BASIC DESIGN STUDY REPORT
FOR
THE EXTENSION PROJECT
OF
ADDITIONAL TV STUDIO FOR EDUCATIONAL PROGRAMME
IN
THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

JUNE 1984

JAPAN INTERNATIONAL COOPERATION AGENCY

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PREFACE

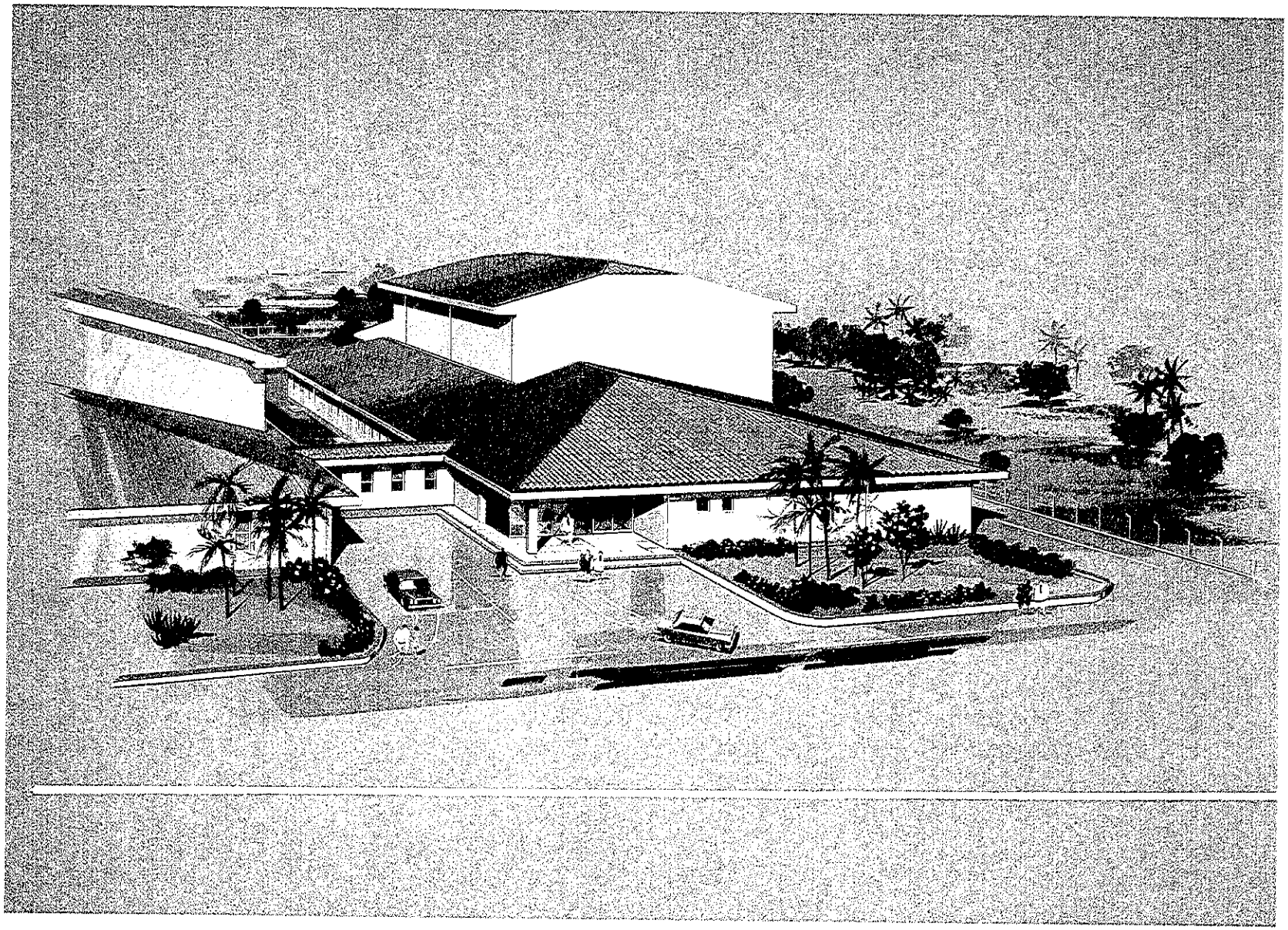
In response to the request of the Government of the Democratic Socialist Republic of Sri Lanka, the Government of Japan decided to conduct a Basic Design Study on the Extension Project of Additional TV Studio for Educational Programme and entrusted the survey to the Japan International Cooperation Agency(JICA). JICA sent to Sri Lanka a study team headed by Mr. Susumu INADA, Second Economic Cooperation Division, Economic Cooperation Bureau, Ministry of Foreign Affairs, from February 11 to March 1, 1984. The team had discussions with the officials concerned of the Government of Sri Lanka and conducted a field survey in Colombo area. After the team has returned to Japan, further studies were made and the present Report has been prepared.

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

I wish to express my deep appreciation to the officials concerned of the Government of the Democratic Socialist Republic of Sri Lanka for their close cooperation extended to the team.

June, 1984

Keisuke ARITA
President
Japan International Cooperation Agency



New Studio Block of SLRC

Sri Lanka Rupavahini Corporation
Colombo Studio Centre

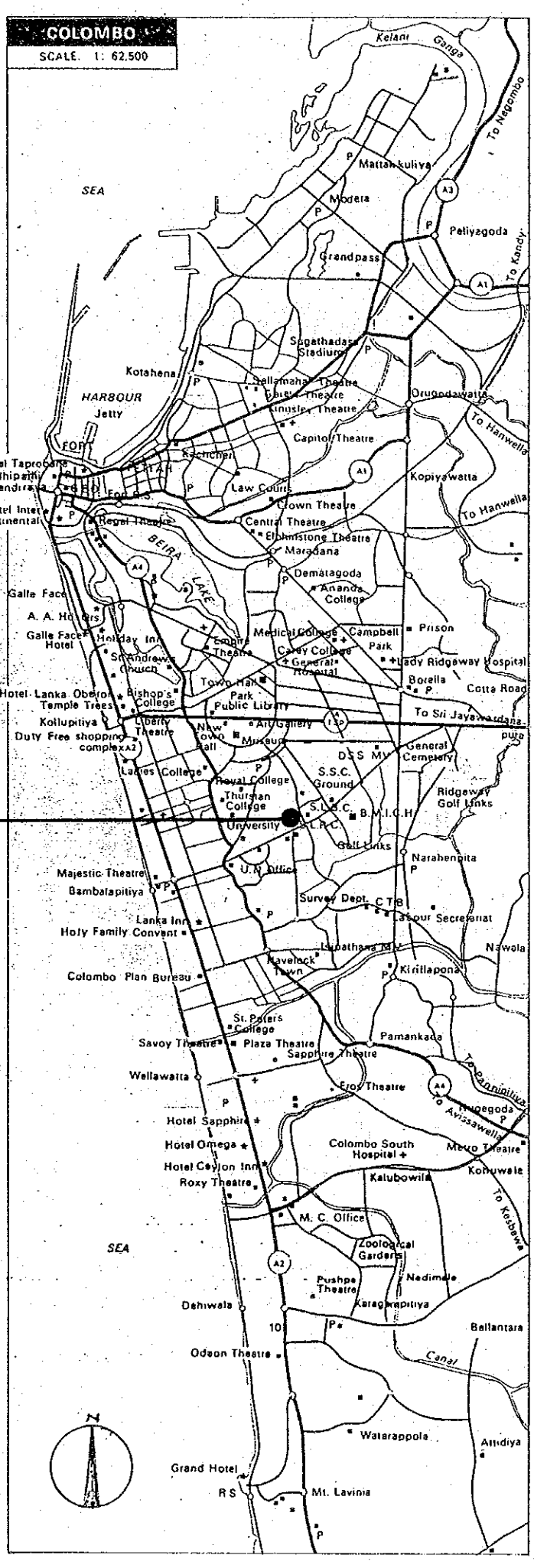


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TABLE OF CONTENTS

SUMMARY

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Sri Lanka is a strongly educational minded nation and has a high literacy rate of 86.5% (1981 Census). This is due to the fact that a functioning educational system has been in existence for quite a while and the fact that a considerable number of schools are already scattered all over the island.

