

**BASIC DESIGN STUDY REPORT  
ON  
THE ESTABLISHMENT PROJECT  
OF  
RADIO STUDIO FACILITIES  
IN  
THE SRI LANKA BROADCASTING CORPORATION  
IN  
THE DEMOCRATIC SOCIALIST REPUBLIC  
OF  
SRI LANKA**

JUNE, 1990

**JAPAN INTERNATIONAL COOPERATION AGENCY**

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国際協力事業団

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## P R E F A C E

In response to a request from the Government of the Democratic Socialist Republic of Sri Lanka, the Government of Japan has decided to conduct a Basic Design Study on the Establishment Project of Radio Studio Facilities and entrusted the study to the Japan International Cooperation Agency (JICA). JICA sent to Sri Lanka a survey team headed by Mr. Taku KIYASU, Deputy Director, Frequency Planning Division, Radio Department, Telecommunications Bureau, Ministry of Posts and Telecommunications, from January 16 to February 3, 1990.

The team exchanged views with the officials concerned of the Government of Sri Lanka and conducted a field survey. After the team returned to Japan, further studies were made. Then, a mission was sent to Sri Lanka in order to discuss the draft report and the present report was 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 sincere appreciation to the officials concerned of the Government of the Democratic Socialist Republic of Sri Lanka for their close cooperation extended to the teams.

June, 1990



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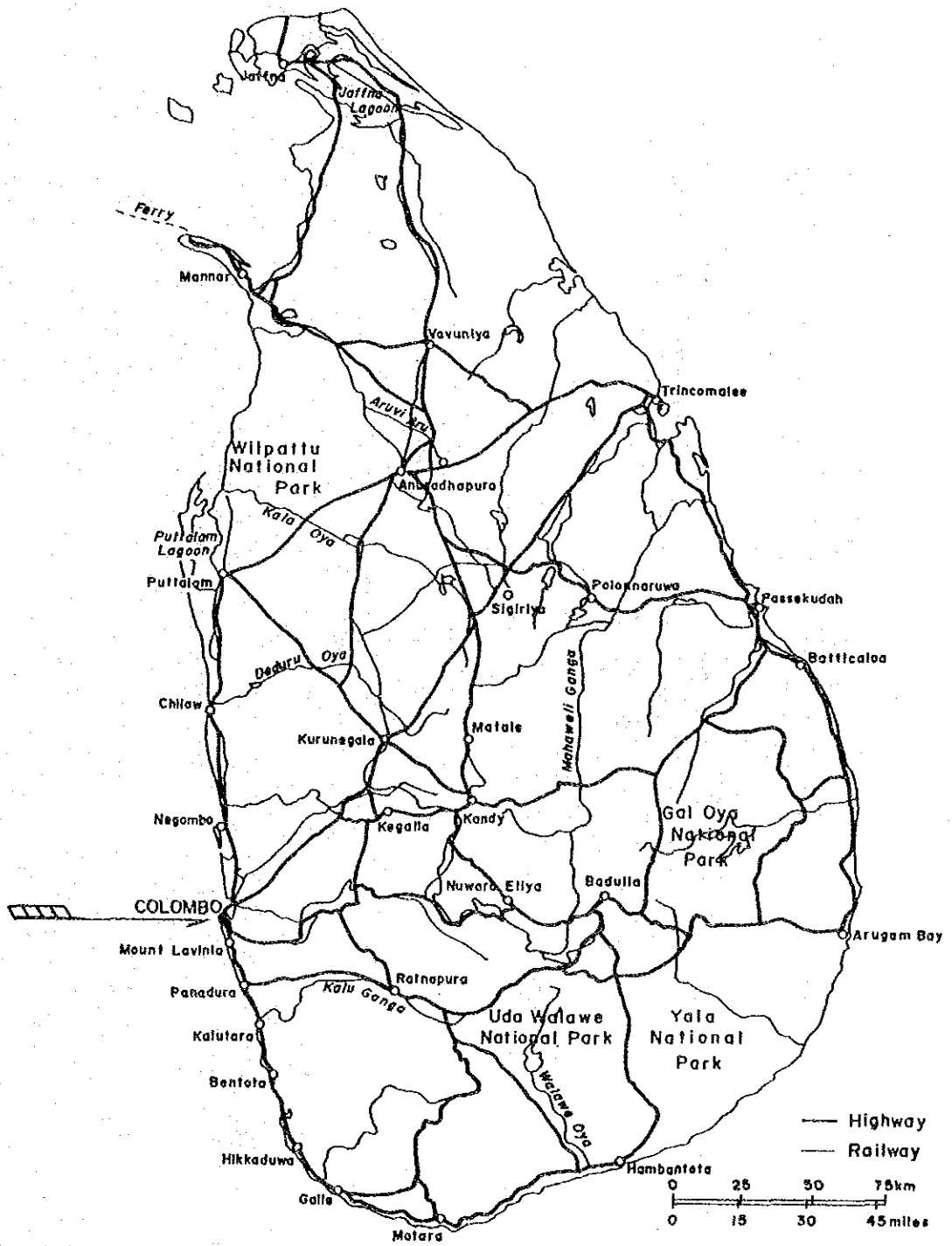
Kensuke Yanagiya

President

Japan International Cooperation Agency



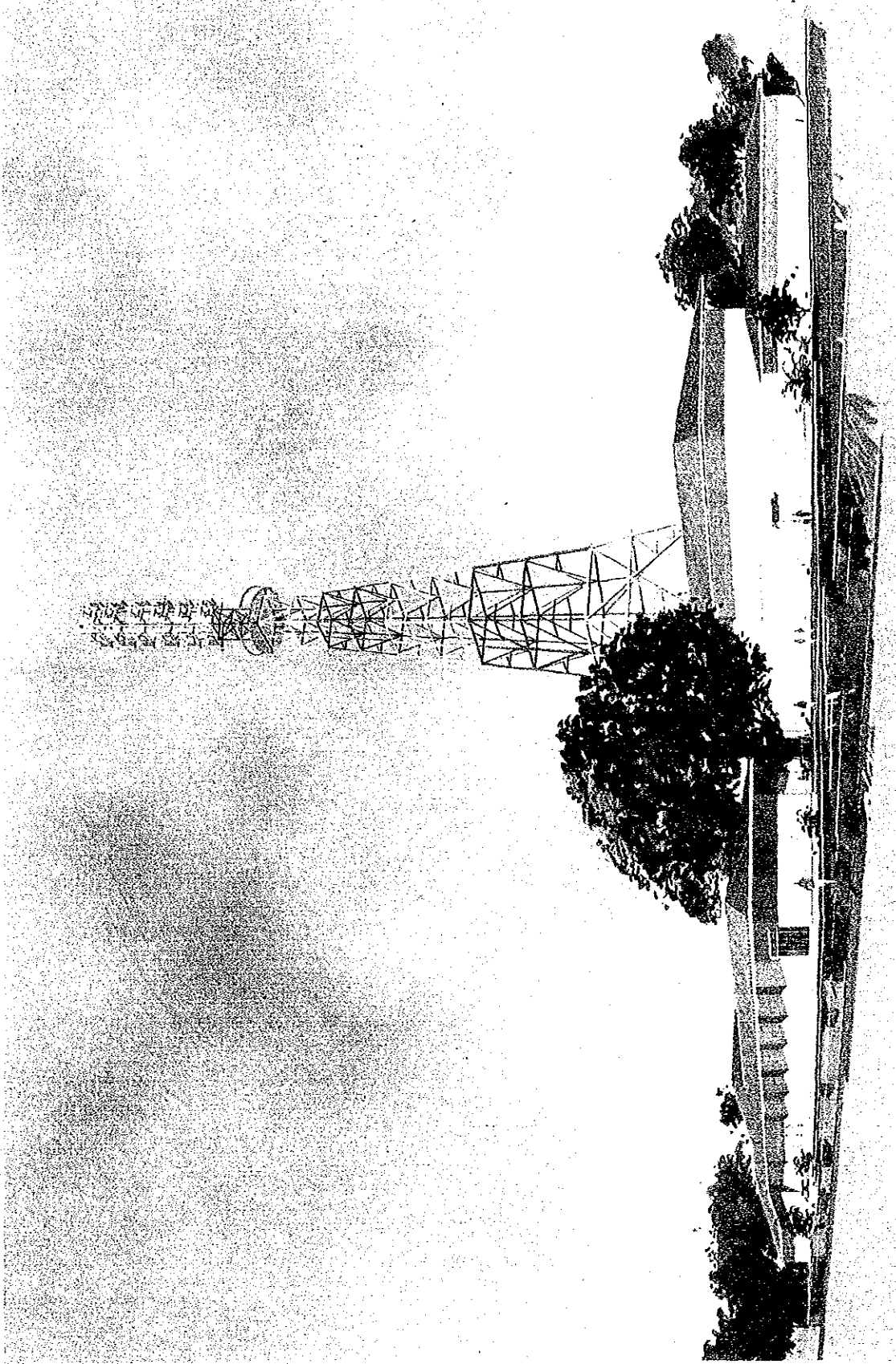




## Sri Lanka

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Perspective of SLBC New Studio Building



# S U M M A R Y



## SUMMARY

### [Present Status of Radio Broadcasting]

The Democratic Socialist Republic of Sri Lanka (hereinafter called "Sri Lanka") won its independence from Great Britain in 1948. Ever since then, the successive governments of Sri Lanka have made effective use of radio broadcasting in their post-independence nation-building and have ceaselessly endeavored to advance mutual understanding between the people, to promote education, to develop agriculture and to spread knowledge about health and hygiene.

In Sri Lanka, the formal radio broadcasting service was started on December 16, 1925. Since then, broadcasting has continually been a state-run operation. In 1949, the call sign "Radio Ceylon" was created.

Further, in January 1967, the Radio Ceylon was reorganized to the Ceylon Broadcasting Corporation, as an independent and autonomous public broadcasting organization. On 1972, with the changing of the name of the country, the Corporation's name was also changed to the present Sri Lanka Broadcasting Corporation (SLBC).

As the nation's only radio broadcasting organization, the SLBC conducts both domestic and external broadcasting under the supervision of the State for Information which belongs to the Ministry of Cultural Affairs and Information.

The following is the outline of the domestic and the external broadcasting services that SLBC conducts at present on medium-wave, FM and short-wave, and short-wave, respectively.

#### Broadcasting Hours per Week

##### Domestic services

(medium-wave, short-wave, FM) . 669 hours 45 minutes/week  
(about 96 hours/day including  
about 70 hours/day of the Colombo  
Station)

##### External broadcasting services

(short-wave) . . . . . 259 hours 00 minutes/week  
(about 37 hours/day, including 7.5  
hours/day of TWR broadcasts)

## Service Channels

- Domestic services . . . Sinhala service (1 and 2), Tamil service (1 and 2)(\*), English service (1 and 2), and educational (cultural) service (1 ch).
- External services . . . Services for Australia and the Far East, the Middle East and Asia, all in English; for Asia and for India in Tamil; for Asia and for India in Hindi; and the TWR broadcasts.

The total number of registered radio receivers exceeds two million sets and that of radio receivers which are actually in use in Sri Lanka is estimated at a little under 4 million sets.

(\* ) Note: SLBC is currently obliged to suspend the broadcasting on the Tamil service 2, because of superannuation of the transmitter.

## [Problems and Challenges in Radio Broadcasting]

Radio broadcasting has a number of outstanding characteristics as a means of widely conveying information and knowledge to the people throughout the country. In order to enable the radio to perform its work in full, there are basically two kinds of functions that need to be enhanced to a satisfactory level. One is the programme-production function and the other is the broadcasting function. If the latter were enhanced, the service area would be expanded. But in order to attract listeners, high programme quality is required. And in order to enhance programme quality, improvement of the programme-production function is indispensable.

However, the Colombo Broadcasting Headquarters, which includes studios for programme production, is an old building which has been in use since 1949. The greater part of the facilities are already more than 40 years old. These facilities have already gone far beyond their service life and most of the necessary spare parts are no longer being manufactured. Thus, as a result of superannuation of facilities, equipment failures occur more and more frequently. In fact, SLBC has actually been managing to carry on its broadcasts by taking stopgap measures each time a failure occurs. The actual situation today at SLBC is that it is virtually impossible to produce programmes that fully meet the ever-diversifying needs of contemporary listeners for a number of



reasons such as the frequent suspension of broadcasts owing to broadcasting time being taken up in repairing the failed equipment, the low quality of programme-production equipment because of its being obsolete, and also the shortage of the required number of units of equipment.

[Necessity of Improvement and the Process Leading to the Establishment of the Project]

SLBC, in an effort to accomplish its mission, carried out the improvement and expansion of its medium-wave broadcasting network in the 1970s with assistance given by West Germany. At present, SLBC is in the process of improving its short-wave broadcasting network with grant aid from Japan under the 1989-90 plan. In these ways, the broadcasting function of SLBC has steadily been improved and expanded but, as mentioned earlier, the rehabilitation of SLBC's Broadcasting Headquarters, which constitutes the nucleus of the Corporation and contains all the installations for production and transmission of programmes has long been delayed. In order to overcome increasing socio-economic problems, the importance of radio broadcasting in Sri Lanka has steadily been growing as a means of enlightenment of the people and information dissemination to the people, promoting mutual understanding among the people within the country and promoting mutual understanding between nations. In order for SLBC to be able to fulfill its mission by responding more effectively to such ever-diversifying requirements as mentioned above, the reinforcement of the Broadcasting Headquarter's function is now a matter of great urgency.

In view of these circumstances, the Government of Sri Lanka has requested Japan to provide grant aid for its plans to construct SLBC's new studio facilities, including FM transmission equipment, together with its training facilities.

The Government of Japan accordingly decided to conduct a basic design study concerning the construction of new studio facilities, for which Japanese grant aid had been requested as mentioned above, and JICA sent a basic design study team to Sri Lanka from January 16 to February 3 1990, to conduct the field survey for the basic design.

The objectives of the study were to grasp the contents and background of this Project, examine the appropriateness of the Project as a grant aid project, as well as the total effect of the Project, and to conduct the

basic design for the contents and determine the most appropriate scale for the projected cooperation. The field survey centred on the SLBC Headquarters which is located in the city of Colombo and checked the condition of the site (especially in relation to the Bo tree at the centre of the new site) and the condition of the buildings and broadcasting equipment, measured the medium-wave and FM broadcast waves in the area surrounding Colombo, and studied the present status of SLBC's programming plans.

#### [Contents of the Request]

Construction of New SLBC Facilities requested by the Government of Sri Lanka are described below.

##### (1) Construction of the Studio Building:

Four stories above the ground, with a total floor space of 2,526m<sup>2</sup> (including an FM transmitter room and a 20m antenna tower above the building)

##### (2) Provision of Programme-production Equipment:

Studio equipment, continuity studio equipment, equipment for the master control room, FM transmission facilities, editing equipment, an OB van, measuring instruments and tools, installation materials, spare parts, etc.

#### [Outline of the Results of the Survey and the contents of the Basic Plan]

- ① It was decided that a larger size multipurpose studio will be constructed instead of the three production studios which had been included in the request made by the Sri Lanka side at the outset.
- ② It was also decided that 12 continuity studios will be constructed instead of nine as had originally been proposed by the Sri Lankan side. This change was made in consideration of the present conditions and the prospects for future expansion.
- ③ At present, even within the same service area in the Colombo metropolitan area, the FM reception level differs by service-channel. This is because the existing FM transmitters have become superannuated, their outputs vary from transmitter to transmitter, such as 100W, 300W, 1kW, etc., and three antennas of different gains are used. In view of this situation, it has been decided that, in the case of the new FM transmitter system, all

service media should be 300W in output and a single integrated antenna with high gain will be installed on a 75m-high tower to cover the entire service area uniformly.

Accordingly, the estimated service area has been projected as being within a radius of about 40km from Colombo. (More than four times as wide as the present service area.)

④ A radio OB van, enabling simultaneous relaying of programmes in Sinhala, Tamil and English, will be provided and radio relay-base equipment and a VHF communication system, both of which will become necessary as a result of the provision of the OB van, will also be provided.

⑤ In order to cope with the severe superannuation of the equipment in the existing Master Control Room (MCR) and with the shortage of equipment, and, at the same time, to improve SLBC's programme-producing functions, a new Master Control Room will be constructed. The programme editing equipment will also be reinforced and the necessary number of measuring instruments, maintenance tools, spare parts, etc., will be provided.

⑥ Construction of a New Studio Building and a 75m-high Steel Tower  
With regard to the construction of a new studio building to accommodate the installations mentioned above, a U-shaped building (with a total floor space of about 1,900m<sup>2</sup>) will be constructed on the new site (about 5,000m<sup>2</sup>) which is located in the inner section of SLBC's premises, in such a way as to surround the Bo tree that stands at the centre of the site.

