record file.

The maintenance group is also responsible for periodic maintenance. Maintenance is performed on the amplifiers and consoles once a year and on the disc players and tape recorders about twice a year in accordance with the maintenance instructions specified by RTD.

The maintenance group, with a total strength of 18 including those workers concerned with electric power and wood working, is responsible for a wide range of maintenance including that of buildings and electric power equipment besides broadcasting equipment.

(2) Zonal Program Gathering Network

As a zonal program gathering network, RTD divides the country into 7 zones as illustrated in Fig. 2-4-8, and assigns one program staffer and one engineering staffer to two or three important places in each zone. They are working in ordinary houses which are called program gathering base. The purposes of this zonal program gathering network are to grasp local needs, interests and problems by living together with local people. They provide correct news and topics and give local people and leaders as many chances as possible to participate in the planning and production of programs concerning the socio economic development programs in their zones. News is sent by telephone and ordinary reports which are gathered are sent to Dar es Salaam by air mail. The Dodoma Program Gathering Base is using a small studio in the office building next to studio complex now under construction.

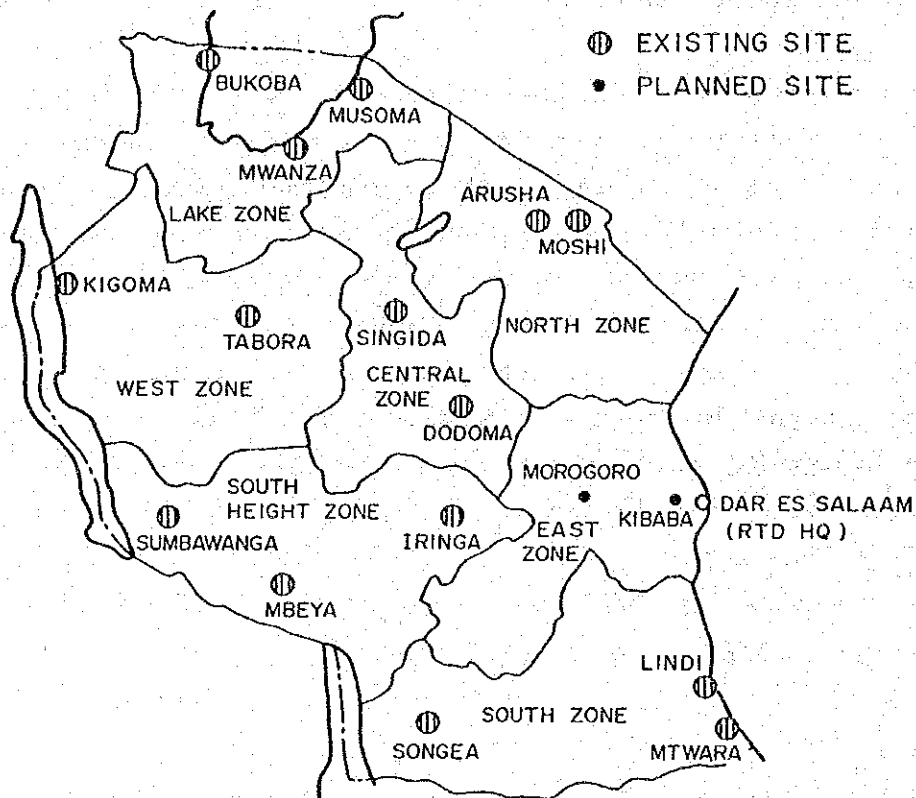


Fig. 2-4-8 RTD Zonal Program Gathering Network

2-4-6. Training System

The training system of RTD is designed to improve the staff's capabilities and the quality of its broadcasting service. The following are reviewed and controlled by the management committee periodically: training purpose, submission of the training budget to the Ministry of Finance Planning and Economic Affairs, approval of training system/plan/curriculum and training activities. As for the budget, a 76% increase or 2,634,000 TSh over the previous fiscal year has been appropriated for training in fiscal year '86/'87, which amounts to about 2.5% of the total sum of budget. In addition, a fact worth paying attention to is that 13% of the news and program production members and 9% of the engineering department members are under going long range training for 1-4 years at Journalism College, universities, technical colleges and overseas technical training centers.

(1) Training System in Program Production and News Departments

In order to train program production staff and library staff, the Program Production Department established its own section in charge of training. It has been conducting just the training of announcers. The following 4 stages are under consideration for its own training system:

- Stage 1: Orientation course plus basic program production course for recruits
- Stage 2: General program production course for program assistants having several years experience in the production and broadcasting field plus a library assistant qualification course
- Stage 3: Special course for producers who are leaders of a program production team
- Stage 4: Policy education course and university course

The News Department does not control the training section, but every year they send their staff to the Journalism College controlled by the Prime Minister's Office. In fiscal year '86/'87, 16 staff members are undergoing training there.