Nation-wide television broadcasting began in Sri Lanka, with the grant-aid assistance from the Government of Japan, in 1982. It was a plan to utilize this new medium for the purpose of education from the very beginning and actual broadcasting of educational programmes (ETV) began in May, 1983.

In implementing the plan for ETV broadcasting, initial emphasis was placed on the natural science subjects, areas where qualified teachers are lacking, and at present 2 hours and 45 minutes of natural science educational programmes targeted at students at the GCE-A level, are aired Monday through Friday. The programmes are produced both in the Sinhalese and Tamil languages.

The SLRC has carried out surveys regarding the effectiveness of the educational programmes and have received favourable results. With the above in consideration the SLRC has already drafted a long term plan, up to the year 1990, for educational programmes production. This plan includes programmes for non-formal education for the general public.

The reasons cited by the Government of Sri Lanka for grant aid for expanding the existing television programme production and broadcasting facilities are that;

(a) Broadcasting time for educational programme will be increased considerably and programme contents will be expanded to cover a wider academic range and to fulfill the long range plan.

(b) Overall broadcasting time for general programmes will also be extended as well as in-house programme production increased.

(c) Improvement of areas with poor reception.

JICA, acknowledging the aforementioned request, dispatched a Mission Team, headed by Mr. Susumu Inada, Second Economic Cooperation Division, Economic Cooperation Bureau, Ministry of Foreign Affairs from 11th of February to 1st of March, 1984 to study and evaluate the appropriateness of the said request and to determine the scope and extent of assistance to be rendered. The mission team studied and evaluated the contents of television broadcasting, utilization factor of the existing facilities, future projection relating to educational programme production and made field surveys of areas with poor reception.

It has been confirmed by the Mission Team that at present the facilities of the existing Studio Centre, the basic facility being two television production studios (100 sq. mts and 200 sq. mts) and a dubbing studio, are being utilized to their full capacity, with the utmost of efficiency, but will not be able to cope with the demands that will be placed by the above mentioned plan for expanding programme both quantitively as well as qualitatively.

In order to realize effectively the aims of the long term plan for educational broadcasting it would be necessary to step out of the rather one-dimensional programme production techniques practised by the SLRC at present into a more multi-dimensional mode of production with such techniques as dramatization and audience participation. For such ways to be realized a larger studio than the ones that are already in existence would be a requisite.

Concerning poor reception problem, 3/4 of 1.41 million population of Ratnapura and Badulla, live in the 'shadow area' or areas with poor reception. The want for improvement of reception among these people is great and such a situation is also problematic from the viewpoint of equality of educational opportunity.

Judging from the earnestness and high competence of the staff concerned of the SLRC, compounded by the high motivation of the people to acquire TV sets along with the expected increase in domestic set production which should result in the

decrease of unit cost, it can be affirmed that the overall impact of the project will be great and as such the immediate expansion of the Studio Centre is highly desirable. Although the financial status of the SLRC is sound it has yet to produce enough profit to enable such an extensive expansion of its facilities by its own effort and therefore it is deemed proper that the project be financed by the Grant Aid of the Japanese Government.

From the analysis of the Mission Team it was determined that the main objectives of the request which is the expanded function of the educational programme broadcasting can be fulfilled by the establishment of one 400 sq. mts. sized studio.

The site for the extension of the Studio Centre (hereinafter referred to as the New Studio Block) has already been allocated and is a flat plot of land adjacent to the existing Studio Centre of the SLRC and pauses no problem for the construction of the New Studio Block. The New Studio Block will be one storeyed and will have a floor area of approximately 1,476 sq. mts. The facilities provided will be one 400 sq. mts. production studio and video editing equipment with ancillary facilities. The basic planning has been carried out with such factors as harmony of appearance with the existing facilities, economic feasibility and future expansion plans. The projected New Studio Block is to be linked to the existing Studio via a connecting corridor.

Adaptability with the existing facilities was the main consideration of planning the production and broadcasting equipment and the main components will be three color television cameras, audio and visual control consoles and studio lighting equipment.

For the improvement of poor reception area, from the result of field surveys it is planned to locate one 200 W Transposer in Ratnapura and one 10 W Transposer in Badulla. However it has been agreed that the transposer station building, the fabrication and erection of the antenna tower (antennas to be provided by the grant) and earthing works shall be borne by the Sri Lankan side.

Construction is scheduled for 14 months, and expenses for the works to be done by the Sri Lankan side are estimated to be 4,350 thousand rupees in total. As the SLRC has many competent and reliable personnel among its staff there should be no problem in the implementation of the Project on the Sri Lankan side.

The proposed extension of the studio may not be able to fully meet all the demands of the SLRC but it will definitely be able to serve the purpose of expanding the length and contents of educational programmes broadcasting. By increasing the number of transposers by two it will become possible to reach 91% from the present 87% of the people living in Sri Lanka.

It is hoped that the SLRC and its staff make efforts to upgrade their technical capabilities to be able to utilize further sophisticated methods of production.

It is also desired of Sri Lanka as a nation to further the propagation of the number of TV sets and to improve the supply of electricity.

This project holds the key to the expansion of educational programme broadcasting as well as education in general in Sri Lanka. It is concluded that the extension of the studio facilities will enable the quantitative and qualitative upgrading of educational and general programmes and the establishment of the two transposer stations will allow more Sri Lankans access to the benefits of television for education as well as entertainment.

CHAPTER 1 INTRODUCTION

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Nation-wide television broadcasting in Sri Lanka began in February, 1982 upon the completion of the Television Broadcasting Network Project (Colombo Studio Centre, Mt. Pidulutalagala, Kokavil, Kandy Transmitting Station and Madukanda Repeater Station), a Grant Aid Project of the Government of Japan.

Education through radio broadcasting has been carried out in Sri Lanka ever since 1931. At the on set of television broadcasting an immediate decision was reached to utilize this new medium for the purpose of mass education. Actual broadcasting of educational television programmes began in May, 1983.

The educational television programmes are broadcasted by the Sri Lanka Rupavahini Corporation (SLRC) and produced by the Educational TV Unit of the SLRC.

The Sri Lanka Government has requested Grant Aid of the Japanese Government to implement the following plan and requirements;

(a) To extend the present educational programmes broadcasting time by one hour and to expand the programme contents which are aimed exclusively at the collegiate level students and cover only the natural science fields, to also cover the humanities as well as to reach the other academic levels.

(b) To extend general programme broadcasting time by one hour and to increase domestic programme production.

(c) To improve areas with poor reception.

In order to achieve the above it is requested to expand the existing production facilities and also to increase the number of transmitting stations. The original request by the Sri Lanka Government was as follows;

1) 200 sq. mts. production studio 1. No.
   400 sq.mts. production studio 1. No.
   (above inclusive of television camera 3 Nos., motorized studio light batons, following to be included in the sub-control room; vision control console, caption keyer, dimmer and lighting control console, VTR, graphic superimposing unit, digitalized visual effect generating unit)
2) VTR Room (inclusive VTR Unit)
3) Editing booths (inclusive editing units)
4) Pre-view Room (inclusive pre-view unit, cine projector)
5) Tape Store Room
6) Rehearsal Room
7) Air conditioning for the above rooms and emergency generator
8) OB Van (inclusive 3 Nos. television cameras, VTR, Generator, FPU)
9) Trailer Type Generator
10) ENG (inclusive news gathering, editing and transmitting unit)
11) Transmitting stations to improve areas with poor reception (civil works portion to be borne by the Sri Lankan side)

The effect of the previous grant aid by the Japanese Government has the most favourable results with the people welcoming the high quality of the audio-visual signal reception with the facilities themselves being utilized to the fullest extent of its capacity. The JICA Experts, dispatched from Japan and cooperating with SLRC, have reported on the determined earnestness of those concerned on the Sri Lankan side and that television broadcasting is steadily progressing with technical cooperation from Japan . It is also reported that in light of the above it is quite desirable for the Japanese Government to further extend aid and cooperation to expand the present donated facilities and to improve poor reception.