The portion containing the 12 continuity studios will be of a single story. On the first floor, above the Master Control Room, a radio room accommodating the FM transmitters will be constructed. The multipurpose studio will have a height corresponding to two stories of the building. On top of the radio room will be erected an FM transmitting tower with a height of 75m above ground.

[Estimated Cost of the Project and the Term of Work]

The estimated civil cost of this Project will be about 4.22 million Rupees to be borne by the Sri Lanka side.

As to the term of work, the implementation schedule of the Project will be divided into two phases.

During the first phase, the new studio building is to be constructed and, in the meantime, new measuring equipment and editing equipment for the urgent reinforcement of the existing broadcasting system will be supplied.

In the second phase, the new broadcasting equipment of the multipurpose studio, 12 continuity studios, the new Master Control Room, Radio Room (including FM transmitters), the Radio OB Van system, etc., are to be manufactured. Meanwhile, the steel frames of the tower are also to be made in Japan, and then the shipment of this equipment will be conducted. After that the installation work in the new studio building will be carried out. Finally the tower will be built on top of the newly constructed building.

The total period including the first and second phases will be totally about 25 months from the Exchange of Notes of the first phase.

[Beneficial Effects of This Project]

The implementation of this Project will enable not only the expansion of the FM service area in the Colombo metropolitan area from the present 10km radius (covering 200,000 people) to a 40km radius (covering 3 million people) but will also enable the obtaining of uniform reception and sound quality for all of the seven services, viz., the Sinhala service (2 channels), Tamil service (2 channels), and English service (2 channels) and educational cultural programme service.

Furthermore, the reinforcement of the programme production and transmission functions will result in the expansion of the broadcasting hours. Thus, SLBC's domestic service may be expanded from about 70 hours a day on 6 channels to 80 hours a day on 7 channels, including the recovery of the Tamil Commercial Service which is currently suspended and the foundation for further expansion to more than 100 hours a day, eventually to a maximum of 130 hours a day, will be established.

With the introduction of the radio OB van, live relay broadcasts from about 60% of the entire territory of the island will become feasible.

Meanwhile, the construction of a new multipurpose studio will enable the production and transmission of the kind of new programmes that SLBC has hitherto been unable to produce or transmit. What are expected to be feasible after implementation of the new multipurpose studio are, for example:

- ① Production of social, cultural and enlightening programmes such as lectures by intellectuals, discussions on various topics, audience participation programmes, etc.
- ② Production of large scale educational programmes in a drama style (including stereo sound effects).
- ③ Production of stereo modern and traditional music programmes

When this Project is implemented, the present system of editing and producing programmes using a disc cutter, a system which is over 40 years old, will be replaced with the contemporary system using 6mm tape. This means establishing a foundation on which the subjective quality evaluation value of the present radio broadcasting service with a sound-quality rank of "3" (Fair) will be enhanced to the standard quality level of the world, e.g., rank "5" (Excellent).

The implementation of this Project will enhance the educational and informational effects of the broadcasting media throughout Sri Lanka, thus enabling the nation to build up an effective information infrastructure for national development.



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## CHAPTER 1 Introduction



## CHAPTER 1 Introduction

The Government of Sri Lanka has over the years fully realized the important roles that radio broadcasting plays in the various aspects of nation-building such as the promotion of the people's education, the development of agriculture and spreading of knowledge about hygiene, and hence it has taken the necessary measures to improve and expand its radio transmission functions including those of short-wave broadcasting.

On the other hand, however, SLBC's technical facilities, including its programme-production and transmission equipment and FM transmission installations, are mostly those introduced in 1949 and some have even been in use ever since 1925 when radio broadcasting was started in this country. Even though the studios in the SLBC Headquarters, which is now located in Colombo, have been producing the greater portion of the programmes broadcast on SLBC's domestic service (a total about 670 hours a week comprising 480 hours of the Colombo Station and 190 hours of regional stations) and all of the approximately 200 hours (excluding 53 hours of TWR) broadcast every week on SLBC's external service, almost all of the installations in use are of vacuum-tube types and are already long past their normal service life.

Moreover, the spare parts needed for maintenance work are no longer manufactured and the actual condition of SLBC's radio broadcasting is that its services are being carried on through great endeavors on the part of the SLBC staff, taking stopgap measures to cope with the frequent equipment failures caused by superannuation. In fact, suspension of broadcasting occurs quite often because of the time taken up in repairing equipment that is out of order. Furthermore, SLBC is currently placed in a position where it is unable to produce programmes of greater variety to satisfy the wishes of its listeners, owing to the inadequate functions of programme-production equipment because of its being obsolete, and also owing to the shortage of equipment. In addition, the station buildings and FM towers have also exceeded 40 years in age, resulting in rain leakage and a decrease in the tower's strength. The renewal or repair of these facilities is a problem requiring urgent solution.

In view of these conditions, the Government of Sri Lanka has requested Japan to provide grant aid to assist in the improvement of FM transmission equipment and studio facilities.

The following is the outline of the Project for which a request has been made to the Government of Japan by the Government of Sri Lanka:

(1) Construction of a new studio building

Four floors above the ground, with a total floor space of 2,526m<sup>2</sup>  
(including an FM transmitter room and a 20m antenna tower)

(2) Provision of programme-production equipment

(Including production studio equipment, continuity studio equipment, master control room equipment, FM transmission equipment, editing equipment, OB van, measuring instruments, installation tools, and spare parts.)

In response to this request from the Government of Sri Lanka, JICA sent to Sri Lanka, from January 16 to February 3, 1990, a Basic Design Study Team headed by Mr. Taku Kiyasu, Deputy Director, Frequency Planning Division, Radio Department, Telecommunications Bureau, Ministry of Posts and Telecommunications.

The Study Team, in addition to consulting in Colombo a number of times with the Sri Lanka officials concerned with the Project, conducted a field survey regarding such aspects of radio broadcasting in Sri Lanka as the current status of the studios and transmission facilities at SLBC's headquarters in Colombo, the condition of the projected construction site and the programming plans.

During its stay in Sri Lanka, the Study Team summarized the basic agreements reached with the Sri Lanka side and mutually signed the minutes of discussions and consultations held between the two parties.

After its return to Japan, the Study Team made further analyses on the basis of the results of the survey and, consequently, confirmed the appropriateness of the Project as an undertaking to be carried out with Japanese grant aid and, at the same time, compiled the outcome of the analyses made, including the basic design, estimated construction cost, construction plans, effects of the Project and its conclusions, into a Draft Final Report. Then, from April 17 to 28, 1990, a team headed by Mr. Junichi AOKI, Special Adviser For International Cooperation, Ministry of Posts and Telecommunications, visited Sri Lanka again and held a series of consultations with its Sri Lanka counterparts over the Draft Final Report. Upon conclusion of the discussions, the basic matters confirmed by both

parties were compiled into the Minutes of Discussions to be signed by the two parties. It is on the basis of the outcome of the procedures as outlined above that this Report has been prepared.

The members of the Study Team, the schedule of the field survey and the Minutes of Discussions are given in the Appendices attached hereto.





## CHAPTER 2 Present Status of SLBC and Background of the Project



## CHAPTER 2 Present Status of SLBC and Background of the Project

### 2-1 Outline of Sri Lanka

Japan's international cooperation with Sri Lanka up to now in the field of broadcasting started with the project implemented in 1979-81 for the construction of a TV broadcasting network in that country. Since then, Sri Lanka's television has made steady development and in 1985-86, again in response to Sri Lanka's request, Japan further assisted in the implementation of an expansion project to construct TV studios for educational broadcasts.

Meanwhile, at the request of SLBC, a project to construct and improve the facilities for short-wave broadcasting is currently in progress. The project is expected to contribute greatly to the improvement of Sri Lanka's short-wave broadcasting, which, in turn, will substantially help the Sri Lankan people both at home and overseas in obtaining a greater amount and variety of information, especially as the world today is becoming more and more information-oriented.

Up to fiscal 1987, Japan's yen credits to Sri Lanka amounted to 198.8 billion yen and grant aid, to 77.8 billion yen.

## 2-2 Outline of the Sri Lanka Broadcasting Corporation (SLBC)

### 2-2-1 History

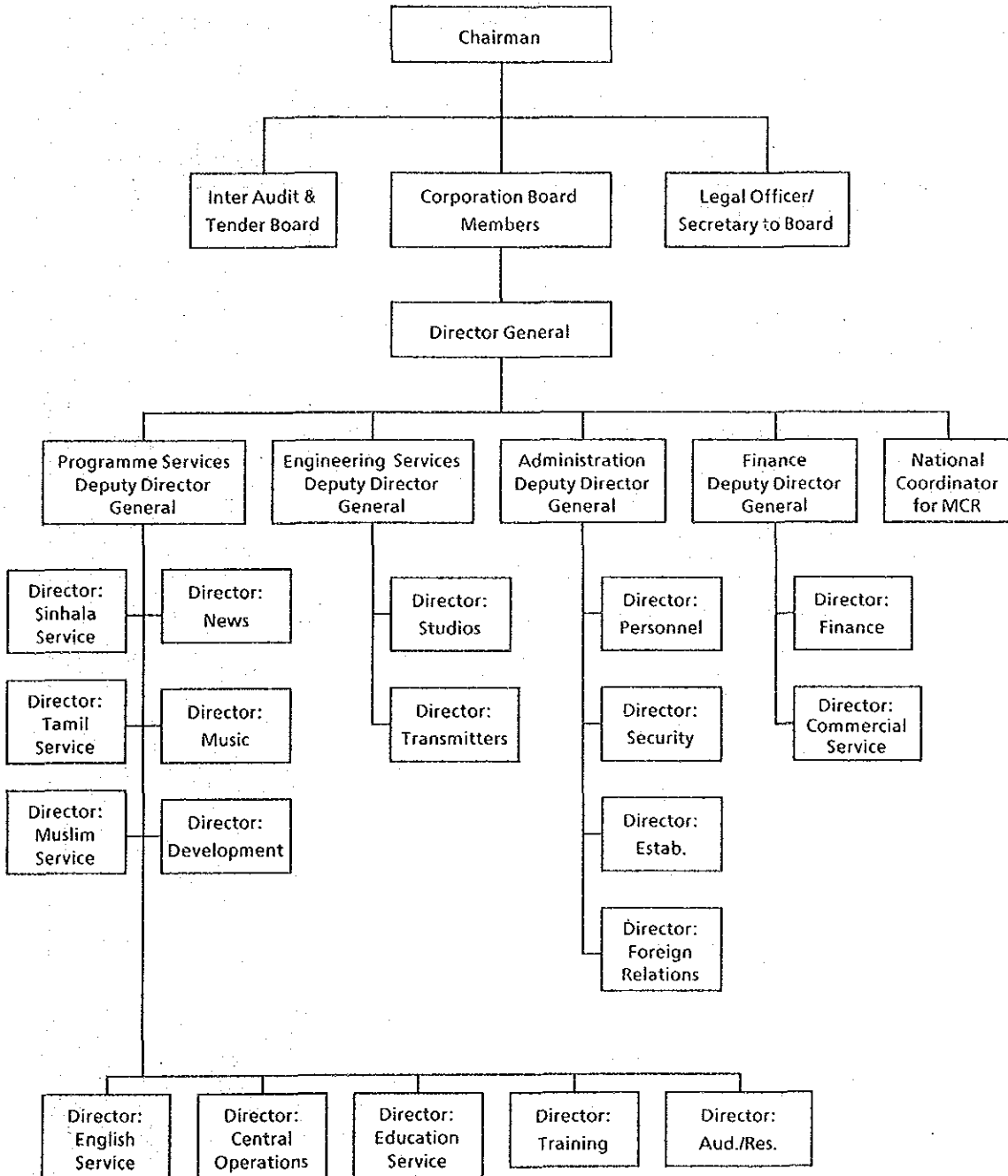
Radio broadcasting in the Democratic Socialist Republic of Sri Lanka was inaugurated in December 1925 as a state-operated undertaking. After that, in 1967, it was taken over by the Ceylon Broadcasting Corporation which was established as an independent public organization. With the changing of the name of the country in 1967 from Ceylon to Sri Lanka, the said Corporation changed its name to the present Sri Lanka Broadcasting Corporation (SLBC). As the nation's only radio broadcasting organization, SLBC adopts a self-supporting accounting system under which the Corporation's expenditure is covered with income from such sources as licence fees and advertising charges.

2-2-2 Organization, Staff Composition and Finance

(1) Organization

The organizational chart of SLBC is as shown in Fig. 2-2-1.

Fig. 2-2-1 SLBC Organization Chart



As of the end of February, 1990

(2) Staff Composition

The total number of posts for SLBC's staff at present is 2,420, which consists of 962 technical, 973 programme-production and 485 administrative staff member posts. However, the actual number of staff members today is about 2,000. The details of staff composition are shown in Table 2-2-1. The figures in ( ) are the number of posts and those in [ ] are the actual numbers of staff members as of the end of February 1990.

Table 2-2-1 Staff Numbers of SLBC

Posts	Staff Numbers	
	( )	[ ]
1. Engineering Division	(962)	[749]
Director: Studios	1	
Director: Transmitters	1	
Superintendent Engineer	10	
Engineer	35	
Technical Assistant (Grade 1, 2, 3)	290	
Administrative Secretary	1	
Stores Officers	2	
Civil Engineering Assistants	1	
Store-keepers	17	
Secretaries	3	
Secretarial Assistants	31	
Foremen	3	
Draughtsmen	3	
Maintenance Assistants	13	
Selection Grade Employees	13	
Skilled Gr. I Labourers	58	
Skilled Gr. II Labourers	85	
Skilled Gr. III Labourers	150	
Labourers Gr. IV & V	200	
Labour Supervisors	2	
Building Supervisors	3	
Office Aides, Stores Labourers	8	
Sanitary Labourers	32	

Posts	Staff Numbers	
2. Chairman/Director General	(5)	[10]
3. Board Secretariat/Legal Department	(6)	[1]
4. Internal Audit	(7)	[26]
5. Working Director	(6)	[7]
6. DDG	(15)	[5]
7. Sinhala Service	(154)	[153]
8. Tamil Service	(84)	[74]
9. English Service	(57)	[38]
10. Muslim Service	(10)	[9]
11. Commercial Service	(93)	[56]
12. Education Service	(38)	[17]
13. Library Service	(8)	[10]
14. News Division	(74)	[69]
15. Music Division	(6)	[0]
16. Foreign Relations Division	(22)	[16]
17. Finance Division	(100)	[109]
18. Establishment Division	(19)	[22]
19. Personnel Division	(17)	[20]
20. Audience Research Division	(12)	[4]
21. Security Division	(273)	[182]
22. Training Division	(14)	[8]
23. Development Division	(6)	[11]
24. Central Operations Division	(135)	[122]
25. Transport Section	(118)	[68]
26. Rajarata Sevaya	(49)	[45]
27. Rufnu Sevaya	(51)	[49]
28. Mahanuwara Sevaya	(51)	[59]
29. Mahaweli Community Radio	(28)	[32]
<b>Total Staff Numbers</b>	<b>(2,420)</b>	<b>[1,971]</b>

(3) Ordinary Income and Expenditure of SLBC

1) Income and Expenditure of SLBC

Annual income and expenditure of SLBC are as shown in Table 2-2-2.

Table 2-2-2 Annual Income and Expenditure of SLBC

(Unit : 1 million Rupees)

Fiscal Year	Income ①	Expenditure ②	Difference ① minus ②
1987 (Actual)	167.0 (*1) (about ¥ 630 mil.)	138.5 (about ¥ 530 mil.)	28.5 (about ¥ 100 mil.)
1988 (Actual)	156.2 (about ¥ 590 mil.)	165.8 (about ¥ 630 mil.)	-9.6 (about ¥ 40 mil.)
1989 (Estimated) (*2)	187.1 (about ¥ 710 mil.)	190.5 (about ¥ 720 mil.)	-3.4 (about ¥ 10 mil.)

(\*1) Note: 1 Rupee = 3.8 yen (converted at the exchange rate as of the end of Feb. 1990 : same exchange rate has been applied to the figures in Rupees appearing in the subsequent data)

(\*2) Note: Since the closing of accounts had not been completed entirely at the end of February 1990 when this survey was conducted, the figures given in this column for fiscal 1989 were marked as "Estimated." However, no substantial change in the figures has since been made.

2) Breakdown of Income and Expenditure

a) Income

SLBC's income during the last three years is as shown in Table 2-2-3. Of the total income, the income from radio license fees accounted for 19.1% in fiscal 1988 according to the actual records. For the greater part of its income, SLBC depends on the income from sponsors (at home and abroad) and the income from outside sources, such as foreign broadcasting organizations. (The income from sponsors and foreign broadcasting organizations amounted to 70.9% in 1988.)