(2) Training System in the Engineering Department

The Engineering Department has its own training center, and 10-20 staff members are receiving training every year in accordance with the program listed in Fig. 2-4-9.

This program is to train those who have finished the junior course of secondary school as broadcasting technicians, and is divided into 6 stages. Each stage lasts 3 months. With this 6 stage training course and O.J.T thereafter, they are promoted to technician from assistant technician in 7 years.

In addition to the training system of the Engineering Department, they have a system to have staff study at domestic or overseas training centers. (See Appendix VI-2-11.) This study either in Tanzania or overseas lasts 1 to 4 years during which pay and tuition are provided by the nation.

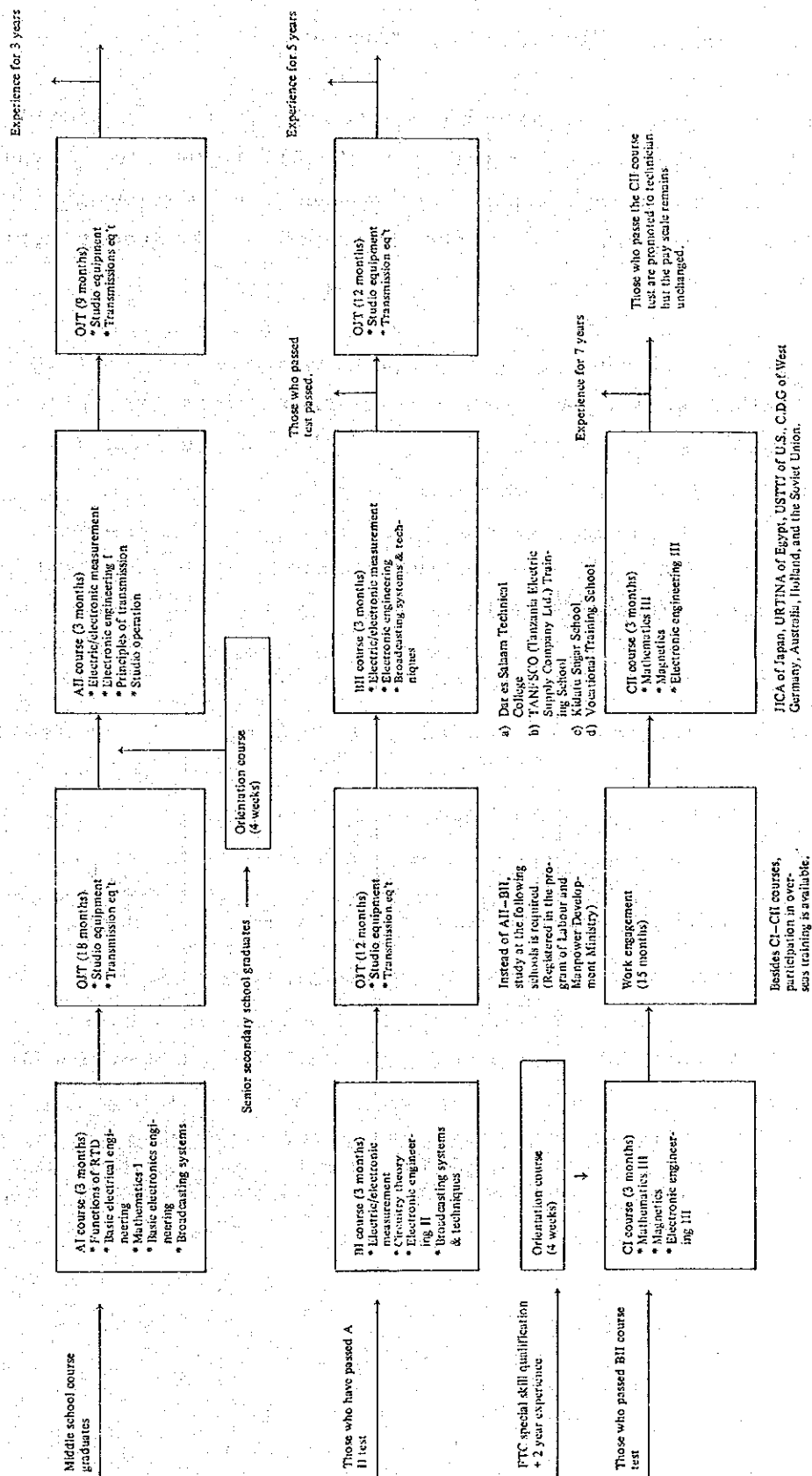


Fig. 2-4-9 Training Programs for RTD Engineering Staff