JICA, acknowledging the aforementioned request, dispatched a Mission Team, headed by Mr. Susumu Inada, Second Economic Cooperation Division, Economic Cooperation Bureau, Ministry of Foreign Affairs from 11th of February to 1st of March, 1984 to study and evaluate the appropriateness of the said request and to determine the scope and extent of assistance to be rendered. The mission team studied and evaluated the contents of television broadcasting, utilization factor of the existing facilities, future projection relating to educational programme production and made field surveys of areas with poor reception (for the formation and schedule of the Mission Team refer to Appendix I).

The contents of the original request by the Sri Lankan Government was aforelisted, but through field discussion between SLRC staff and the Mission Team it was agreed to place priority on the following four items;

1) One 400 sq.mts. programme production studio
2) Two sets of transmitters to improve areas with poor reception (including antennas and emergency generators)
3) Videotape editing booths
4) Ancilliary facilities and equipments for the above listed

CHAPTER 2 BACKGROUND OF THE PROJECT

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2-1 Present Condition of The Education

2-1-1 Education System

Sri Lanka is planning to reform the education system, based on the reorganization of the school structure and is going to bring a new system into operation in 1985. Therefore, the following will describe the new education system to be put into operation, referring to the existing system only in the school system diagram. The education system in Sri Lanka is of double-line type, the same as in England, different from the single-line type of the Japanese system. It mainly consists of the three systems.

1) School System
2) University System
3) Tertiary Education System

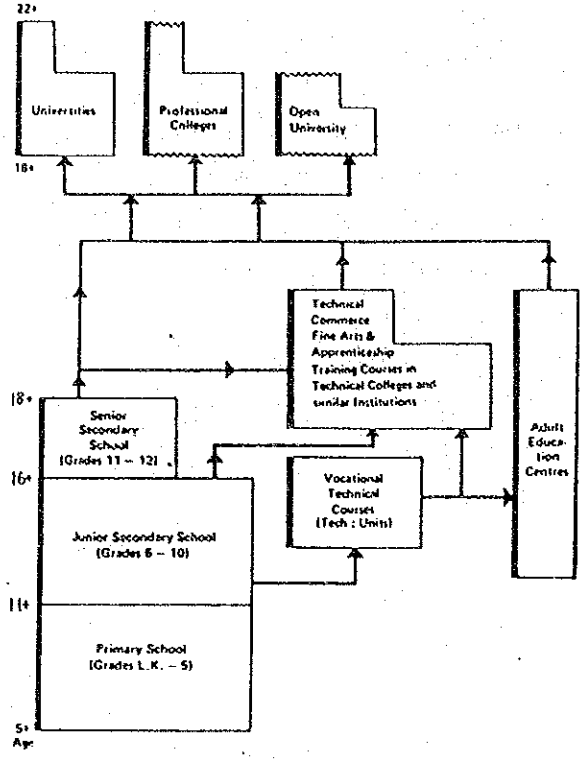
(1) School System

The period of the school system is for 13 years, from the age of 5 to 18, and divided into two periods: for general education and for preparatory education to the university entrance examination. The period of general education is classified in the Primary School for 5 years from the age of 5 to 10, the Junior Seconday School for 3 years from the age of 10 to 13, the Senior Secondary School for 3 years from the age of 13 to 16 and the Collegiate Level for the preparatory education to the university entrance examination for the last two years.

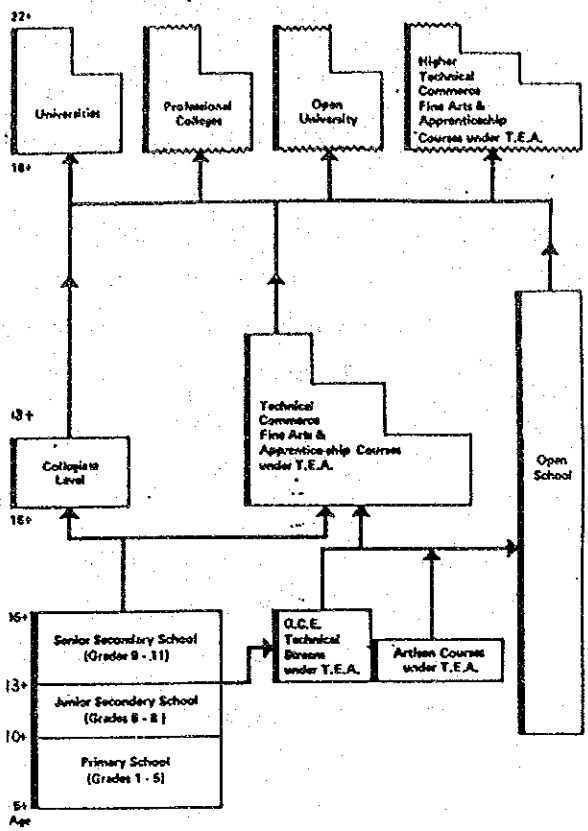
The curriculum of the Primary School is drawn up in order to develop, integrate and basic scholarship based on reading, writing and arithmetic. English education, as the 2nd language, starts from the third grade of the Primary School.

SCHOOL SYSTEM DIAGRAM IN SRI LANKA

EXISTING SYSTEM OF EDUCATION/TRAINING



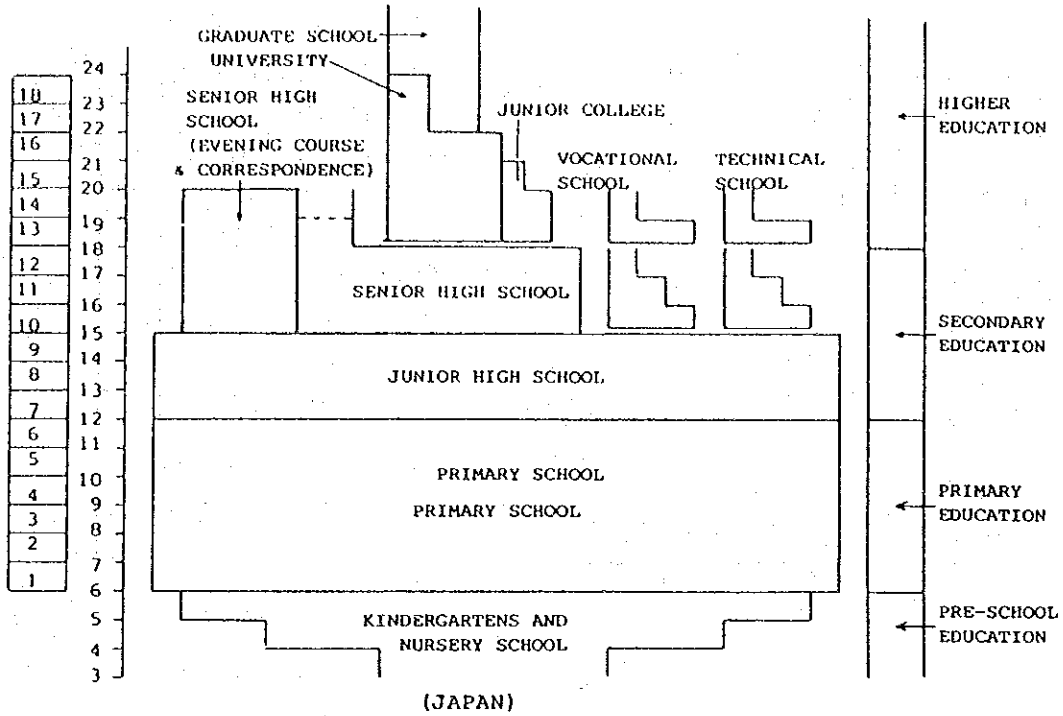
PROPOSED SYSTEM OF EDUCATION/TRAINING



	Primary		Secondary			Exam	Pre-University	Exam
Present	L. Kg. 1 Yr.	Grades 1 – 5 5 Years	Grades 6 – 10 5 Years			End of Gr.10 GCE (O.L.) National level	Grades 11 – 12 2 Yrs.	End Gr.12 GCE (A.L.) National level
Proposed		Grades 1 - 5	Junior Secondary Grades 6 – 8	Exam	Senior Secondary Gr. 9 – 11	Exam	Collegiate level Grades 12 – 13	End of Gr.13 University Entrance Exam National level
		5 Years	3 Yrs.	End of Grade 8 School cluster level exam	3 Yrs.	End of Gr.11 GCE National level		