As to the income from radio license fees, a decrease can be seen in the figures for 1988 and 1989 as compared with the records for 1987. This is due partly to the effects of the domestic unrest. But it is believed that the income from



radio license fees would tend to rise again with the recovery of domestic tranquility.

Table 2-2-3 Three Year (1987-1989) Shift of the SLBC's Revenue

(Unit : Million Rs)

Item	1987 (Actual)		1988 (Actual)		1989 (Estimated)	
	Rs	%	Rs	%	Rs	%
Sales of Air Time	9,761	58.5	10,253	65.6	12,780	68.3
(Asia Service)	9,761		(2,525)		(3,000)	
(Local Service)		(6,101)		(8,280)		
(TWR)		(1,627)		(1,500)		
Foreign Organizations	606	3.6	825	5.3	630	3.4
(Voice of America)	(606)		(683)		(600)	
(Deutsche Welle)	(0)		(142)		(30)	
Radio License Fees	4,790	28.7	2,981	19.1	3,600	19.2
Miscellaneous Revenue	1,544	9.2	1,565	10.0	1,695	9.1
(Production Charge)	(580)		(504)		(730)	
(Obituary Notices)	(659)		(761)		(700)	
(Others)	(305)		(300)		(265)	
Total	16,701	100.0	15,624	100.0	18,705	100.0

b) Expenditure

SLBC's expenditure during the last three years is as shown in Table 2-2-4.

Table 2-2-4. Three Year (1987-1989) Shift of the SLBC's Expenditure  
(Unit : Million Rs)

Item	1987 (Actual)		1988 (Actual)		1989 (Estimated)	
	Rs	%	Rs	%	Rs	%
Salaries (Wages, overtime, etc.)	4,955	35.8	7,573	45.7	8,000	42.0
Travel Expenses	239	1.7	276	1.7	234	1.2
Electricity and Power	2,092	15.1	2,460	14.8	2,536	13.3
Repairs and Maintenance	855	6.2	1,031	6.2	1,200	6.3
Motor Vehicle Running Exp.	472	3.4	400	2.4	381	2.0
Commission - Sale of Air Time	1,339	9.7	1,417	8.5	2,246	11.8
Collection Charge (License Fees)	814	5.9	500	3.0	612	3.2
Business Turnover Tax	740	5.3	711	4.3	1,026	5.4
Programme Expenditure	426	3.1	371	2.2	443	2.3
Contribution to Provident Fund	666	4.8	1,087	6.6	1,174	6.2
Postage, Telephone, etc.	291	2.1	274	1.7	259	1.4
Others	958	6.9	476	2.9	939	4.9
Total	13,847	100.0	16,576	100.0	19,050	100.0

## 2-2-3 Outline of Broadcasting Programmes

### (1) Broadcasting Hours and Broadcasting Media

The radio broadcasting services currently conducted by SLBC, viz., the Domestic Services on medium-wave, short-wave and FM, and the External Services on short and medium waves, are as follows:

#### 1) Broadcasting Hours (per week)

- Domestic Services . . . . . 669 hours 45 minutes  
(medium-wave, short-wave and FM) (about 96 hours a day)  
(including 190 hours 15 minutes of regional stations' broadcasts)
- External Services . . . . . 259 hours 00 minutes  
(Short and medium waves) (about 37 hours a day.)  
(including 52 hours 30 minutes of TWR broadcasts)

#### 2) Languages

- Domestic Services . . . . . Sinhala, Tamil and English
- External Services . . . . . Sinhala, Tamil, Hindi, English and other languages, totalling 8 languages

#### 3) SLBC's Domestic Services

- Sinhala Service
- Tamil Service
- English Service
- Education Service
- Regional Service

Of these five services, those in Sinhala, Tamil and English are each divided into national broadcasts and commercial broadcasts.

As to the regional services, about 7-11 hours of broadcasts a day are conducted by three regional stations at Rajarata Sevaya, Rufnu Sevaya and Mahanuvara Sevaya. Besides these there is, as a limited-area broadcasting service, a service conducted through small broadcasting facilities installed at two locations on a

newly cultivated area which is being developed under what is known as the Mahaweli Development Plan, to offer information and entertainment to the inhabitants of this area. The programmes are aired for one hour every evening.

Table 2-2-5 shows the air-time table of broadcasts by all the broadcasting media in Sri Lanka.

The Colombo Headquarters of SLBC conducts about 480 hours of broadcasts a week on its Domestic Services, that is, the total weekly broadcasts of 670 hours by the entire SLBC minus the broadcasts originating from regional stations, and all of the 250 weekly hours of broadcasts on the External Services (including 52.5 hours of TWR broadcasts).





## (2) Outline of Programme Contents

Reflecting the music-loving character of the people of Sri Lanka, all the broadcasting media, with the exception of the educational broadcasts, devote considerable time to music programmes. However, SLBC adopts the type of programming that also places emphasis on enlightenment of the people including provision of adult education, news including the government's public announcements and information, various livelihood-related information and religious programmes. So, the government has been making positive use of the roles that radio broadcasting is capable of playing in helping to promote the national development plans.

The news and the government's public announcement broadcasts, which supply the people with the latest information concerning developments both at home and abroad, are proving very useful in promoting mutual understanding among the people in Sri Lanka and in deepening international understanding.

The religious programmes serve as an aspect of spiritual life and a source of mental peace for the people of Sri Lanka who are generally very pious and religious.

As to the livelihood-related information of all types (such as programmes for fishermen and rural news), information indispensable for daily life is supplied not only to city-dwellers but also to fishing and agricultural communities as well.

The educational broadcasting, to which SLBC devotes its efforts with a view to enhancing the educational level of the people as a whole, is conducted five days a week excepting Saturdays and Sundays, from 7:30 to 10:20 and from 18:00 to 20:30. Different subjects are dealt with on different days of the week.

Furthermore, throughout the year, adult educational programming is done by compiling various curricula suited to each educational level, depending on the period during which each programme goes on the air.

In addition to such so-called formal educational programmes, a variety of programmes including music programmes and dramas are aired and give mental relaxation and comfort to the people of Sri Lanka.

The weekly on-air time tables of each service are attached as the appendices at the end of the report.

The ratios of different categories of weekly programmes summarized from the time tables are shown in Table 2-2-6.

Table 2-2-6 Ratios of Programme Type

	Shinhala				Tamil		English			
	National Service		Commercial Service		National Service		National Service		Commercial Service (Stereo)	
	Hour	%	Hour	%	Hour	%	Hour	%	Hour	%
Music	25	34.2	84	72.7	70	56.0	68	67.0	34	91.9
Religious	11	15.1	6	5.2	10	8.0	2	2.0	-	-
News & Current Affairs	10	13.7	7	6.1	12	9.6	10	9.9	2.5	6.8
Cultural Public Information	9	12.3	5	4.3	20	16.0	8	7.9	0.5	1.3
Light Entertainment	11	15.1	12	10.4	10	8.0	8	7.9	-	-
Others	7	9.6	1.5	1.3	3	2.4	5.5	5.3	-	-
Total	73	100.0	115.5	100.0	125	100.0	101.5	100.0	37	100.0

As the broadcasting facilities will be gradually improved and expanded from now on, SLBC hopes to further reinforce and enrich its educational broadcasting. The following are some of the particular fields in which SLBC plans to expand.

- Enlightenment programmes (such as those designed to enlighten women at home about hygiene, nutrition, health, child-rearing and family planning)
- Language-lesson programmes (Sinhala, Tamil, English, Japanese, German, etc.)  
(Incidentally, in Sri Lanka, there is quite a lot of enthusiasm about learning the Japanese language. A large number of listeners are expressing their desire to learn Japanese on the radio.)
- Vocational-guidance programmes  
(Giving guidance in agriculture, or guidance intended for nurses or would-be nurses.)
- Programmes designed to re-educate teachers  
(As many as 15,000 out of the 50,000 elementary school teachers are unlicensed. Hence, efforts are being made by the Ministry of



Education, Cultural Affairs and Information to improve this situation.)

Thus, constant endeavors are being made in Sri Lanka to enhance the educational level of the people as a whole by improving and expanding such programming as outlined above. However, they have been unable to implement their plans in full owing to the lack of equipment and facilities that are currently available for exclusive use in producing programmes to be broadcast on the educational channel.

### (3) Formats of Programme Transmission and Studio-production Programmes

The 670 hours of SLBC Domestic Service programmes broadcast weekly comprise 480 hours transmitted from the Colombo Headquarters and 190 hours from regional stations. The 190-hour of regional broadcasts consist of mainly off-air relay programmes from the Colombo Headquarters and some amount of programmes originated from the regional stations.

On the other hand, the External Service transmits 260 hours a week, of which 50 hours are TWR broadcasts. While SLBC does not take charge of the production of these TWR programmes, it has the responsibility of transmitting them.

Accordingly, the volume of weekly programmes to be produced in the Colombo Headquarters and sent out to transmitters is:

480 hrs of Domestic Services + 210 hrs of External Services =  
690hrs/week

Of 690 hours, 180-hour programmes are recorded on tapes in a complete programme form in production studios before transmission and later sent out to transmitters from continuity studios.

The rest of 510 hours are broadcast live directly from continuity studios by using sound materials such as discs, tapes, etc., while adding announcements in continuity studios.

Therefore, in order to continue transmission of programmes maintaining the present transmission format, it would be necessary for SLBC to record 180 hours (30 hours a day) of programmes on tapes in production studios weekly.

#### (4) Radio-listening Trends

The SLBC's Audience Research Division conducted a questionnaire survey on radio listeners in Sri Lanka in 1987. The following is an outline of the results.

- 1) Eighty percent of the population listen to the radio every day, while 72 percent read newspapers and 38 percent watch TV. In other words, the most popular of these mediums in Sri Lanka is radio, which is followed by newspapers and then by TV.
- 2) More than 75 percent of these radio listeners listen to the radio every day, from 6:00 to 7:00 in the morning and from 8:00 to 9:00 in the evening.
- 3) Among the programmes broadcast on the Sinhala Service, the most popular are news, music, drama and quiz programs, in that order.
- 4) The hours during which the audience ratings are the highest are 5:00 - 7:00 in the morning and 8:00 - 9:00 in the evening; the audience ratings are the lowest during 8:00 - 11:00 a.m. and 1:00 - 6:00 p.m.

#### 2-2-4 Present Conditions of Studio Installations

The layout of production studios and the Master Control Room currently existing in the Colombo Headquarters of SLBC are shown in Fig. 2-2-1.

##### (1) Numbers and Outline of the Studios Owned by SLBC

Large-scale production studio (Studio No. 6)	1
Medium-scale production studios (Studios No. 1, 5, and 10)	3
Small-scale production studios (Studios No. 2, 3, 4, 7, 8, and 9; voice-cast 1, 2 and 3)	9
Small-scale stereophonic production studio (Studio C)	1
Continuity studios (Nos. 1 - 9) <sup>(*)</sup>	9

Stereophonic continuity studio (Studio D)	1
News studios (A <sub>1</sub> , A <sub>2</sub> and B)	3
	<hr/>
Total:	27

(\*) Note: Continuity studios carry out all the transmission of daily programmes in accordance with a cue sheet showing a whole day's programme schedule. Then, they are different from production studios in application.

The outline of the above is as follows:

- a) Large-scale production studio (St. 6) . . . . . 1

Although this is an auditorium equipped with a stage with a total floor space of 180m<sup>2</sup>, the interior component materials are beginning to crumble owing to rain leakage. Yet, being the largest studio owned by SLBC at present, this studio is currently in full operation at the rate of about 45 hours a week, used for such purposes as rehearsal of music and dramas and their final recording, as well as the recording of audience-participation programmes. Since this studio was designed 40 years ago, its control room can only be used for production of monaural programmes. So, in order to remodel it to make it usable for the production of stereophonic programmes as well, there is the need to expand the control room attached to the studio. However, the structure of the building being as it is now, such expansion would be quite difficult.

The sound control console is of an obsolete type built more than 40 years ago, a vacuum-tube type with only a few functions.

Photo 2-2-1 shows the exterior view of the control console, while Photo 2-2-2 shows its interior. The fader for use in adjusting the sound is of round shape which is no longer used today. As can be seen from the photo, vacuum tubes are used also for the amplifier within the console.