Source ; Education Proposals for Reform
by Ministry of Education, Sri Lanka 1981

SCHOOL SYSTEM DIAGRAM IN JAPAN & AMERICA



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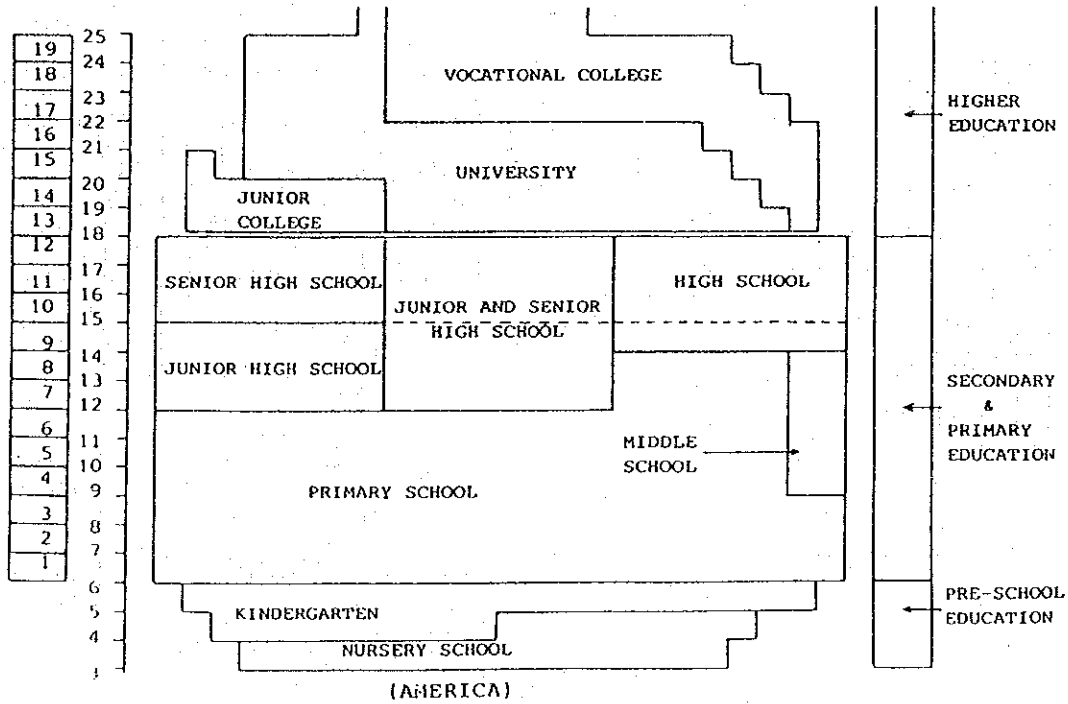
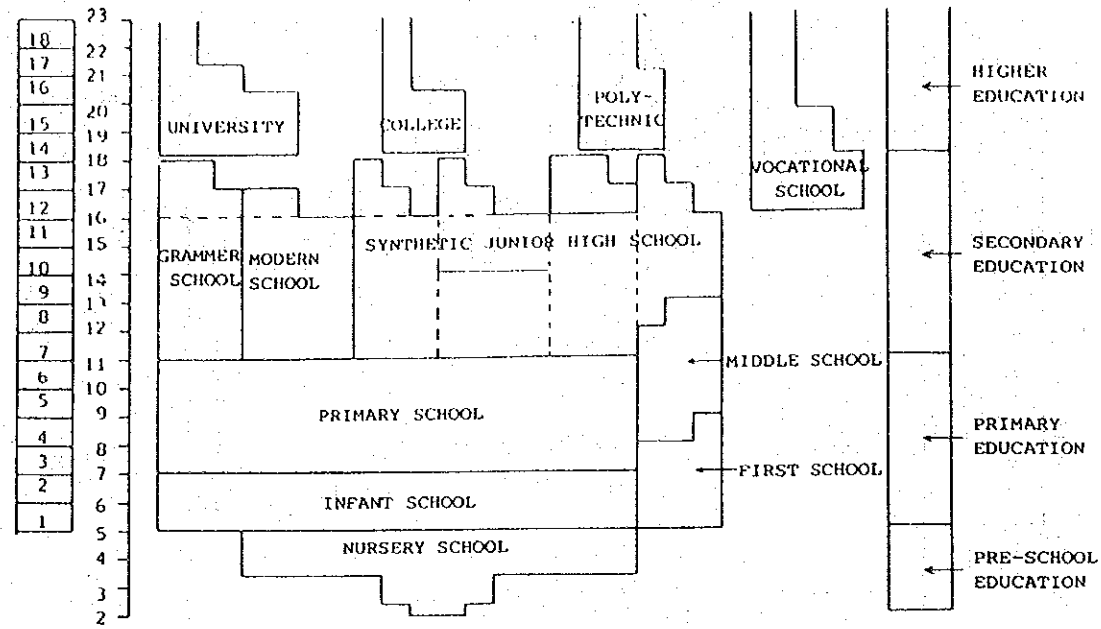


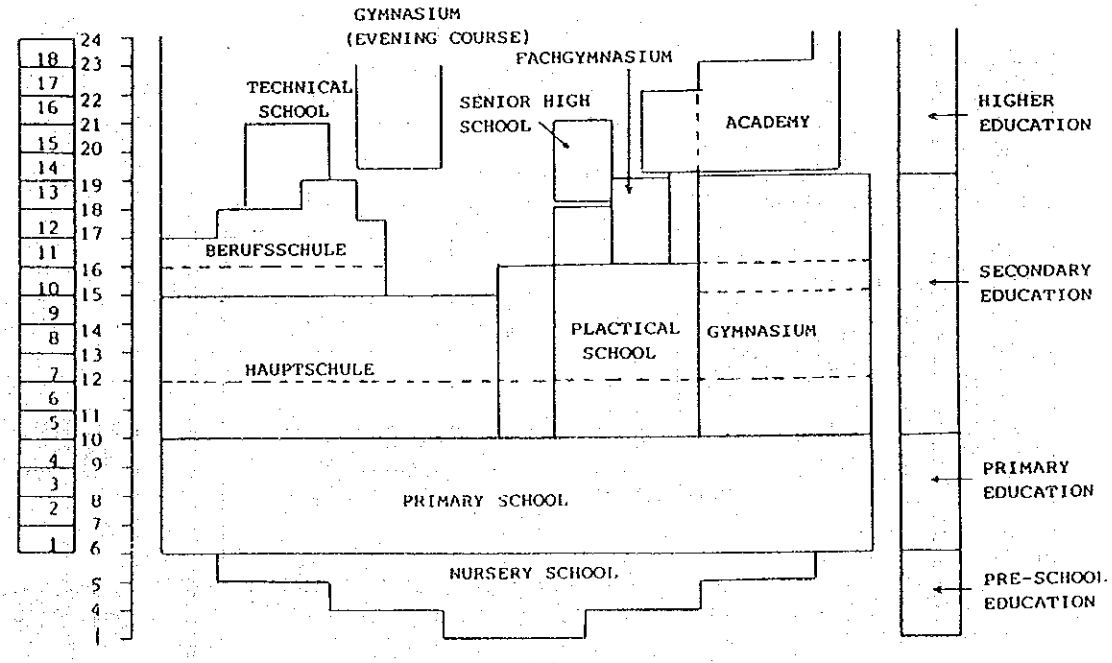
(AMERICA)

Source ; 1981 THE EDUCATION IN JAPAN
(White Paper on Education) by Ministry of Education, Japan

SCHOOL SYSTEM DIAGRAM IN ENGLAND & WEST GERMANY



(ENGLAND)



(WEST GERMANY)

Source ; 1981 THE EDUCATION IN JAPAN (White paper on Education)
by Ministry of Education, Japan

The curriculums of the Junior Secondary School and Senior Secondary School are as follows:

Junior Secondary School

First language (Sinhala or Tamil), Mathematics, Religion, English, Science, Social Studies, Aesthetics, Life Skills, Health and Physical Education

Senior Secondary School

First language, Mathematics, Religion, English, Science, Social Studies, Aesthetics, Technical Subjects, Health and Physical Education

The curriculum of the Collegiate Level is divided into the liberal arts course and the science course. The students are divided into the two courses when they enter school.