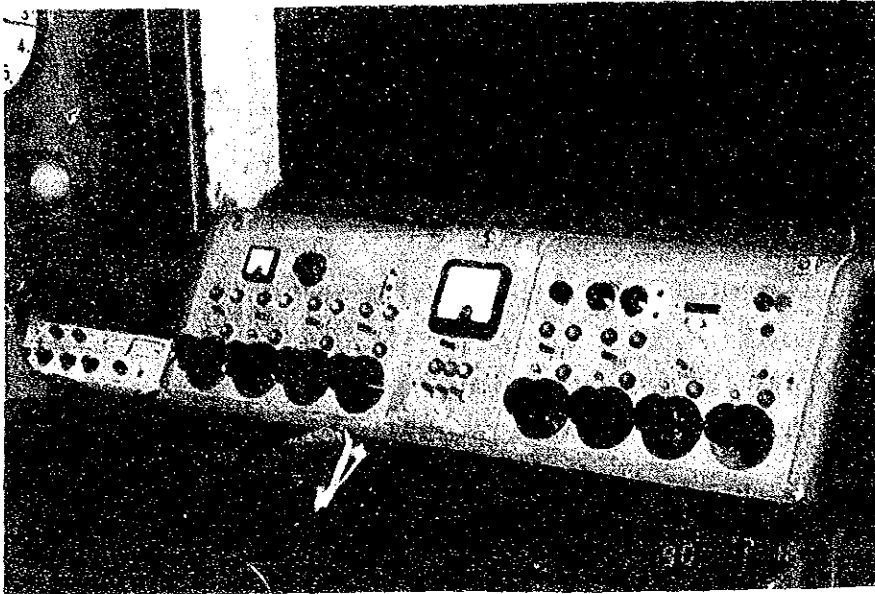


Photo 2-2-1 Exterior View of the Sound Control Console

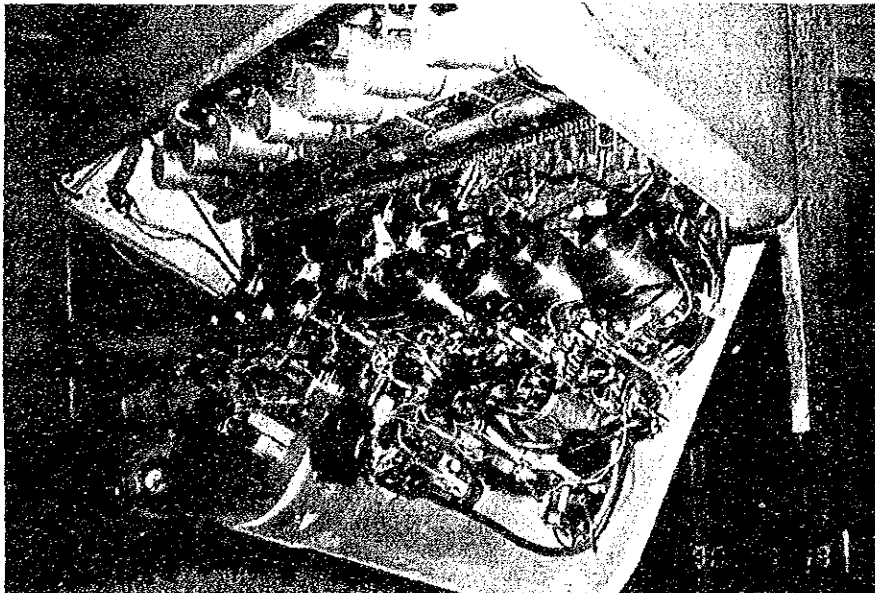


Photo 2-2-2 Interior View of the Sound Control Console

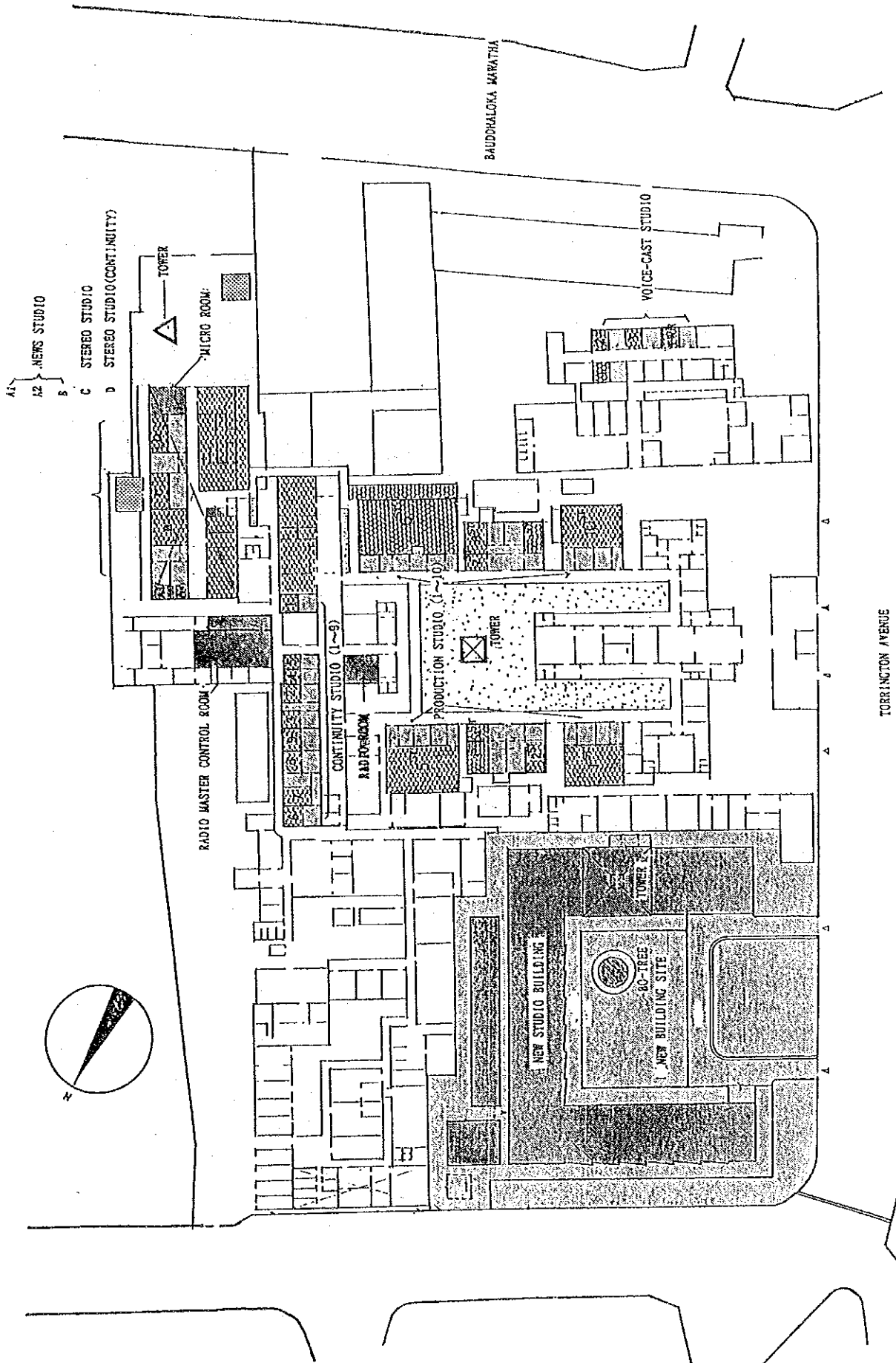


Fig. 2-2-1 LAYOUT OF EXISTING SLBC STUDIOS AND MASTER CONTROL ROOM SCALE 1:1000

- b) Medium-scale production studios (St. 1, 5 and 10) . . . 3  
 These are medium-size studios, each with a floor space of 80 - 120m<sup>2</sup>.  
 Each of these studios is used an average of 40 hours a week mainly for the recording of small-scale concerts, religious music, vocals and dramas.
- c) Small-scale production studios  
 (St. 2, 3, 4, 7, 8 and 9; voice-cast 1, 2 and 3) . . . 9  
 These are small studios, each with a floor space of 10 - 20m<sup>2</sup>. Of these, five are one-man control studios. Studio No. 4 is currently undergoing remodelling because its interior component materials have been damaged by termites (white ants).  
 These studios are used for the recording of talk programmes, discussion programmes with only a few persons taking part, commercials and religious programmes.  
 The average weekly operation of these studios is 40 hours.
- d) Small-scale stereophonic production studio (St. C) . . . 1  
 With a floor space of about 50m<sup>2</sup>, this studio, besides being used for stereophonic recording of commercials and talk programmes, is constantly in a waiting position as a standby studio for the stereophonic continuity studio. (Because the existing continuity studios are operated with superannuated equipment, their reliability is so low that, at least once a week, programmes are transmitted from this stereophonic production studio.)
- e) Nine continuity studios, one stereophonic continuity studio (ST. D) and three news studios (A<sub>1</sub>, A<sub>2</sub> and B) . . . . . 13  
 Using ten continuity studios and three news studios, a total of 740 hours of broadcasts of 13 media are made a week.

(2) Outline of the Master Control Room

The Master Control Room has the functions of finally transmitting the programmes to the transmitting stations and of distributing the programmes, originating from both within and outside the station, to the necessary locations. Therefore, the Master Control Room is, so to speak, the nucleus of the broadcasting station. The SLBC's Master Control Room is almost entirely composed of equipment using vacuum tubes and, besides, the building itself is already 100 years old. In other words, the Master Control Room of SLBC today is one of the most superannuated parts of SLBC's entire facilities.

Photo 2-2-3 shows a part of the equipment rack in the Master Control Room and Photo 2-2-4, the master clock device installed in that room.

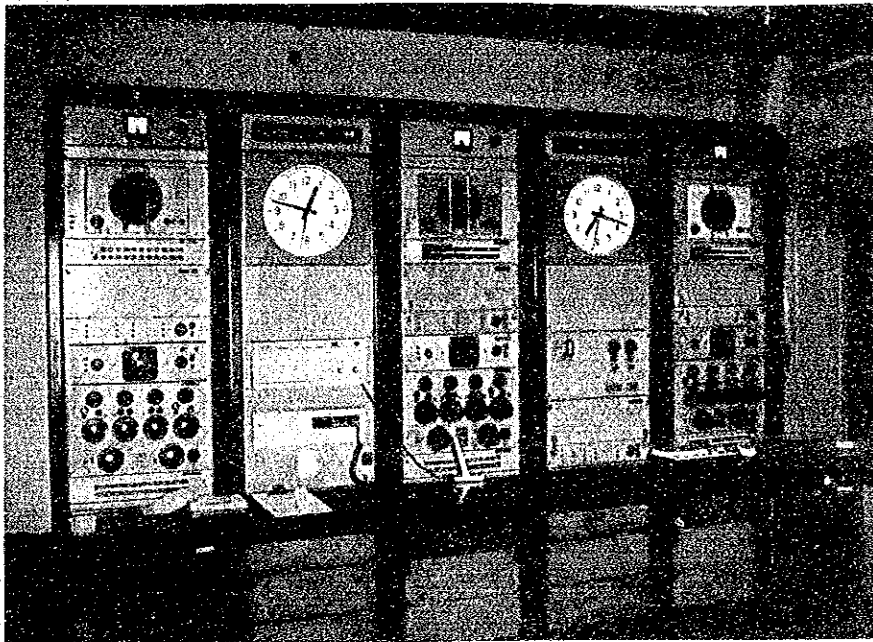


Photo 2-2-3 Equipment Rack in the Master Control Room

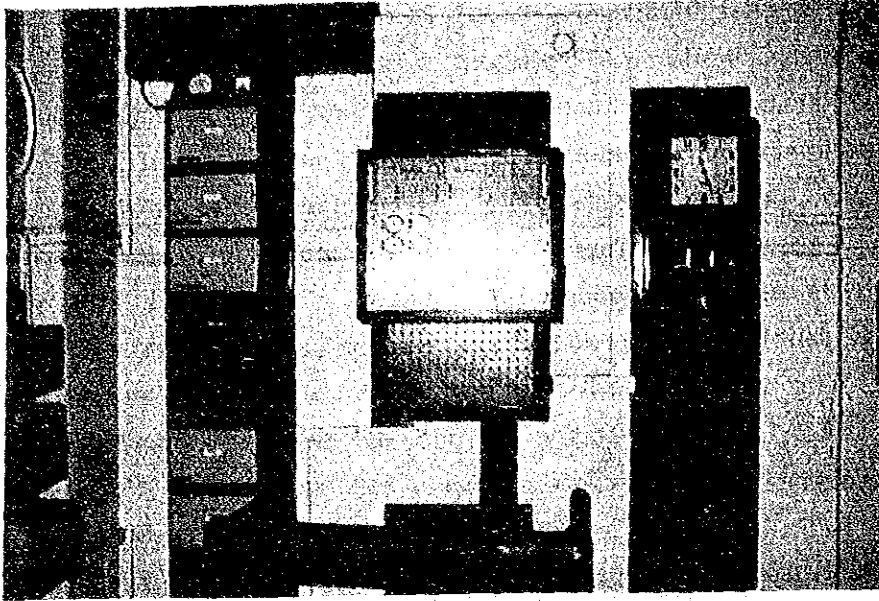


Photo 2-2-4 Master Clock Device

Photo 2-2-5 shows a part of the exterior walls of the station building, the part in which superannuation is particularly evident. From the photo, it is clear that the building is severely damaged by rain leakage and deterioration resulting from the passage of time.



Photo 2-2-5 A Part of the Exterior Walls of the Station Building



### (3) Maintenance Condition

For almost all of the equipment currently used in SLBC's studios, the procurement of spare parts has now become extremely difficult. For that reason, SLBC has been making desperate efforts to somehow continue operation by, for example, taking the required component parts off of other equipment to fix the unit in trouble or by devising substitute parts for use in fixing a failed unit. Hence, the maintenance work takes much time, thus obliging the technical staff to suspend the use of one or more of the studios at an average rate of one day a week in order to conduct maintenance of the studio equipment. This, of course, results in the reduction in the hours allocated to the studios for production use.

## 2-2-5 Present Conditions of FM Broadcasting Installations and Service Area

### (1) Present Condition of FM Broadcasting Installations

There are at present six FM channels on which programmes are broadcast from the Colombo studios to serve the metropolitan area. Because of the breakdown of a transmitter, one channel for Tamil Commercial broadcasts is at present suspended, with the result that this particular service has had to be stopped for the present. Owing to the fact that Sri Lanka is a multi-language country, SLBC is given the obligation by the Sri Lanka Broadcasting Corporation Act of broadcasting the programmes on a total of seven channels; that is, two channels -- a National Service and a Commercial Service -- each in Sinhala, Tamil and English, plus one channel exclusive to educational broadcasting.

English Commercial Service, only the stereophonic channel in Sri Lanka, consists mainly of DJ (disc jockey) programmes and news, and is currently broadcast in a mixture of three languages, English, Sinhala and Tamil, in response to the views of listeners expressing their desire that commentaries be given in Sinhala and Tamil as well.

Those FM channels mentioned above serve the metropolitan area and, at the same time, play the part of master stations (key stations) for the off-air relay to FM and MW regional stations. (See Table 2-2-7.)

Table 2-2-7 Current Condition of FM Transmitters for Each Service, and Power Output (Colombo studios)

		(Rated Power)	
1)	Sinhala-Commercial Service	88.4 MHz	300 W Reduced output (50-60%)
2)	English-Commercial Service	(Stereo) 91.7 MHz	1 kW Reduced output but its extent unknown.
3)	English-National Service	93.3 MHz	100 W Reduced output (50-60%)
4)	Sinhala-National Service	98.3 MHz	100 W Reduced output (50-60%)
5)	Educational/Cultural Service	101.35 MHz	100 W Reduced output (50-60%)
6)	Tamil-National Service	105.65 MHz	100 W Reduced output (50-60%)
7)	Tamil-Commercial Service	108.70 MHz	100 W (Operation currently suspended due to breakdown of the transmitter)

The stereophonic service and the other five services are simultaneously relay-broadcast with the 1kW FM transmitter located on the Radella Highland in the central part of Sri Lanka (2,108m above sea level).

This Radella Station further functions as the relay master station for other regional FM stations and medium-wave radio stations, thus playing the role of a key station for nationwide relay operations. (See Table 2-2-8).

Table 2-2-8 Present FM and Medium-wave Radio Relay Stations in Sri Lanka (as of February 1990)

FM Relay Stations

Radella Station	UHF STL Colombo		
Tamil-National Service		87.5MHz	1kW
Educational/Cultural Service		89.7MHz	1kW
English-Commercial Service (Stereo)		94.4MHz	1kW
Sinhala-National Service		97.0MHz	1kW
English-National Service		100.2MHz	1kW
Sinhala-Commercial Service		103.5MHz	1kW
Deniyaya Station	Relays the broadcast-waves from Colombo		
English-National Service		90.8MHz	250W
Sinhala-Commercial Service		97.6MHz	1kW
Sinhala-National and Local Programmes (Rajarata Sevaya)		107.2MHz	250W
Karaghatenna Station	Relays the broadcast-waves from Colombo		
Sinhala-Commercial Service		97.25MHz	1kW
English-National Service		99.6MHz	1kW
Tamil-National Service		94.45MHz	1kW
Kandy Senkadagala Station	Relays the broadcast-waves from Colombo		
Programmes from Colombo and Local Programmes (Mabanuala area service)		97.6MHz	1kW

Medium-wave Radio Stations (Relaying FM broadcast-waves)

Ratnapura Station

Sinhala-Commercial Service	603kHz	10kW (STL Colombo)
Sinhala-National Service	729kHz	10kW Relaying broadcast-waves from Colombo Station

Galle Station

Sinhala-National Service	1026kHz	10kW Relaying broadcast-waves from Radella Station
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Weerakatiya Station

Programmes from Colombo and local programmes (Ruhunu Service)	594kHz	50kW Relaying broadcast-waves from Radella Station
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Ambewela Station

Sinhala-Commercial Service	531kHz	50kW Relaying broadcast-waves from Radella Station
Sinhala-National Service	648kHz	40kW Relaying broadcast-waves from Radella Station

Maho Station

Programmes from Colombo and local programmes	801kHz	40kW Relaying broadcast-waves from Radella Station
Sinhala-Commercial Service	639kHz	50kW Relaying broadcast-waves from Radella Station

Mahiyangana Station

Sinhala-Commercial Service	1486kHz	1kW Relaying broadcast-waves from Radella Station
Sinhala-National Service	1602kHz	1kW Relaying broadcast-waves from Radella Station

Senkadagala Station

Sinhala-National Service	567kHz	10kW Relaying broadcast-waves from Colombo Station
Sinhala-Commercial Service	816kHz	10kW Relaying broadcast-waves from Colombo Station

Kantalai Station		
Tamil-National Service	585kHz	20kW Relaying broadcast-waves from Karaghatanne Station
Sinhala-Commercial Service	747kHz	20kW Relaying broadcast-waves from Karaghatanne Station
Mannar Station		
Tamil-National Service	864kHz	20kW Relaying broadcast-waves from Radella Station
Ampara Station		
Sinhala-National Service	693kHz	20kW Relaying broadcast-waves from Radella Station
Sinhala-Commercial Service	855kHz	20kW Relaying broadcast-waves from Radella Station
Tamil-National Service	972kHz	20kW Relaying broadcast-waves from Radella Station
Anuradapura Station		
Sinhala-National Service	774kHz	10kW Relaying broadcast-waves from Radella Station
<hr/>		
Puttalam Station		
TWR (Trans World Radio)	882kHz	400kW Medium-wave service carrying TWR's short-wave service

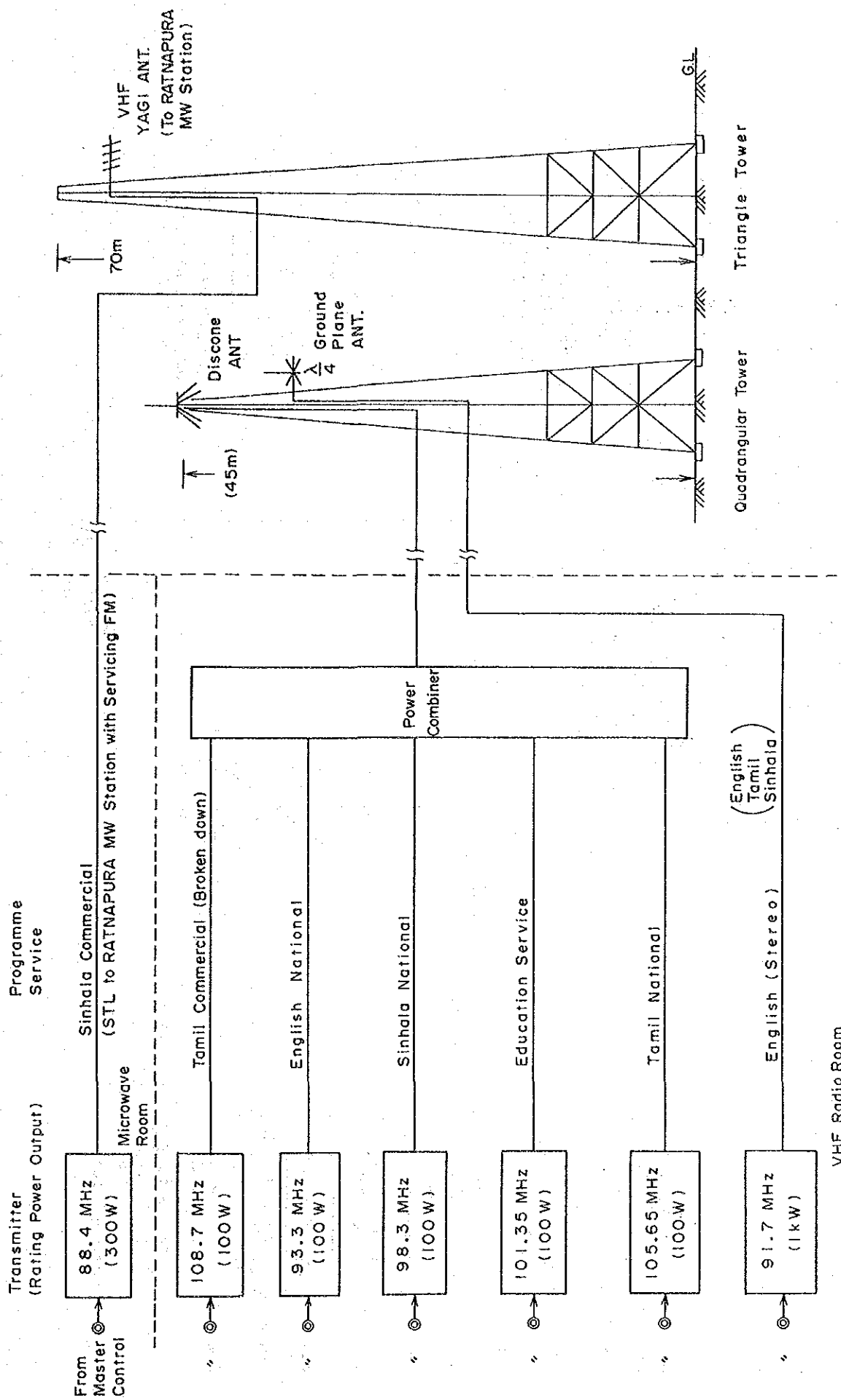


Fig. 2-2-2  
 Existing FM Transmitting System of Colombo Studio  
 ( Microwave & VHF Radio Room )

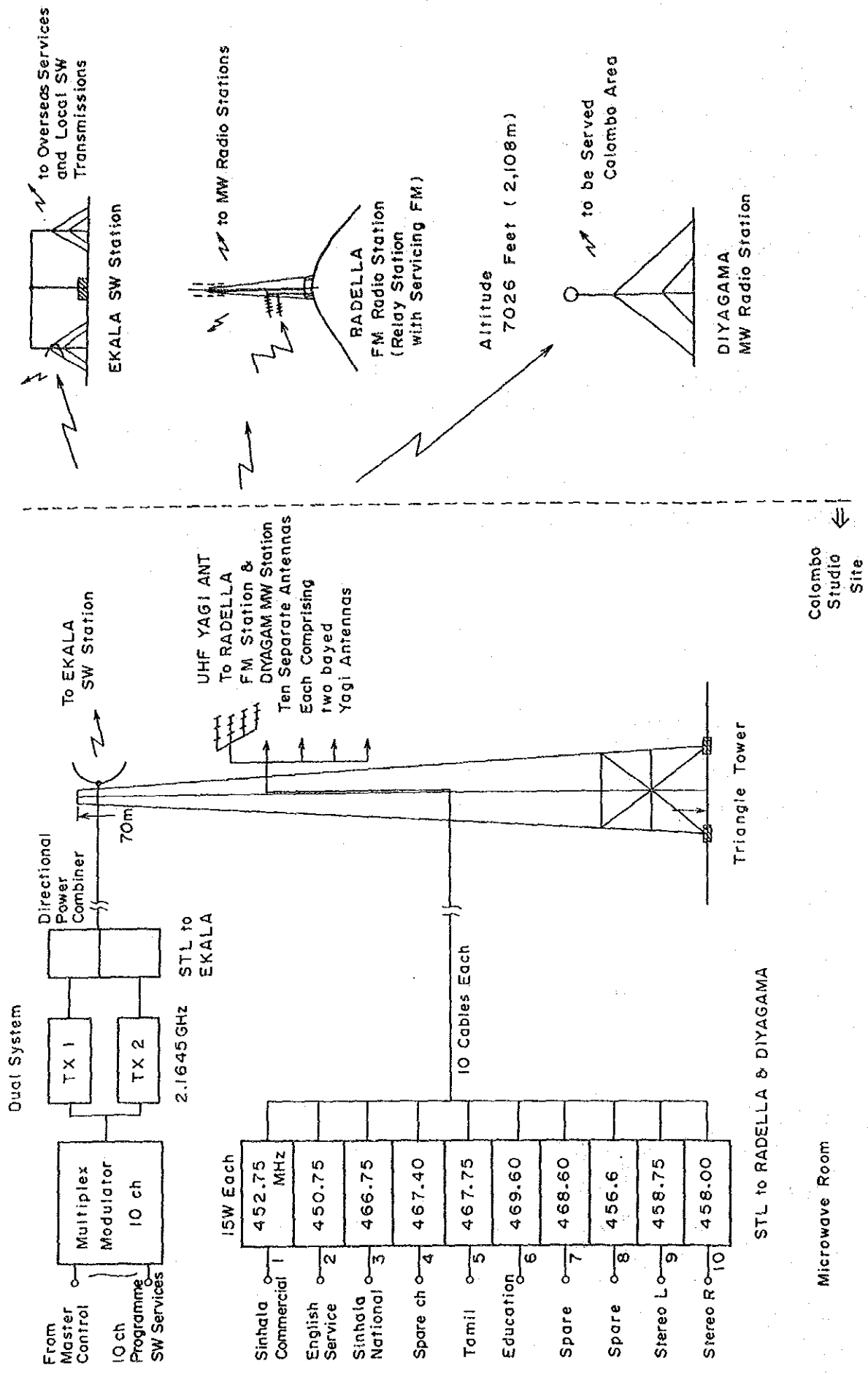


Fig. 2-2-3  
Existing Studio to Transmitting Station Link  
To EKALA SW Station, RADELLA FM Station and DIYAGAMA MW Station



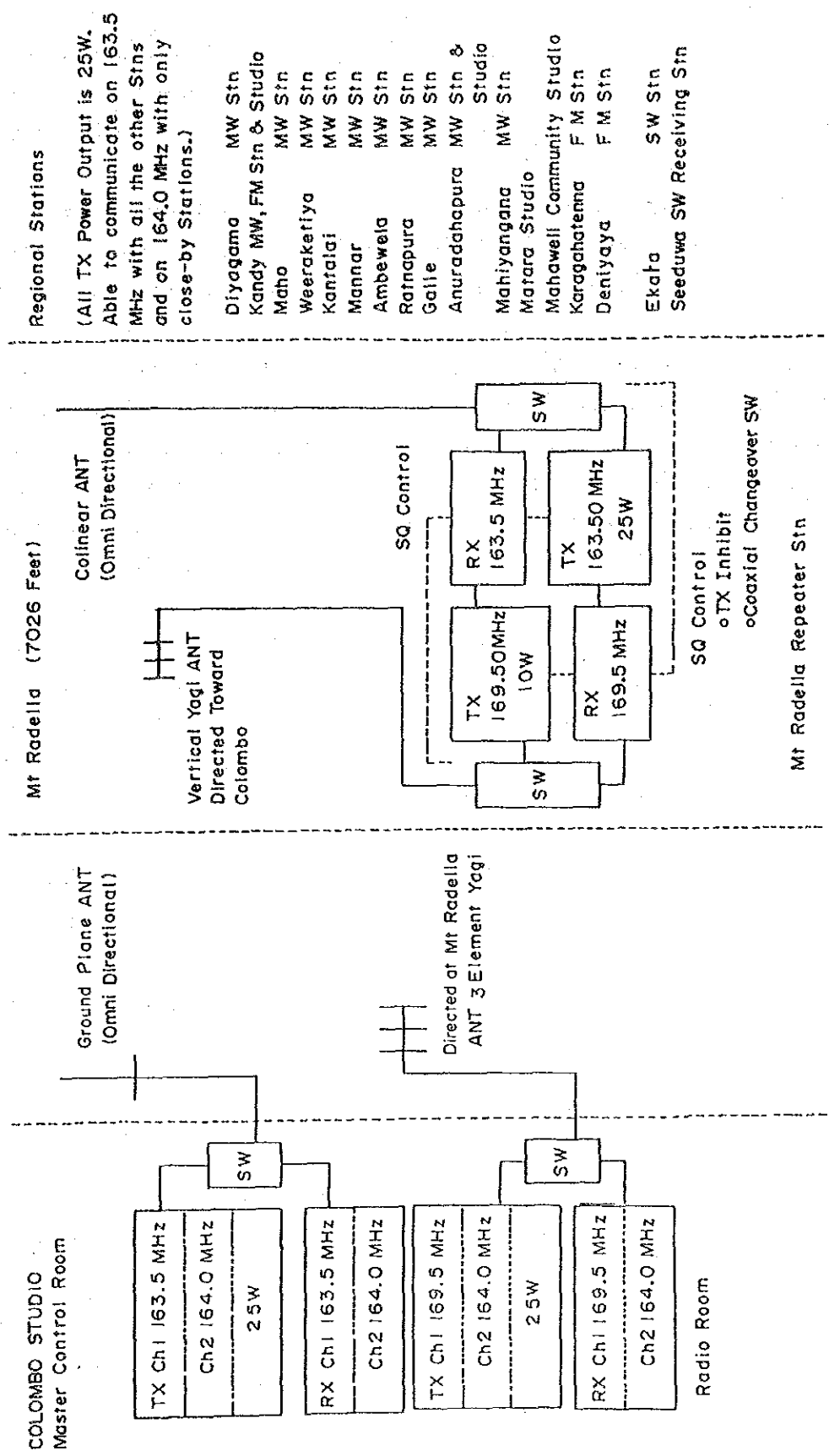


Fig. 2-2-4

BLOCK DIAGRAM OF EXISTING VHF COMMUNICATION SYSTEM - I

(2) Present Condition of the Service Areas

The SLBC's Colombo City service area is at present covered mainly with three types of antennas, viz., two nondirectional antennas and one directional Yagi antenna which also functions as a STL (Studio to Transmitter Link).

The superannuated transmitters are obliged to operate at a reduced output (less than 60%-50% of the rated power) and, moreover, are incapable of obtaining the Effective Radiation Power (E.R.P) because of the low-gain antennas. Consequently, under these conditions, the actual service area at present remains only within the radius of about 10km from the centre of Colombo. This area, which included such districts as the Colombo District, Gampaha District and Kalutara District, is so densely populated that these districts actually are ranked as the top three in terms of population density. Yet, despite the fact that this is such an important area where about 20% of the total population of Sir Lanka is concentrated, the broadcasts from the Colombo Station actually cover only a small part of the Colombo metropolitan area. Therefore, an expansion of this particular service area would not only lead to the reinforcement of SLBC's financial foundation as a result of an increase in the Corporation's income from such sources as license fees and advertising charges but also dramatically enhance the investment efficiency and profitability.

In the suburbs of Colombo, to the south of the city, is the Diyagama Radio Transmitting Station, which covers Colombo and its neighbouring areas and conducts such services as those outlined in Table 2-2-9. However, during the nighttime, the medium-wave services conducted by this station become almost totally useless because of the beat interference from foreign broadcasts.

As a result, during the nighttime, there is no other way for SLBC than to rely on FM for transmission of its programmes to the listeners in the Colombo metropolitan area. (See Table 2-2-10.)

Table 2-2-9 Outline of the Services by the Diyagama Radio Transmitting Station

Sinhala-National Service	702kHz	25kW
Sinhala-Commercial Service	621kHz	25kW
Tamil-Commercial Service	558kHz	10kW
English-National Service	873kHz	20kW
Educational/Cultural Service	918kHz	25kW

Table 2-2-10 Frequencies and Station (Country) Names Causing Nighttime Interference

558kHz	300kW	Bombay	(India)
	1000kW	Abu Zabal	(Egypt)
	1000kW	Qeselar	(Iran)
621kHz	300kW	Jaipur	(India)
	1000kW	Batra	(Egypt)
702kHz	300kW	Asmer	(India)
	300kW	Misool	(India)
	1500kW	Masira	(Oman)
873kHz	300kW	Almora	(India)
	300kW	Coimbatore	(India)
918kHz	300kW	Suratgarli	(India)

The current service areas of the FM and medium-wave radio networks in Sri Lanka are shown in Fig. 2-2-5, Fig. 2-2-6, and Fig. 2-2-7 respectively.