Common Subjects

Cultural Heritage and Socio-Economic Environment of Sri Lanka, First language, English and Working experience through community oriented projects

Science Course

Mathematics, Physical Science, Medicine, Chemistry, Biology and Agriculture

Liberal Arts Course

Sinhala, Tamil, English, Pali, Sanskrit, Greek, Latin, Modern languages (Arabic, Hindu, French, German), Buddhism, Hinduism, Christianity, Islamism, Economics,Geography, History, Politics, Mathematics and Commerce

(2) University System

The period of the University System is for 4 years from the age of 18 to 22. Only the students who are graduates of the Collegiate Level and have passed the entrance examination are permitted to go to the university level.

The faculties of the 7 national universities are as follows:

Peradeniya University

Arts, Science, Medicine and Dentistry, Engineering, Agriculture and Veterinary science

Colombo University

Arts, Science, Law, Medicine and Education

Jayawardanapura University

Arts, Science and Industrial administration

Kelaniya University

Arts, Science and Commerce

Jaffna University

Arts, Science and Medicine

Moratuwa University

Engineering, Applied Science and Environmental Engineering

Ruhuna University

Arts, Science, Medicine and Agriculture

(3) Tertiary Education System

The tertiary education system includes all vocational and technical schools. These schools are in charge of the education required for various social activities, useful in work and actual life.

2-1-2 Examination System

The university entrance examination is very difficult in Sri Lanka. Furthermore, before taking the entrance examination, students must go over some barriers. At first, a kind of qualifying examination for scholarship is taken at the end of the Primary School (in the 5th grade). This examination can be omitted for the pupils who attend primary schools having the 1st to 13th grades. However, there are few schools of this type and most of them are located in cities. According to the statistics in 1981, there were 1,853 schools having all the grades in the country and this number corresponds to 19% of all

the schools. Therefore, many 5th-grade pupils take the examination to go to a better secondary school. The next barrier is an achievement test for the 8th-grade students. This will be put into practice under the new education system. The test is carried out in each school cluster. About 9,500 schools are divided into about 1,000 school clusters according to geographical areas. The result of the test is certificated but does not limit the selection of the future course of a student. Then, the examination for GCE (General Certificate of Education) for the 11th-grade students will come. This corresponds to the GCE-O level (Ordinary Level) of the existing system. The subjects of the examination are the First Language (Sinhala or Tamil), Mathematics, English, Science and Social Studies as common subjects for all the country, Aesthetics and Technical subjects as common subjects for each region and Health and Physical Education for each cluster. Students are divided into the liberal arts course and the science course according to the result of the examination. Finally, students take the university entrance examination, which corresponds to the A (advanced) level GCE examination of the existing system. Thus, in 1980, only 16.35% of the candidates were permitted to enter the national universities.

2-1-3 Population of school pupils and students

There were 2,462,147 pupils of public schools (of the School Education System) in Sri Lanka in 1977, and the number increased to 3,369,694 in 1981, by about 1. 4 times. As for university students, there were 15,049 students in the 7 national universities in 1979, while there were 18,111 students in 1981. The number of university students also increased slightly by 1.2 times.

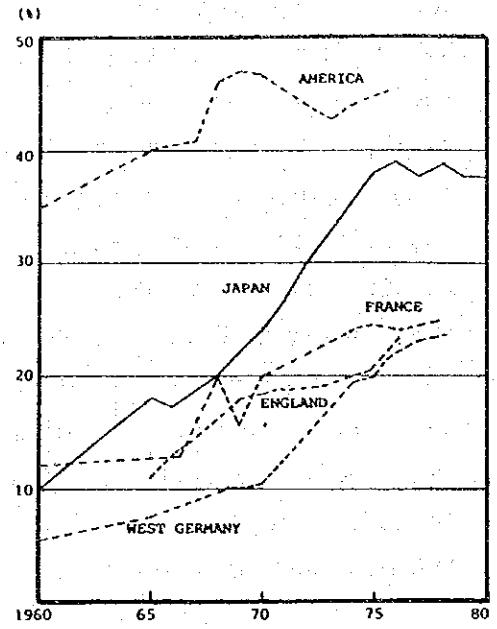
The percentage of the students at school to all the population of Sri Lanka was 13% in 1943, 18% in 1950 and now reached 21.7%. In the way, of an example in Japan, the percentage reached 26.4% at maximum in the years of 1955, then decreased to 21.9% at minimum in the years of 1960 and is increasing recently, 23.5% in 1980.

2-1-4 Ratio of students going on to high-grade schools

The approximately 18,000 university students in Sri Lanka which corresponds to about 1.2% of the around 1,500,000 peoples of the same age. This means the ratio of university students to all the people of the same age is very low, compared with 37% in Japan and 45% in the USA using the single-line education system, or about 20% in England and West Germany using the double-line education system.

Ratio of Student going on to high-grade schools

Source ; 1981 THE EDUCATION IN JAPAN (White Paper on Education) by Ministry of Education, Japan



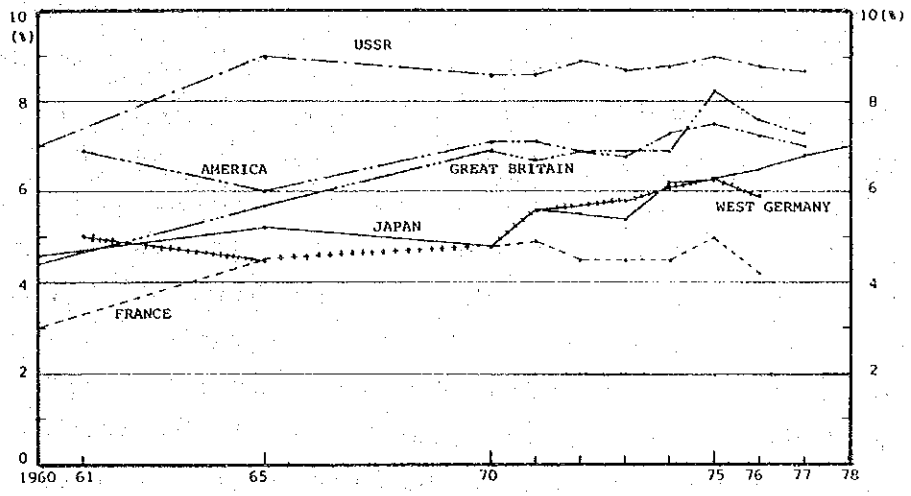
2-1-5 Educational expenditures

The amount of the educational expenditures and its ratio to the Gross National Product are as follows:

Year	Expenditures	Ratio
1978	992,892,000 rupees	2.5%
1979	1,181,599,000	2.4%
1980	1,605,151,000	2.6%
1981	2,076,282,000	2.7%
1982	2,343,109,000	2.6%

Though it is difficult to compare accurately the educational expenditures of the country because the range of the expenditures paid from the public finance varies according to the country, the following figure shows the rough comparison of the ratio of educational expenditures to GNP among some countries.

Ratio of educational expenditures to the G.N.P.
among some countries



Source ; 1981 THE EDUCATION IN JAPAN
(White Paper on Education)
by Ministry of Education, Japan

2-2 Present Condition of TV Broadcasting in Sri Lanka

The present condition of TV broadcasting in Sri Lanka is described in aspects of viewers and stations.