Fig. 2-2-5  
FM · MW RADIO BROADCASTING  
STATIONS IN SRI LANKA

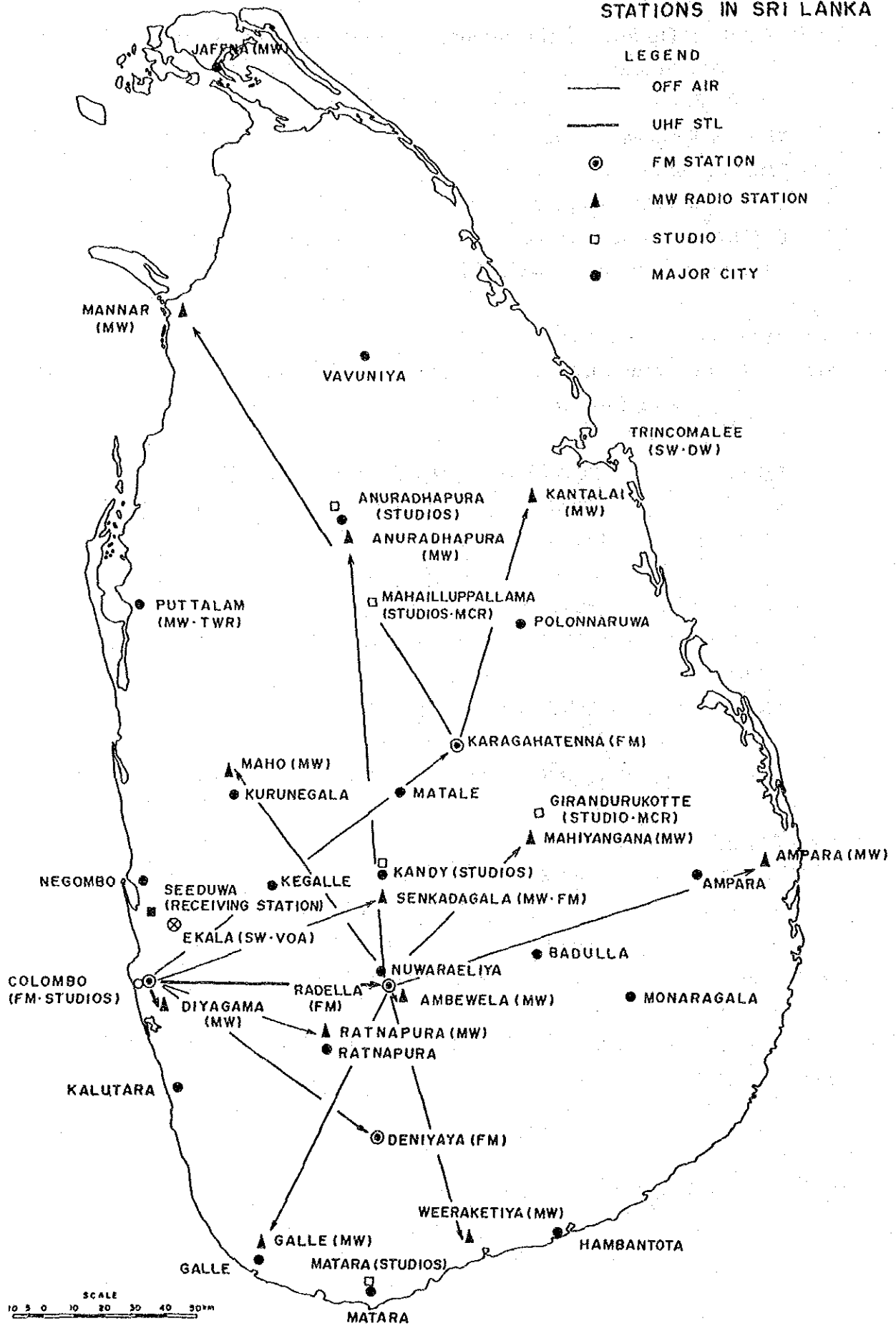


Fig.2-2-6  
PRESENT COVERAGE AREAS  
OF EXISTING FM STATIONS

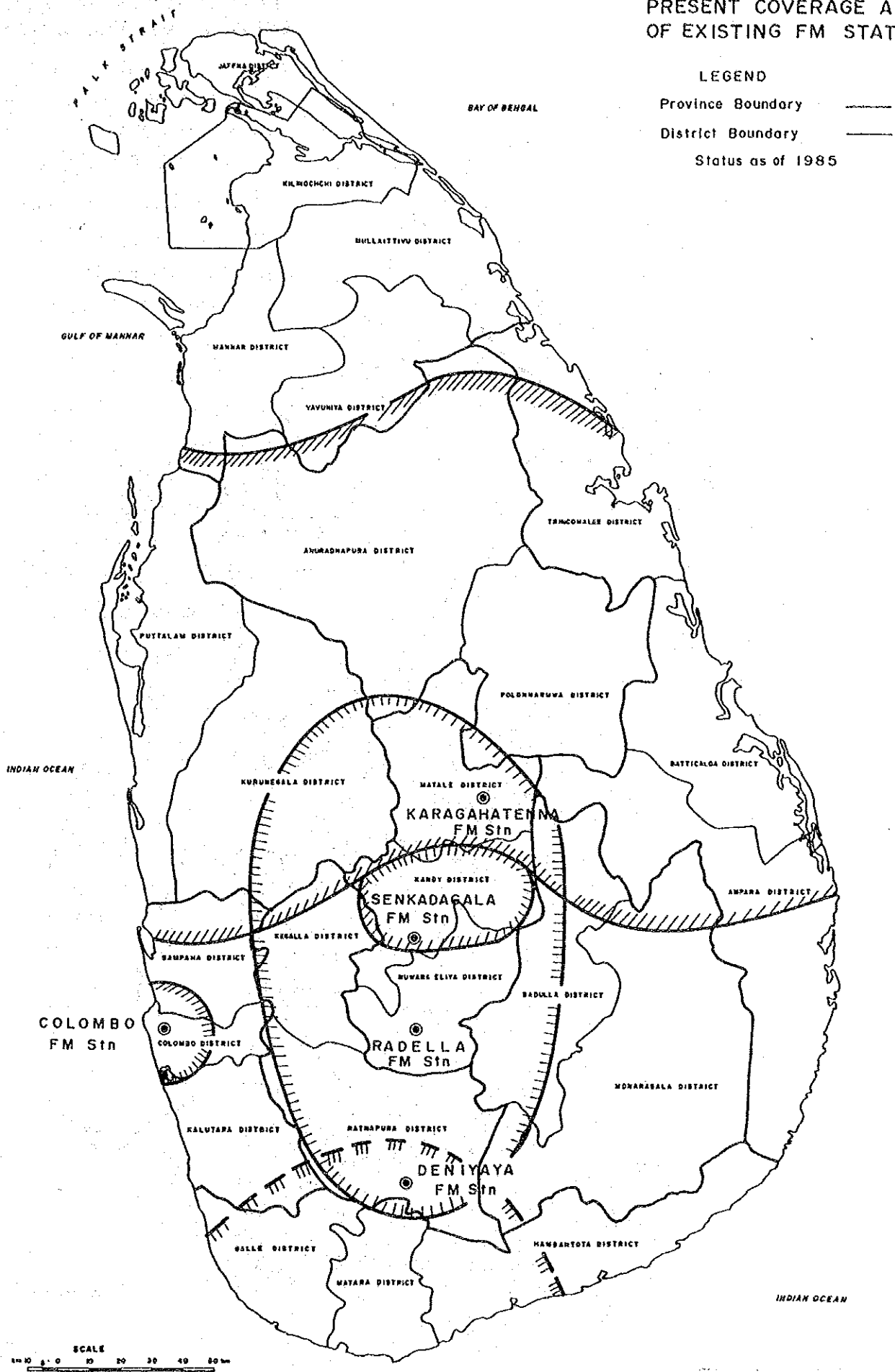
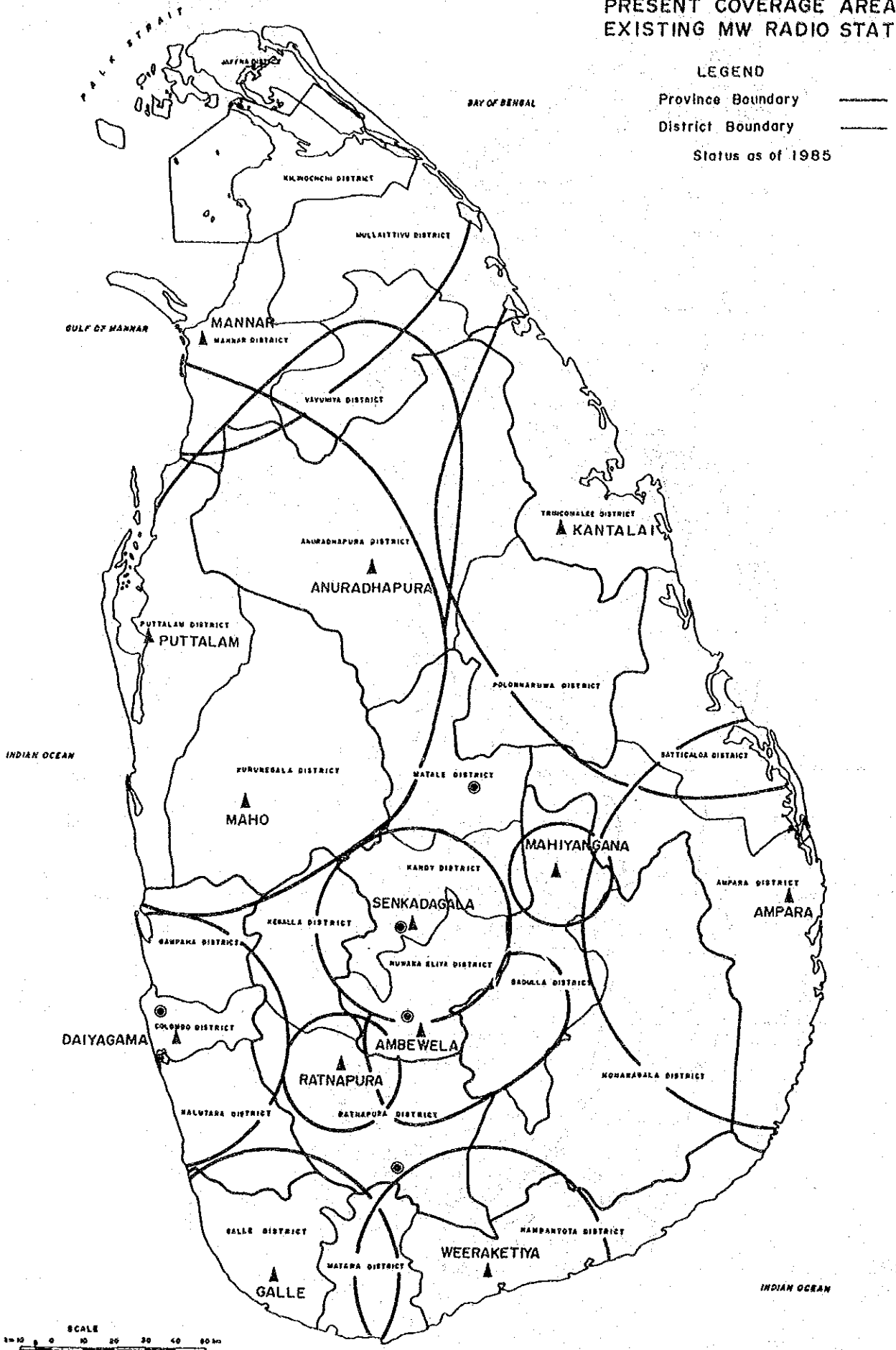


Fig. 2-2-7  
PRESENT COVERAGE AREAS OF  
EXISTING MW RADIO STATIONS



(3) Condition of Maintenance

All the broadcasting installations which are of vacuum-tube type of 40 years ago are already in an advanced state of superannuation, with wiring and parts having become considerably oxidized. Carbonization also has been going on in various portions. For example, the covered wire is so badly carbonized that the coating is fast crumbling off.

Similarly the measuring instruments owned by SLBC are not in a state allowing calibration; they simply can not maintain their measuring functions.

As mentioned above, without an adequate supply of the maintenance equipment and spare parts necessary for prolonging the life of superannuated installations, the broadcasting facilities in current use are in a condition where maintenance is almost impossible. For that reason, in order to maintain the output of radio waves needed to cover the metropolitan area, SLBC has been taking all possible emergency measures to carry on its broadcasting services, such as relocating the transmission equipment used at the Mannar relay station at the northern tip of Sri Lanka to Colombo.

Photo 2-2-6 shows the appearance of the FM transmitter.

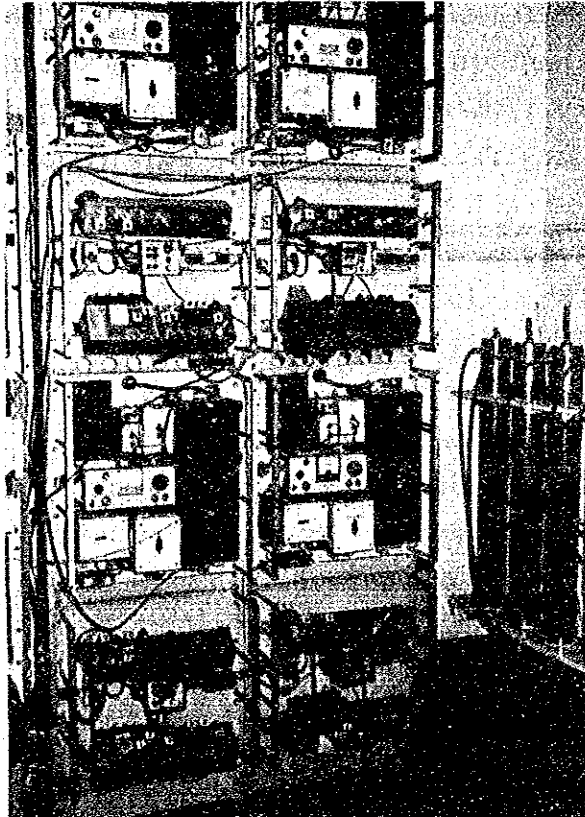


Photo 2-2-6 FM Transmitter

## 2-3 Outline of the Development Plans for this Sector

In the 1970s, SLBC carried out the expansion and improvement of the nationwide medium-wave radio broadcasting network with assistance given by West Germany. Further, in the 1980s, SLBC required additional development with regard to its facilities. For that purpose, SLBC drew up its plans to implement the following three projects:

- (1) Measures to be taken to renew the superannuated studio facilities at SLBC's Colombo Headquarters and to improve and reinforce programme-production installations.
- (2) Measures to be taken to eliminate interference caused by foreign broadcasts on SLBC's medium-wave services at nighttime by constructing or improving the FM broadcasting network throughout the country.
- (3) Improvement required of the Domestic and External services of SLBC by renewing superannuated facilities and repairing the antennas at SLBC's Ekala Short-wave Transmitting Station.

Of the above-mentioned three projects, a cabinet decision was made by the Japanese Government in September 1988 to provide grant aid to Sri Lanka with regard to item (3), viz., the plan to improve and expand the short-wave broadcasting facilities. At present (April 1990), the on-site construction work is going on smoothly under a two-phase plan to be completed over a period of two fiscal years, 1989-1990.

With the implementation of the present project to expand the radio studios in Sri Lanka, (1) and a part of (2) above, that is, the reinforcement of the FM broadcasting network covering the Colombo metropolitan area, will have been completed.

In addition, on May 1990, it was announced that the West German Government would supply seventeen FM transmitters to SLBC. The aid would greatly contribute to improvement of FM reception in regions other than the Colombo metropolitan area.



## 2-4 Background and Contents of the Request

### 2-4-1 Background of the Request

As mentioned in Chapter 1-Introduction, the broadcasting facilities and buildings of SLBC have become considerably superannuated, with the result that the day-to-day broadcasting activities of SLBC are now greatly hindered.

In view of this situation, the Government of Sri Lanka drew up its plan to rehabilitate and expand the radio studio installations and has requested Japan to provide grant aid to assist in carrying out its plan.

It was in response to this request from the Government of Sri Lanka that, this past January 1990, the Japan International Cooperation Agency (JICA) conducted the basic design survey for the Project.

Incidentally, the request from the Government of Sri Lanka had originally included a plan to construct a training centre. However, as a result of the consultations since held between the two countries, it was decided that the basic design survey conducted recently should be devoted to the plan to construct a new studio building and a antenna tower, and to provide programme-production equipment as outlined in the next item, 2-4-2.

### 2-4-2 Contents of the Request

With regard to the SLBC's Colombo Headquarters building, the steel tower, the transmission and studio facilities, the request for assistance in their construction or expansion and reinforcement has been made as follows:

- (1) New Studio Building      Ferro-concrete structure of four stories with a total floor space of 2526m<sup>2</sup>.  
Including 3 production studios, 9 continuity studios, a master control room and a radio room.
- (2) Steel Tower                50m above the ground.

(3) Programme-production Equipment

1) Production Studio 1 (180m <sup>2</sup> )	1 set
2) Production Studio 2 (110m <sup>2</sup> )	1 set
3) Production Studio 3 (70m <sup>2</sup> )	1 set
4) Continuity Studios 1-9	9 sets
5) Master Control Room	1 set
6) Radio Room	1 set
• 1kW FM transmission equipment	
• STL system	
• VHF communication equipment	
7) Measuring Instruments	1 set
8) Radio OB Van	1 set
9) Editing and Monitoring Equipment	1 set
10) Materials for the Installation Work	1 set
11) Spare Parts	1 set

## CHAPTER 3 Contents of the Project



## CHAPTER 3 Contents of The Project

### 3-1 Objectives of the Project

The Government of Sri Lanka desires to make effective use of radio broadcasting in the following aspects as an indispensable medium for national development and for enhancement of the people's living standard. However, the existing facilities and equipment, because of their superannuation, have not been sufficiently playing their roles.

- (1) Enlightenment of the people, including provision of adult education.
- (2) Spreading of various kinds of techniques and knowledge, such as those for agriculture.
- (3) Provision of the government's public announcements and information.
- (4) Offering of social and livelihood information, such as domestic and foreign news and weather forecasts.
- (5) Spreading of knowledge about hygiene, such as health, medicine and population plans.
- (6) Spreading of traditional cultures and arts.

The objectives of this Project, therefore, are to construct a studio building at the Colombo Headquarters of SLBC, renew or newly set up such technical facilities as the production studio installations, continuity studio equipment and FM transmitting facilities, and thereby to improve the inadequacies of the entire technical facilities, so that the radio broadcasting conducted by SLBC may be able to play the above-listed roles more fully.

## 3-2 Examination of the Requested Items

### 3-2-1 Examination of the Justification and Necessity of the Project

#### (1) Ideal Radio Broadcasting as Envisaged by SLBC

Bearing in mind the Sri Lankan government's intentions concerning radio broadcasting as outlined in 3-1 above, SLBC considers the radio broadcasting as it should be as follows:

- 1) The radio broadcasting should become a source of various kinds of information necessary for the people's daily lives, such as those mentioned in 3-1 above.
- 2) For that purpose, in Sri Lanka as a multi-language state, it is necessary for SLBC to broadcast the programmes on a total of seven channels; that is, two channels -- a National Service and a Commercial Service -- each in Sinhala, Tamil and English, plus one channel for educational broadcasting.
- 3) As for the broadcasting hours, the 12 hours/day of the Tamil Commercial Service, the service which is currently suspended because of the superannuation of the transmitter, shall be restored so that the total 80 hours/day of broadcasts on seven channels may be resumed, thus bringing the conditions back to the days before the suspension of the Tamil Commercial Service. And in the end, the target shall be set on securing up to a total of about 130 hours/day on seven channels by conducting the broadcasting for 19 hours a day from 5:00 to 24:00 on each channel.

Next, the appropriateness of the contents of the request will be studied along the lines of the various targets set by SLBC as listed above, as follows:

- 1) In Sri Lanka, the total number of low-priced and handy transistor radios is estimated as of 1987 at 3,200,000 sets, a spread ratio as high as one set to every five persons (the corresponding ratio

for TV receivers is as yet one to every 33 persons, 500,000 sets in total, because of the high price). On the other hand, according to the results of a questionnaire survey conducted in 1987 by the Audience Research Section of SLBC on radio listeners, as many as 80% of the people of Sri Lanka said they listened to the radio every day. This shows that, in Sri Lanka, the radio is the major medium of information and is the most suitable source of various kinds of information required by the people in their daily lives.

- 2) SLBC is obligated by the state to conduct two types of radio broadcasting services; the National Service which has the character of public broadcasting, including provision of the government's public announcements and information, to be conducted in Sinhala, Tamil and English, and the Commercial Service that makes it financially possible for SLBC to carry on its broadcasting services. And, in Sri Lanka, it has now become absolutely necessary to conduct, and to continue to conduct, radio broadcasts on a total of seven channels, by adding one more channel to be used exclusively for educational broadcasting which is designed to enhance the educational level of the entire nation.

Therefore, it is necessary to restore as soon as possible the currently-suspended Tamil Commercial Service so that the Tamil-speaking people may enjoy the benefits of radio broadcasting on the same level as the people speaking other languages, and, at the same time, to increase the revenue of SLBC.

- 3) In order to enable the radio broadcasting to play its roles fully as listed in 3-1 above for the benefit of the entire nation, it is considered as the minimum requirement to restore the Tamil Commercial Service (12 hours/day) so that the Tamil-speaking people may enjoy radio broadcasts on an equal footing with the people speaking other languages and thereby to secure the 80 hours/day in total domestic radio broadcasting hours, the same as in the days before the suspension of the Tamil Commercial Service.

Furthermore, the radio is expected to continue permeating the

daily lives of the people of Sri Lanka more and more deeply from now on. For that reason, it is considered appropriate to aim at achieving a total of 130 hours/day on seven channels in broadcasting time, by conducting daily services from 5:00 to 24:00 (19 hours), so that timely information may be offered to the nation in such a way as to match the manner the people actually spend their time each day.

By completing the construction of the new continuity studios, each for exclusive use by a different broadcasting channel, the number of live programmes to be broadcast directly from the continuity studios will be increased in the overall programming, rather than depending heavily on the packaged programmes (taped in advance in a complete form so that they may be broadcast by playback process). And examination shall be made of the facilities and installations so that, after going through the stages of improvement and renewal of the existing production facilities by SLBC itself, it may become possible for SLBC to ultimately conduct the targeted 130 hours/day broadcasts.

For the reasons outlined above, the targets of SLBC as mentioned in (1) 1) to 3) can be considered appropriate.

(2) Present Status and Problems

1) Programme Production Capacity

At present, SLBC is conducting the domestic services on a total of six channels (the Tamil Commercial Service is currently suspended owing to superannuation of the transmitter facilities) totaling 70 hours a day, and 30 hours/day of External service. Thus, SLBC's daily broadcasting hours on domestic and external channels total 100 hours. In order to conduct these daily services, SLBC requires a total of 30 hours/day, or about 1/3 of the total daily broadcast hours on both the domestic and external services, of the packaged programmes. However, the existing production studio facilities have the capacity of producing only a little less than 20 hours/day of packaged programmes. As a result, the operational load of the production studio is now



30 (hour) ÷ 20 (hours) = 1.5 (times) and, consequently, there even are cases where a producer has to record a programme after only one run-through rehearsal, a situation that makes it next to impossible for SLBC to produce a satisfactory programme.

2) Production of Programmes That Respond Effectively to the Listeners' New Desires

In order to respond effectively to the needs of the listeners, SLBC, from the point of view of programming, requires its studios to have the functions to produce lecture and discussion programmes taken part in by intellectuals, audience-participation programmes, large-scale educational programmes, and stereophonic traditional-music programmes.

However, with the existing facilities and installations, the production of such types of programmes as mentioned above is not possible.

3) Restoration of the Tamil Commercial Service

Because of the breakdown of the FM transmitter, SLBC is currently obliged to suspend the broadcasting on this particular channel.

4) Broadcasting Service Free from Interference at Nighttime

Owing to interference from foreign radiowaves (India, the Middle East, etc.; see Table 2-2-10 on page 36), the reception at nighttime of medium-wave broadcasts is now extremely difficult. For that reason, there is the need of improving and expanding the FM service which is not affected by interference from other radiowaves.

5) Production of Live Relay Programmes

Because it does not possess a radio OB van, SLBC is unable at present to conduct such outside-broadcasting activities as a nationwide broadcast of opinions of the people on the street simultaneously in the three languages or to broadcast live

coverage of various events, ceremonies, sports, etc., which take place in different regions in Sri Lanka.

### (3) Necessity of the Project (Solutions to Problems)

In view of the circumstances as outlined above, this Project, for reasons stated below (and to be explained in more detail in 3-2-4), can be considered both appropriate and necessary, provided that the contents of the request made by the Government of Sri Lanka could be slightly modified as follows:

	<u>Requested</u>	→	<u>Modified</u>
• Production studio	3 studios	→	1 multipurpose studio
• Continuity studios	9 studios	→	12 studios
• FM transmitter output	1kW	→	300W
• New studio building	4-story (2,526m <sup>2</sup> )	→	1~2-story (1,900m <sup>2</sup> )

- 1) The construction of 12 new continuity studios will enable the use of the existing 10 continuity studios as production studios.

As a result, production of 15 hours/day of programmes additionally becomes feasible. Thus, upon completion of this Project, the total daily production of programmes would be a little less than 35 hours, that is, the above-mentioned 15 hours plus the current daily output of a little less than 20 hours. Therefore, after completion of the project, it will become possible for SLBC to produce about 4 hours/day of the packaged programmes for broadcast on the restored channel for the Tamil Commercial Service in addition to the 30 hours/day of the packaged programmes which are currently being broadcast.

In view of the prospects as outlined above, construction of a new large multipurpose studio will be planned instead of newly constructing three medium or small studios of a scale similar to that of the existing studios, so as to enable production of many different types of programmes which better respond to the needs of the contemporary listeners and which SLBC is currently unable to produce with the existing facilities and equipment.

With the production of new types of programmes in the large new multipurpose studio (1 hour/day) and with an increase in the

production of live programmes resulting from the introduction of a radio OB van as planned, there also is a possibility for an increase in the total broadcasting hours.

2) In principle, the transmission of radio programmes is to be conducted through the continuity studios, each of which to be used exclusively by each channel. There is the need of constructing a total of 12 continuity studios; 7 for the 7 domestic channels and 5 for the 7 external broadcast channels, respectively. In the case of the external broadcast channels, in particular, some of the studios will be shared by more than one channel, in order to ensure efficiency in the use of the continuity studios. (Refer to 3-2-4 (2) 4) for details.)

3) A total of seven 300W FM transmitters will be installed for use by different service channels, and the combined output from the 7 transmitters will be fed to a common antenna. As a result, the service area in and around the city of Colombo will be expanded to a range with a radius of 40km and a total of about 3 million people will become able to receive FM broadcasting services of good quality both in the daytime and through the night. (The residents of regions other than those in or around Colombo are also expected, as mentioned in 3-2-3 (2), to have their reception conditions considerably improved by means of the FM transmitters scheduled to be supplied by West Germany.)

4) The provision of a radio OB van which has the functions of conducting simultaneous transmission of programmes in three languages by means of a 2-hop relay will enable SLBC to carry out outside broadcasts of live programmes from 60% of the entire territory of the country.

As a result, it will become possible for SLBC to ensure that the people's desires and intentions will be properly reflected in the radio programmes and to promote further deepening of mutual understanding among the people who live in different regions, observe different customs and have different ways of thinking.

5) As to the existing studio buildings, some of them are more than 100 years old and superannuation has generally advanced to such an extent that leakages are seen here and there during the rainy seasons. Consequently, for installation of new facilities, there is the need of constructing a new building. In constructing the new building, its greater portions shall be of a single-story structure, taking into account the imperative need of retaining the sacred bo-tree that currently stands on the projected construction site.

It is necessary to construct the building with a total floor space of 1,900m<sup>2</sup>, while making sure that maximum use will be made of such existing space as the office rooms and the tape libraries.

### 3-2-2 Examination of Operation and Management of the Project

The Project aims to replace the old and unsatisfactory broadcasting equipment in order to restore Tamil commercial broadcasts, and to resume the essential programme production and transmission capabilities of SLBC Headquarters at Colombo which are actually not sufficient due to the old and superannuated equipment.

Therefore, the sanctioned number of the SLBC staff (2420) will not be much increased by the new Project operation.

On the contrary, some reduction can be expected in terms of maintenance manpower due to the new and stable equipment installation.

As newly required staff, a multipurpose studio operation staff (producers, 4~5 + technicians, 7~8), new studio building operators (2 persons × 3 shifts × 1.6<sup>(\*)</sup> = 10), and security guards (3 persons × 3 shifts × 1.6 = 15), in total about 40 new staff members, will be added for which the personnel expenditure is estimated as 1.44 million Rs/year as shown in item 3-3-4 (4) 3).

(\*) Note: Ratio of necessary working staff numbers =  $\frac{365 \text{ days}}{365 \text{ days} - (52 \times 2) - 33} = 1.6$

This cost is quite small in comparison with the SLBC's annual revenue, viz., 190 million Rs as of 1989. Regarding the total annual revenue of SLBC for the last 3 years, as the year-by-year shifts are shown in Table 2-2-2, the yearly expenditures gradually increased from the range

of 140 to 190 million Rs, and the balance in 1987 was plus 28.5 MRs, but in 1989 (estimated actual) was minus 3.4 MRs, showing a deficit inclination.

This is because of the lower income from license fees due to the civil unrest in 1988 to 1989.

However, increased income is expected from overseas broadcasting organizations such as lending of Ekala shortwave transmitters from 1991 and more income will be expected when the nation's stability is restored.

Thus, there is no problem in terms of operation and management of the Project.

### 3-2-3 Relationship with Other Similar Projects

#### (1) Improvement plan of SLBC Ekala Shortwave Transmitting Facilities

With improvement of the Ekala shortwave transmitting facilities, an undergoing project granted by the Japanese Government in the two consecutive years of 1989 and 1990, the shortage of the MW and FM domestic coverage will be solved, so that from every part of the country, people will be able to receive 5 channels on shortwave bands, namely the Sinhala National, Sinhala Commercial, Tamil Service, English Service and Educational Service.

By the implementation of this new SLBC studio project, the broadcast programmes will be much improved, and by providing all the Sri Lankan people with 7 full-fledged services (including the resumed Tamil Commercial Service), a more enriched radio infrastructure will be established.

In addition, from 1991, a part of the Ekala shortwave facilities for overseas services is to be rented by Radio Japan from which SLBC will be able to acquire some operational funds for the new studio facilities to be provided under this Project.

#### (2) German Aid of FM Transmitters

On May 1990, it was announced that the West German Government would supply seventeen FM transmitters to SLBC. Before that, in the 1970s, medium-wave transmitters were supplied by the West German Government, through which the islandwide medium-wave broadcasting network was

established. The medium-wave transmission, however, is not being received clearly during the nighttime because Sri Lanka is located in the tropical region and suffers serious interference from powerful overseas transmitters.

To solve this problem, SLBC has decided to use more FM transmitters in place of the medium-wave transmitters.

The FM broadcasting in the Colombo area will be much improved under this Project aided by the Japanese Government, offering stereo capability on all seven domestic services.

The FM broadcasting in regional areas outside Colombo will also be greatly improved with the new FM transmitters from West Germany. Because programmes will be sent to the regional FM transmitters through the new FM link from Colombo, quality sound in FM will be received islandwide.

Especially the Jaffna area in the northern part of Sri Lanka will benefit as FM services there have ceased due to the breakdown of FM transmitters. Thanks to the German aid, the broadcasting in the said area will be recovered, which will greatly contribute to the peace of Sri Lanka.

Therefore, this SLBC studio project does not compete with other projects, but rather the various projects cooperate with each other, and through this multiple effect will contribute greatly to Sri Lankan radio broadcasting both in quality and quantity.

#### 3-2-4 Examination of Requested Facilities and Equipment

The Sri Lanka government positively makes use of radio broadcasts to raise educational level of the people and to present helpful information for people's livelihoods. Most suitable equipment and installations in order to attain this purpose are described below, item by item along the request of SLBC (shown in 2-4-2).

##### (1) Providing 3 production studios

A programme production studio is generally for off-line programme production such as dramas, education programmes and/or music programmes which require prior rehearsals and are recorded as a complete packaged programme before the airing date. One big multipurpose studio is to be

provided as per the reason below, in place of installing 3 production studios.

1) The Present Status of SLBC's Programme Production and Problems

As described in CHAPTER 2, the existing production studios of SLBC Colombo total 14 studios as follows.

Large size (180m <sup>2</sup> ) studio	St. 6	
	(music shows with audience)	1
Medium size (80~120m <sup>2</sup> ) studio	St. 1, 5, 10 (dramas, music)	3
Small size (10~20m <sup>2</sup> ) studio	St. 2, 3, 4, 7, 8, 9, St.C,	
	Voice-cast 1~3	10

The programme-production capacities of these studios are normally assessed as studio working time.

Large studio	60 min/day (6~8 hrs/day)
Medium studio	45 min × 2 prog/day (3~4 hrs × 2 times/day)
Small studio	30 min × 3 prog/day (2.5 hrs × 3 times/day)

The total normal capacity per day will be calculated as below.

$$60 \text{ min} \times 1 \text{ st} + 45 \text{ min} \times 2 \text{ prog} \times 3 \text{ st} + 30 \text{ min} \times 3 \text{ prog} \times 10 \text{ st} = 1230 \text{ min/day} = 20.5 \text{ hrs/day} \approx 20 \text{ hrs/day}$$

However, as a matter of fact, No. 4 studio is not available for use due to repairing of the damage to studio acoustic materials by white ants and, furthermore, due to the superannuated studio equipment, one or two studios per day are forced to be out of operation for maintenance work.

Therefore, the actual production capacity is decreased

$$\text{as } 20 \text{ hrs} - \{(30 \text{ min} \times 3 \text{ prog/st}4) + (30 \text{ min} \sim 45 \text{ min}) \times (2 \sim 3 \text{ prog}) \times (1 \sim 2 \text{ st})\} = 20 \text{ hrs} - \{1.5 \text{ hrs} + (1 \sim 3) \text{ hrs}\} = 15 \sim 18 \text{ hrs}$$

It means 10~25% less production capacity than the normal 20 hrs per day.

The present working time of the production studios is:

7 hours (average working time of a studio/day) × 12 (actual number of working studios) = 84 hours/day. That is, the working time/week becomes about 500 hours (84 hours × 6). By the use of the existing facilities, SLBC has to produce and record packaged programmes amounting to 180 hours (30 hours a day × 6) on tapes weekly.

The total studio working hours are limited so that arises the case where only 2 times of the programme duration is allocated to a studio. In this case, only one time of run-through rehearsal session is allowed. In order to produce programmes responding to desires of contemporary listeners, 3 to 6 times of programme duration are normally allotted to production studios. Accordingly, reinforcement of facilities are urgently required to produce satisfactory programmes.

## 2) Increasing SLBC's Production Capacity

Twelve continuity studios will be newly provided in this Project (to be described in 3-2-4 (2) 3), 4)). After completion of them, the existing 10 continuity studios can be used as small production studios (some recording and editing devices must be provided). Then, the increase of the SLBC's production capacity will be:

$30 \text{ min} \times 3 \text{ prog} \times 10 \text{ st} = 900 \text{ min} = 15 \text{ hrs/day}$ ,

which corresponds to 75% of the existing capacity (20 hrs/day).

The increase of studio working time will be about 400 hours on weekly basis ( $7 \text{ hrs} \times 10 \text{ st} \times 6 \text{ days} = 420 \text{ hours}$ ).

Adding up 500 hours of existing production studios, the above 400 hours and 50 hours of the new multipurpose studio, the total studio working time becomes 950 hours which make it possible to record 200 hours of packaged programmes.

Therefore, in view of the prospects as outlined in 3) below, construction of a new large multipurpose studio will be planned instead of constructing three medium or small studios of a scale similar to that of the existing studios, so as to enable production of different types of programmes which SLBC is currently unable to produce with the existing facilities.

## 3) Necessity of a Multipurpose Studio with New Functions

The newly acquired studio production capability, according to current and future SLBC programme compilations, should afford the following types of programmes.

- Production of social, cultural and enlightening programmes such as lectures or speeches by intellectuals, discussions on various topics, audience participation programmes, etc.



- Production of large scale educational programmes in a drama style (including stereo effects).
- Production of stereo modern and traditional music programmes by the use of a multi-track recorder.

The above requirements necessitate larger studio floor space (more than 150m<sup>2</sup>). Only the existing St.6 (auditorium) has available floor space (180m<sup>2</sup>); however, the control room was originally designed for monaural production and too small for stereo production. Besides, the studio's acoustic interior materials are damaged by rainfall leakage and their restoration is difficult.

Based on the above-mentioned reasons, it is preferable to provide a large size multipurpose studio which can satisfy new programme compilation requirements, rather than to provide 3 additional medium and small size studios.