2-2-1 General Condition

The history of TV Broadcasting in Sri Lanka started in 1979, when the ITN (Independent Television Network Ltd.) started service. The first service area of the ITN was only within Colombo City. The broadcasting on a nationwide scale began in 1982 when the Sri Lanka Rupavahini Corporation was established. The TV broadcasting greatly influences the people of Sri Lanka due to the characteristics of wave: immediacy, simultaneity, dispersiveness and excellent communication ability. Sri Lanka consists of various ethnic groups such as the Sinhaleses, Tamils, Moors, etc. who have independent languages and cultures. They are trying to understand each other by introducing their own cultures through TV. On the other hand, TV provides the people with wholesome entertainment programmes to meet the requirements of the people for amusement and also enriches family life. Before commencement of TV, movies were the people's principal amusement. But, according to a research made by the SLRC in 1982, 57% of the TV receiver owners answered that they went to the movies less frequently than before and 24% of them answered that they did not go to the movies at all. In addition, a movie industry is quoted as saying that the audience has decreased by 20%. TV programmes also greatly influence the economic activities of the people. Especially commercial programs stimulate the public interest to buying things. On the other hand, regarding the development of the industries related to TV, TV receiver set sales shops and TV receiver set service shops are increasing rapidly, and a TV programme production industry is also developing. The influence of the TV on the education and the culture must also be mentioned. School educational programmes are very useful in raising the education level of the people and spreading education all over the country. Information and education programmes provides the people with much knowledge.

Based on the conditions mentioned above, TV receiver sets have spread widely. There were only 50,000 TV receiver sets in 1982, but now, there are 300,000 sets; and the number has increased by six times. The reasons of this spread are 1. low duties of 25%, 2. vigorous sales, 3. efforts made in program production by the TV broadcasting station, 4.economic latitude of the people (large rice crop and sudden rise in tea price) etc. Most TV receiver sets are imported and naturally they tend to be expensive. For example, a 20-inch color TV receiver set costs 10,500 rupees (¥105,000-). However, three companies have now constructed factories to produce TV receiver sets in Sri Lanka and economical TV receiver should soon appear on the market. Wider spread of TV receiver sets can be expected. The present annual lisence fees are 250 rupees for a color receiver set and 150 rupees for a receiver set in black and white.

2-2-2 ITN (Independent Television Network Ltd.)

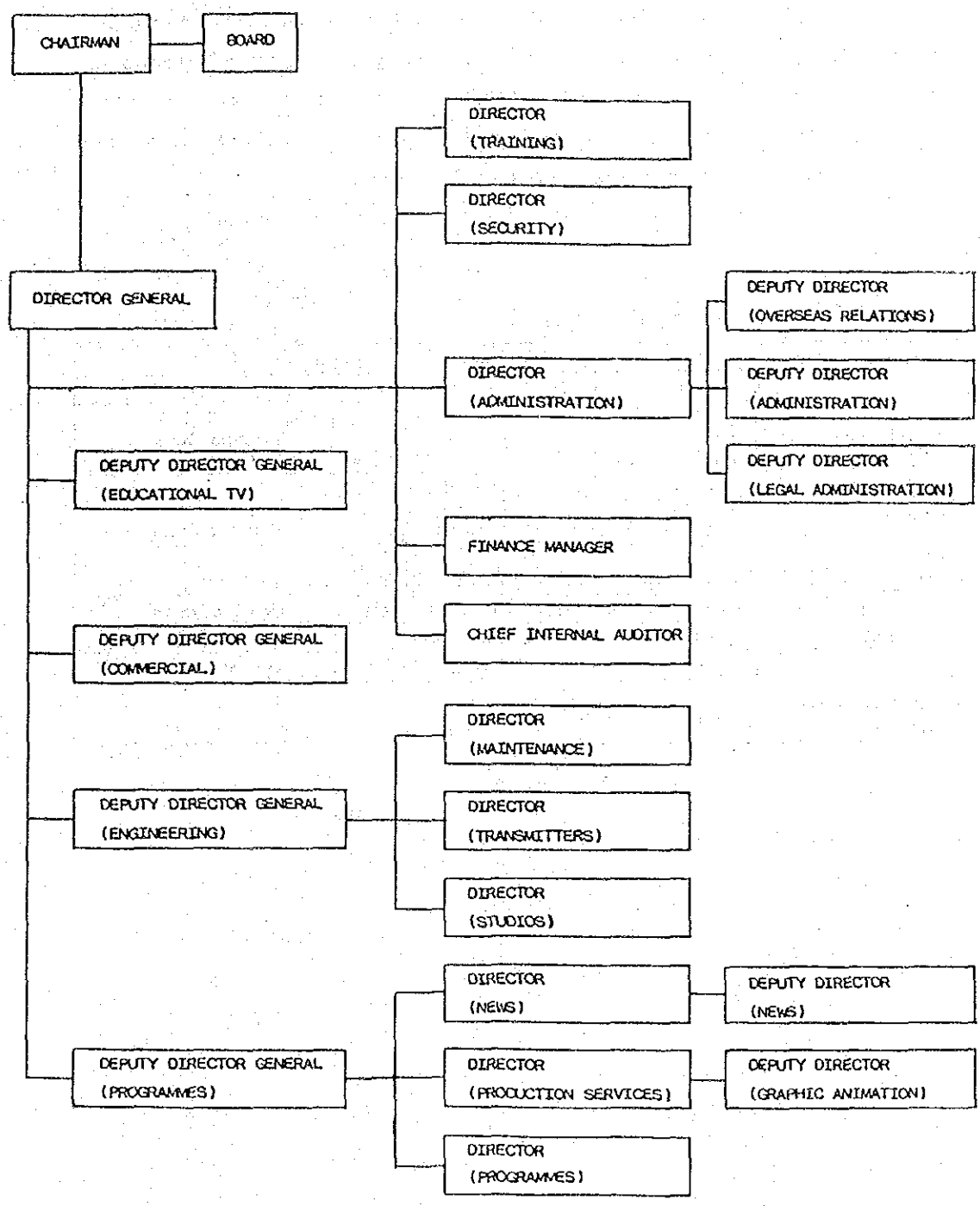
The ITN started service as a private station in April, 1979. The first transmitting station was installed in Pannipitiya, located to the south of Colombo and covered Colombo City area. Later, in July in the same year, the right of management was acquired by the government and it is principally operated by the staff of the Sri Lanka Broadcasting Corporation. Then the station was moved to Kotte in 1982, and until now it continues broadcasting programmes on Channel 12, from a tower of 69m in height, at 1 kW output. The ITN is subject to the jurisdiction of the government, but is an independent organization from the Sri Lanka Broadcasting Corporation and the Sri Lanka Rupavahini Corporation. The broadcasting time is from 6:30 p.m. to 10:30 p.m. every day. All the programs except two 30-minute Sinhala programs in a week are in English. Most programs use recorded cassette tapes produced by foreign broadcasting companies and purchased from program distributing companies. The ITN is now constructing a studio of about 100 sq. mts. being keen to produce their own programmes.

2-2-3 SLRC (Sri Lanka Rupavahini Corporation)

(1) Organization

The SLRC was established on January 25, 1982, in conformity with Law No. 6, SLRC Law (promulgated by the official gazette dated on January 23, 1982). It initially had a staff of 117 which now number at 544. The present organization is presided over by the Chairman, selected and appointed by the Minister of State among the seven members of the Board, including one representative of the Sri Lanka Broadcasting Corporation, one of the National Movie Corporation and the other of the Ministry of Education. Under the Chairman, the Director General, four Deputy Director Generals (Programmes, Engineering, Commercial, Educational TV) and nine Directors (training, security, administration, maintenance, transmitters, studios, news, production service and programme), etc. constitute the organization as shown on the next page.