With regard to the existing studios, they are being continuously used, but their building and studio equipment are both old and superannuated. Therefore, it is recommended that SLBC reestablish the building together with studio facilities piece by piece and step by step with an annual budget allocated for it in the near future.

## (2) Providing New Continuity Studios (9) and Master Control Room

### 1) Present Status of Continuity Studios and Problems

It is the general practice to broadcast a radio programme channel through its own continuity studio.

This is common worldwide, and each programme is manually switched and output while maintaining programme continuity. Disk jockey programmes are also produced here and news, weather reports, public messages and commercial spots are all switched and sent through this continuity studio.

Pre-packaged (recorded) complete programmes are replayed here as well.

Thus, the continuity studio is the final and centre core of a broadcasting channel and plays the most important role in terms of the on-line function of a radio station.

At present, there are 10 continuity studios of which the audio

mixing consoles were mostly made in the 1950s, and are of early types of transistors.

Although the audio mixers in continuity studios No. 1, No. 2, and No. 3 were replaced with ones made in 1984, most studios are more than 40 years old and have been used for many years beyond the expiration of their equipment's normal service life.

Thus, SLBC is operating the equipment, taking the risk that interruption of transmissions may occur at any time.

## 2) Present Status of Master Control Room (M.C.R.) and Problems

In the M.C.R., the equipment installed are matrix switches for the distribution of in-coming and out-going signals, distribution line amplifiers, patching jack boards and, in addition, a master clock system, ringmain monitor amplifiers, intercom communication device, inter-building connecting cables and the terminal boards, etc.

Most of them are vacuum-tube type and are 40~50 years old. Actually, there are no spare parts available and, therefore, unusable units are replaced with other less important units which are then not used. Such operations are unavoidable.

In addition, the existing Master Control Room has not enough function of distributing signals, which prevents SLBC from broadcasting various topics exchanged among people living in different regions in Sri Lanka. This type of live transmission is one of the effective roles of radio broadcasting.

## 3) Necessity for Replacement of Continuity Studios and M.C.R.

Continuity studios and M.C.R. are the "heart" of a broadcast station, requiring 24 hours operation. Therefore, replacement of each device while it is in operation is impossible.

This portion of the building was originally built as the house of an English governor about 100 years ago, and the existing continuity studios, M.C.R. and production studios were additionally constructed here about 40~50 years ago.

Then, with the expansion of SLBC's broadcasting, news studios, small studios and administrative offices were added in a disorderly manner. Now the inside of the SLBC building is so congested that it looks just like a labyrinth.

The area with the continuity studios and the M.C.R. is strictly guarded with an iron grid door and 24 hour patrol by soldiers with guns. As this is such an important portion, through here every broadcasting signal is distributed and fed to FM transmitters as well as to STLs (studio to transmitter link) for the regional stations.

Therefore, replacement of the old equipment at the present location is difficult. Supposing it could be done, the building is so old, as mentioned above, that if new equipment were installed, continuously stable operation for more than 20 years in the future would be impossible.

Therefore, it is necessary to provide on-line-functions such as continuity studios and the M.C.R. in a new studio building beforehand, and after the completion of the new facility to switch over to the new on-line operation at a single stroke on a certain day.

#### 4) Number of Continuity Studios to be Provided

Domestic radio service channels for which SLBC is responsible for production and broadcasting are the following 7 channels, and SLBC aims to broadcast the 7 channels all in FM stereo to satisfy the listeners' demands.

At present, Tamil Commercial Service has ceased operation due to the transmitter's failure, but SLBC is expecting to resume it as soon as possible.

## Domestic Service Channels and Broadcast Hours

(refer to Table 2-2-5 in detail)

- |   |  |  |
|---|--|--|
| ① | Sinhala National Service                 | 05:00 ~ 13:00, 17:00 ~ 23:00                           |
| ② | Sinhala Commercial Service               | 05:25 ~ 22:00  |
| ③ | English National Service                 | 06:00 ~ 23:00  |
| ④ | English Commercial Service               | 18:00 ~ 23:00 (plus 10:00 ~ 12:00 on<br>Sat. and Sun.) |
| ⑤ | Tamil National Service                   | 05:00 ~ 12:00, 18:00 ~ 23:00                           |
| ⑥ | Tamil Commercial Service                 | 12:00 ~ 18:00  |
| ⑦ | Education (Formal and Nonformal) Service | 07:00 ~ 10:20, 18:00 ~ 20:30<br>(Except Sat. and Sun.) |

Seven continuity studios with stereo capability are required for sending out 7 channels of domestic services because transmission time of each channel overlaps with each other.

By the provision for 7 continuity studios, each continuity studio becomes exclusive use to specific channel, which makes it possible to continuously transmit programmes up to a maximum of 19 hours (05:00 ~ 24:00) daily, without interrupting transmission of other channels. The foundation for expanding broadcast time of 133 hours a day at the maximum (19 hrs x 7 chs = 133 hrs/day) is established and livelihood-related information can be broadcast for the people on real time.

Besides this, another 5 continuity studios are necessary for overseas services including back-up use for maintenance, even though some continuity studios are shared with transmission channels.

The overseas services and the broadcast hours are as follows:

- |    |   |  |
|----|---|--|
| ①' | Australia (Far East) + ②' Middle East Service | 16:00 ~ 17:00, 22:15 ~ 00:15                                 |
| ③' | English Asia Service                          | 06:00 ~ 10:00, 18:15 ~ 23:00                                 |
| ④' | Tamil Asia + ⑤' Hindi Asia (India)            | 05:55 ~ 10:00, 11:30 ~ 12:30<br>12:30 ~ 19:00, 19:00 ~ 23:00 |
| ⑥' | Tamil Asia Special<br>plus daytime back-up    | 16:45 ~ 18:45  |
| ⑦' | T.W.R. (Trans World Radio)                    | 18:15 ~ 22:10, 23:00 ~ 23:30<br>04:15 ~ 07:15                |

Taking into consideration that domestic service time will be expanded and overseas service time will be modified by the shortwave transmissions in the future, a minimum of 12 continuity studios are essential.

#### 5) Consideration of FM Stereo

At present, FM stereo service is broadcast in 3 languages, although it was originally initiated only in English. However, service was expanded based on a growing demand of listeners who wanted broadcasts in Sinhala and Tamil as well, so the current FM service started its broadcasts in 3 languages. Thus in this Project, provision for the equipment with stereo capability is quite appropriate as described below.

a) Music programme materials available in the market are mostly (90%) stereo in the form of either 6mm cassettes or discs, including compact discs, which will be introduced in the very near future. In such a situation, restricting the function of the continuity studio monaural use doesn't make sense.

b) Since the 7 domestic services will be broadcast by a 7 × 300W FM transmitting system described later, monaural continuity studios restrict the possibility of FM stereo broadcasting.

c) Providing a stereo function does not cost so much. Recently available audio mixing consoles in the market are made for stereo use in terms of their inner wiring so those specifying only monaural use would be a rather special case. If, to change the monaural consoles to stereo use, it is required to change all of the console wiring, it would practically cost more than to purchase new stereo consoles.

The same thing can be said regarding tape players, spot machines and disc players.

d) The inputs of a stereo-capable mixing console are an announcing microphone (1), tape players (1~2 stereo), spot machine (1~3 stereo), and OB (outside broadcast) input (1~5 monaural). And stereo monitor speakers are also to be provided.

In case of monaural specified continuity studio, the cost would be 5% less than the stereo one.

Therefore, with regard to the 7 domestic continuity studios, it is necessary to design them as stereo studios, and the other 5 studios are to be monaural type studios since they broadcast on shortwave transmitters.

### (3) Providing a New Radio Room

There are two radio rooms in SLBC, a VHF Radio Room and a microwave room. In the VHF Radio Room, which is near to the M.C.R., FM transmitters and VHF communication devices are installed. Inputs and outputs are connected with the respective antennas mounted on a rectangular tower in the court of SLBC. This is as important a part of SLBC's broadcasting function as the M.C.R. and continuity studios.

Another radio room contains STLs (Studio to Transmitter Link) for the Ekala Shortwave Transmitter Station and Radella Station and has antennas which are mounted on a triangular tower located at the eastern corner of the SLBC premises; this is called a microwave room.

With regard to the VHF Radio Room, since the existing FM transmitters are so old and superannuated, and there is uneven service coverage of each channel, it is necessary to provide a new radio room in which a new FM transmitting system is installed and a tower and antennas for it are newly constructed.

As to the existing VHF communication devices, since the antennas are mounted on the rectangular tower and the device itself was made in the 1970s and is already fairly superannuated, it is necessary to provide a new VHF communication system including the antenna at the same time as the new VHF Radio Room is constructed.

As to the microwave room, the currently used STLs are comparatively new (made by the Marti Co., U.S.A. in 1980), and the STL for the Ekala Station is going to be installed in 1990 under a grant aid project of the Japanese Government for improvement of the Ekala Shortwave Transmitter Station (1988~1990).

Therefore the existing STL systems are to remain together with the antennas mounted on the triangular tower, just as they are.

In the following, examinations on the necessity of the new FM transmitting system are described.

1) Measures against Interference from Medium-Wave Radio Broadcasts during the Night

The medium-wave radio broadcasting stations of Sri Lanka are operating on the frequencies allocated by the ITU (International Telecommunication Union) in 1975.

During the nighttime, however, the medium waves transmitted on the same frequencies from high-power radio stations in neighbouring countries or in Middle East countries are reflected on the ionosphere and propagated into Sri Lankan territory across the service border, which causes serious signal interference. Therefore, in the daytime there is no trouble, but in the nighttime (after about 7 p.m.) the MW services in Sri Lanka are not effective, especially in weakly covered area (as shown in Table 2-2-10).

To improve this, changing of the transmitting frequency and/or increasing the output power could be considered, but this has to be agreed to internationally by submitting an elaborate application paper based on the nationwide reallocation plan of the MW Transmitting System; besides, an enormous investment would be required.

2) Necessity of Replacement of Old FM Transmitters and Improvement of Reception

As mentioned earlier, the currently used FM transmitters are over 40 years old and badly superannuated. Spare parts for prolonging the equipment's service life must be imported from abroad, and due to the fact that many are no longer manufactured, it is now impossible to purchase them for all the existing FM transmitters.

Therefore, by shifting an in-operation transmitter from the northern part of Sri Lanka to SLBC Headquarters as an emergency measure, SLBC is barely maintaining the capital city of Colombo's service. Due to this, since it is now missing its FM relay transmitter, the Jaffna Radio Station located at the northernmost part of Sri Lanka has ceased its operation.

With regard to a cable and/or microwave communication system to connect the SLBC HQ and other regional FM/MW stations, there is no capable line to exclusively transmit the programme signal.

In such a condition, FM broadcasting in Sri Lanka is playing two

roles; one is for broadcast service and the other is to transmit the programme signal to downline FM, and/or MW regional stations. Such a nationwide broadcasting network has already been established.

By providing all solid-state transmitters and a high gain integrated antenna system for the new FM transmitting system replacing the old ones, the transmitted programme quality will be greatly improved in comparison with the current deteriorated FM transmitting system. Furthermore, it can secure high transmission quality for the downline network in addition to non-interference FM service especially in the nighttime.

Regarding the antenna tower, there are 2 existing towers on the SLBC premises, and as shown in Fig. 2-2-2, 3 different FM antennas are mounted.

A comparatively new tower (built in the 1970s; 70m above G.L.) is a triangular mast on which a STL parabola antenna for Ekala Station is scheduled to be mounted this year (1990); besides this, adding another antenna on this mast will exceed the limit of structural strength, nor is there any space available on the tower.

Therefore, this triangular tower cannot be utilized for the new FM transmitting antenna.

The other tower is old constructed in the 1940s, and is a rectangular self-standing tower (45m above G.L.).

As 50 years have passed since its erection, it is considerably superannuated.

There is no space for the new FM antenna on it, and the currently used FM antennas (2) are already mounted there.

Therefore attaching the new FM antenna on the rectangular tower is also impossible either from the view point of available space or practical installation work.

As mentioned before, the existing FM transmitters do not coincide in terms of their outputs (100W, 300W and 1kW). Their antennas were also provided in different times and different way. Thus, this causes different receiving signal strengths for each channel in the same service area. Some FM channel receiving signals are below 30db (normal value is more than 48db) so that the received signal qualities differ from each other, which is a big problem



for the reception of existing FM channels. (This fact was confirmed during the field survey).

When a new antenna system is provided, it is necessary to keep the transmitted signal strength above some certain required value and the same for service quality as well in terms of any FM channel in the Colombo City service area.

For the STLs, it is also necessary to design them to maintain the required in-sight distance together with sufficient receiving signal strength for the existing downline stations. To achieve this, maintaining an adequate height of the FM transmitting antenna and equal effective radiated power is essential.

### 3) Consideration of Stereo Function of FM Transmitter

Nowadays, when we say FM broadcasting, its stereo function is taken for granted by the listeners.

Here in Sri Lanka also, stereo FM broadcasting is very popular among a wide range of listeners in terms of age.

SLBC has a strong desire to implement stereo FM broadcasting, so it is necessary to provide stereo modulators for the new FM transmitters for compatibility with the stereo capable continuity studios.

### (4) Providing a Radio OB Van System

At present, SLBC has no radio OB (outside broadcasting) van and the existing OB equipment is superannuated. Normal OB programming (simultaneous live broadcasting from outside of a station) cannot be conducted, and only recorded programming made by a portable recorder is brought back to the station and then broadcast. That is the current status of SLBC.

Providing a radio OB van system will enable a quick response to an outside event and mobility will be greatly improved so that programme plans and covered areas will be expanded.

Real time broadcasting directly from the scene of an outside event will be, of course, very effective in order to contribute to the mutual understanding and harmony among national groups having different opinions and traditional customs, and thus to national development.

Outside broadcasting can realize the simultaneous broadcasting of various national events such as festivals, social gatherings, music concerts, sports and street-corner reporting in addition to the dissemination of governmental and public notices and reflection of public opinions. Furthermore, information can be quickly disseminated in times of emergency.

As an essential function of the SLBC radio OB van system, since Sri Lanka's official languages are Sinhala, Tamil and English, simultaneous transmission in these 3 different languages is necessary.

And also, for as wide a coverage as possible by the only radio OB Van in this country, two-hop transmission for relaying programmes is to be provided.

#### (5) Editing and Monitoring Equipment

##### 1) Editing Equipment

At present, SLBC has only 3 editing devices installed at St. 1, 7, and 10, and an acrylic disc cutter system, which is a rather old system, is still being used. (Photo 3-2-1 shows the acrylic disc cutter.)

The current operation utilizing this disc cutter is the cutting of discs, in other words, recording programmes of music or songs either made in SLBC or purchased as L.P (long play) discs on the market and then stored in the SLBC library room. When they are needed, discs are picked up from the library and replayed in the continuity studios or in the production studios. As for the recorded sound materials in the cut discs, there are music, sound effects and speeches. Although the disc method has the advantage of a random access function so that the editing operation of discs is easy, the reproduced sound quality is comparatively low, about 2 ranks<sup>(\*)</sup> lower than the currently used 6mm magnetic tape system in terms of scratch noise when it's replayed, and the frequency characteristics, the available sound quality, is evaluated at rank 3.

(\*) Note: Subjective quality value:

5 = Excellent, 4 = Good, 3 = Fair, 2 = Poor, 1 = Barely Audible.

And, in addition, since the cut disc cannot be reused by erasing the recorded sound, as can be done with magnetic tapes, the operational cost is also high.

Therefore, if SLBC would continue to use the acrylic disc cutter system, it would be difficult to achieve rank 5 broadcast sound quality which is now the worldwide standard based on the 6mm tape editing system.

In order to replace the acrylic disc system at SLBC, a larger number of 6mm tape editing devices has to be provided.

In general, the required number of units for the editing system of a radio broadcasting centre is considered to be about the same number as that of the production studios, because the editing time of a programme is assumed to be almost the same as the recording time of the programme. Producers edit recorded materials and make complete programme tapes by cutting off unnecessary parts of recorded tapes and, as required, by adding comments, music, etc. The procedures take a rather long time.

SLBC has 14 production studios and cubicles but only three studios (1, 7, 10) out of fourteen have an editing capability. Therefore, after the function of nine of the present continuity studios is transferred to the new continuity studios in the new studio building, the present continuity studios will be changed to use as editing cubicles and small production studios as well.

The arrangements for providing editing facilities to SLBC are urgently required because in SLBC music sources are mainly stored on acrylic discs as mentioned above and it takes time to transfer all the sound materials on discs to 6 mm tapes.

Until this conversion has been accomplished, the sound quality of transmission programmes will not be improved.

With reference to editing staff members, editing of radio programmes is usually done by producers themselves (what is called PD editing) and no additional technical members are required.

Six mm tape editing is only to dub, cut and splice tapes, but complicated sound mixing is not necessary.