ORGANIZATION OF SRI LANKA RUPAVAHINI CORPORATION



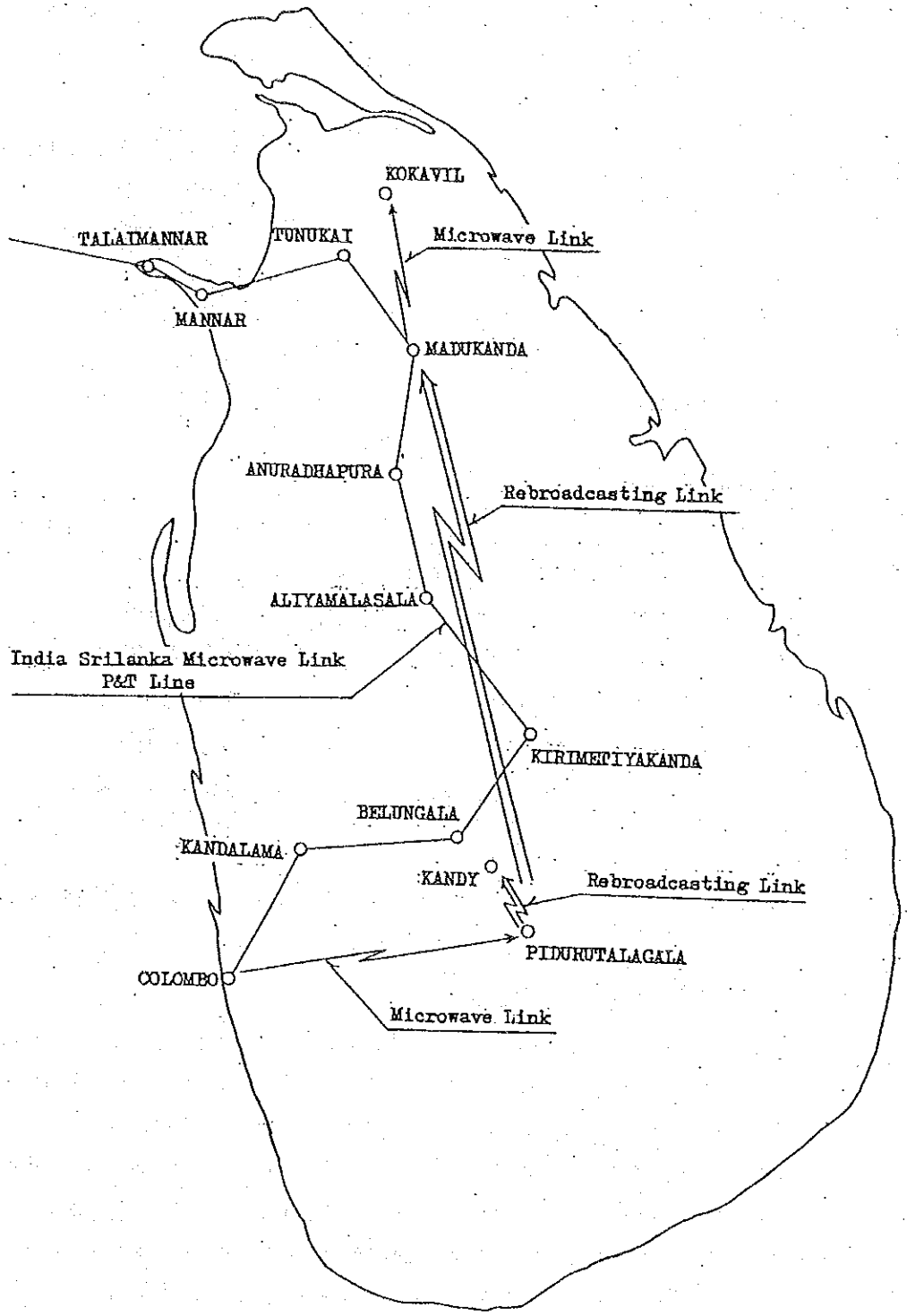
(2) Broadcasting network

To establish a nationwide TV network, there are a Studio Centre in Colombo, Transmitting Stations in Pidurutalagala and Kokavil, a Transposer Station in Kandy and a Repeater Station in Madukanda. This system covers 84% of the country, except the poor reception areas in recesses of the mountains around Mt. Pidurutalagala. The transmission conditions and the network diagram are shown as follows.

Transmitting Condition

	Transmitting Station		
	Mt. Pidurutalagala	Kokavil	Kandy
TX Out put	20 KW [10 KW × 2 Parallel Ope.]	20 KW [10 KW × 2 Parallel Ope.]	50 W [Stand-by Ope.]
Transmitting antenna	4 dipole/4 stacks 4 faces total 16 Panels	4 dipole/4 stacks 4 faces total 16 Panels	2 dipole 4 faces total 4 Panels
Tower height (ground level)	50 m Self-supporting	100 m Supported by Guy-wires	30 m Self-supporting
Service pattern	Omni directional	Omni directional	Omni directional
Polarization	Horizontal	Horizontal	Horizontal
E. R. P	approx. 210 KW	approx. 195 KW	approx. 60 W
Transmitting Channel	Ch. 5	Ch. 8	Ch. 10

MAP OF TELEVISION BROADCASTING NETWORK



(3) Management Situation

The expenditures of the SLRC exceeded the income in fiscal year 1982, but in fiscal year 1984, the income from advertisement rates and license fees will double and profit is expected. The budget of the fiscal year 1984 is as follows:

Income	
Sale of TV Time etc.	28,756,800 rupees
License Fees	27,650,000
Investment profit	6,405,000
Contribution for ETV	3,500,000
Others	99,200
Total income	66.411,000
Expenditures	
General administration	6,513,594 rupees
Programme production	21,984,063
Engineering	9,805,962
Depreciation	19,000,000
Commercial	4,995,485
Training	1,479,722
Total expenditures	63,778,826
Profit	2,632,174 rupees

(4) TV programmes

Educational programmes are broadcasted for 2 hours and 45 minutes from 10:00 to 12:45 on Monday through Friday and general programmes are broadcasted from 18:00 to 22:35 on Monday and from 18:00 to 23:00 on Tuesday through Sunday. The ratio of broadcasting time of educational programmes to general programmes in a month is 25:75. Concerning the educational programmes, it will be described in detail in Section 2 - 3.

As for general programmes, they are classified into categories as indicated in the following table , according to the data of October, 1983.

RATIO OF BROADCASTING HOURS OF GENERAL PROGRAMMES AT EVERY CATEGORIES (PER MONTH)

CATEGORIES	BROADCASTED HOURS	RATIO
1. Information		
News	23 hours 15 minutes	
Sports	9 hours 25 minutes	
(Sub-total)	(32 hours 40 minutes)	(24.4%)
2. Education		
Education (non-formal)	2 hours 50 minutes	
(Sub-total)	(2 hours 50 minutes)	(2.1%)
3. Culture		
Children	18 hours 45 minutes	
Documentary	8 hours 05 minutes	
Current Affairs	4 hours 00 minute	
Religion	2 hours 25 minutes	
(Sub-total)	(33 hours 15 minutes)	(24.9%)
4. Entertainment		
Movie	27 hours 50 minutes	
Series	16 hours 25 minutes	
Musical	7 hours 45 minutes	
Drama	4 hours 20 minutes	
Others	8 hours 40 minutes	
(Sub-total)	(65 hours 00 minute)	(48.6%)
Grand Total	133 hours 45 minutes	(100%)

As a matter of information programmes at the NHK consist of 35% of information programmes, 14% of educational programmes, 27% of cultural programmes and 24% of entertainment programmes. Compared with this, or from the total balance point of view, the ratio of entertainment programmes is very high.

As for self-production programmes, the following table is to be referred.

RATIO OF BROADCASTING HOURS OF SELF-PRODUCTION PROGRAMMES AT EVERY CATEGORIES (PER MONTH)

CATEGORIES	BROADCASTED HOURS	RATIO
1. Information		
News	23 hours 15 minutes	
Sports	2 hours 30 minutes	
(Sub-total)	(25 hours 45 minutes)	(42.9%)
2. Education		
Education (non-formal)	1 hour 05 minutes	
(Sub-total)	(1 hour 05 minutes)	(1.8%)
3. Culture		
Children	6 hours 30 minutes	
Documentary	3 hours 10 minutes	
Current Affairs	3 hours 35 minutes	
Religion	2 hours 25 minutes	
(Sub-total)	(15 hours 40 minutes)	(26.2%)
4. Entertainment		
Musical	6 hours 55 minutes	
Drama	4 hours 20 minutes	
Others	6 hours 10 minutes	
(Sub-total)	(17 hours 25 minutes)	(29.1%)
Grand Total	59 hours 55 minutes	100%

The proportion of the self-production programmes are well balanced. If the programmes are classified according to the language in use, the percentages of each group to all the broadcasting time are as follows:

Sinhala	38.0%
Tamil	7.9%
English	54.1%

The percentages of the domestic-produced programmes (self-produced programmes and programmes produced by other domestic organizations, a movie company, for example) are as follows:

Sinhala	68.1%
Tamil	14.1%
English	17.8%

The ratio of the broadcasting time of the domestic-produced programmes to all the broadcasting time is 55.8% and that of the self-produced programmes is 44.8%.

(5) Condition of use of Studio

At present, there are a 200 sq. mts.-class studio, a 100 sq. mts.-studio, a dubbing studio and a main control room.

The 200 sq. mts.-class studio is used for recording rather big entertainment and culture programmes, such as drama, music, quiz, etc., and the 100 sq. mts.-class studio is used for recording educational programmes and round-table talk programmes and live broadcasting of news programmes.

Both are used at a very high frequency and sometimes the staff must wait for their recording turns. The dubbing studio is also used very frequently, reflecting the characteristics of a multi-language nation. The following table shows the time when the studios are in use during one week from February 12, 1984.

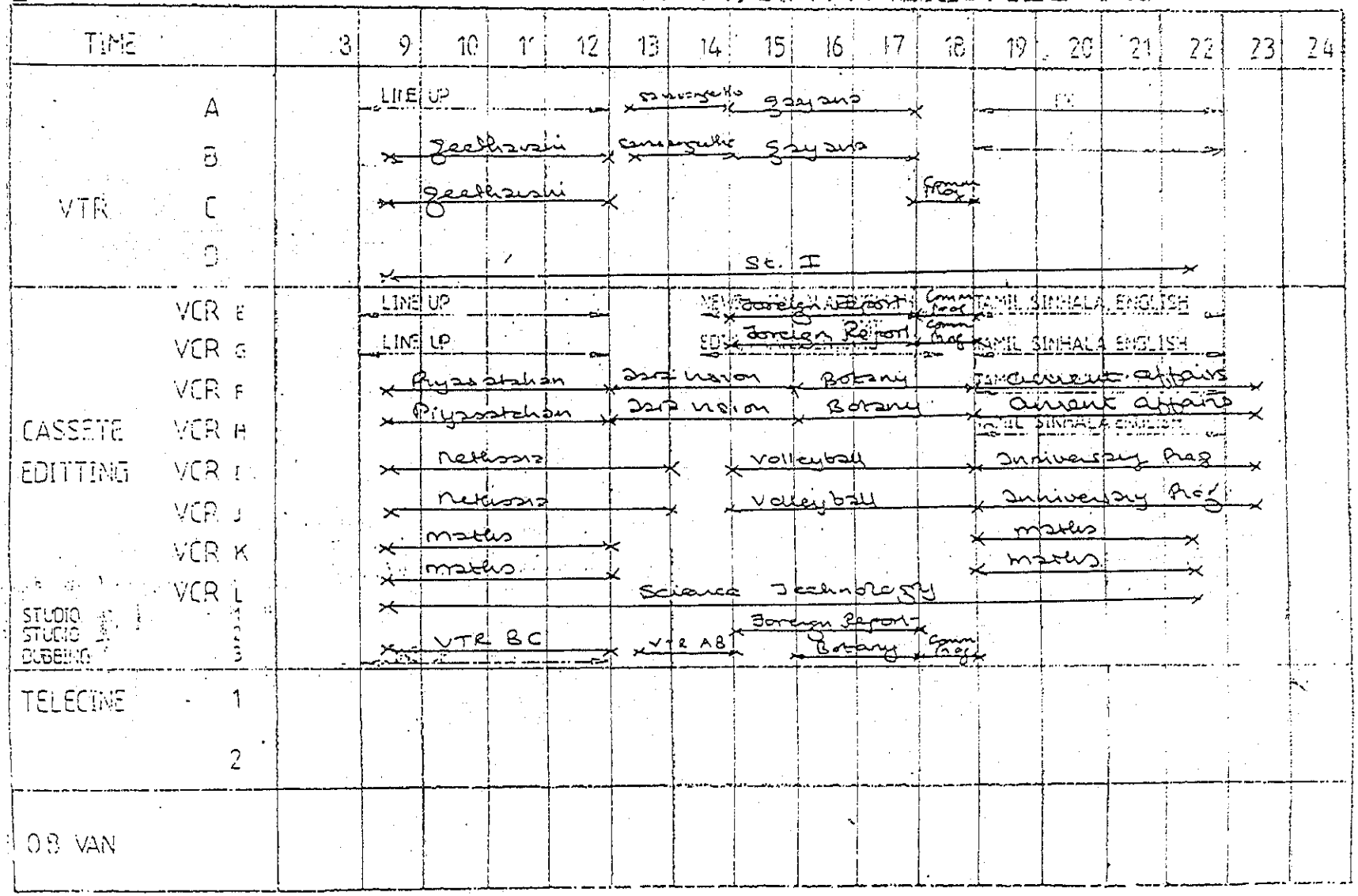
Date	200sq.mts-class studio	100sq.mts. -class studio
February 12	13 hrs. 30 min.	14 hrs. 15 min.
13	12 hrs.	9 hrs. 45 min.
14	12 hrs.	9 hrs. 45 min.
15	13 hrs.	13 hrs. 15 min.
16	12 hrs.	9 hrs. 45 min.
17	6 hrs. 30 min.	9 hrs. 45 min.
18	12 hrs.	14 hrs. 15 min.

As an average, the studios are in use for about 11 hours and 30 minutes per day. This means that the staff of the studios work from 8:30 to 20:00, near to the limit of their abilities. In addition, the small scale of the studios degrades efficiency. The following figure shows an example of the studio in use for a programme production. As shown, in case of music programme and drama, the set is built in two instalments, while the recording is suspended. The wider a studio becomes the more sets can be built simultaneously and resulting in a more efficient recording. The editing equipment installed in the master control room is also used at a considerably high frequency, and the other equipment, too.

Especially, the ENG equipment is used every day for news material collection and educational programmes. The figure on the next page shows the condition of use of the editing equipment. The maintenance of the equipment is carried on by the staff of the SLRC, while the maintenance of the buildings are carried on by the special staff of an outside company. All are maintained very well.

AN EXAMPLE OF THE STUDIO IN USE FOR PROGRAMME PRODUCTION

ALLOCATION OF M.C.R. FACILITIES DATE



THE CONDITION OF USE OF EDITING EQUIPMENT

(6) Training of the staff

The SLRC positively carries out training of the staff to raise their quality, increase special knowledge, advance the technics and improve the working system. The training is carried out in Sri Lanka or in foreign countries with the aid of the following organizations. For example, two experts from JICA are now stationed to carry out training at SLRC.

1) Japan International Cooperation Agency (JICA)
2) Canadian International Development Agency (CIDA)
3) Asia-Pacific Institute for Broadcasting Development (AIBD)
4) Fredrich Ebert Stiftung (FES)

The Sri Lanka Television Training Center is now being constructed near the SLRC by the FES, SLF (Sri Lanka Foundation) and SLRC, reforming the existing building of the SLF. A TV studio for training, class rooms, a library, etc. are installed in the Center. It will be completed by April, 1984. After completion, two experts from the FES will come for 2 years training Sri Lankans as a temporary measure.

(7) Poor reception in recesses of mountains

Presently broadcasting waves are transmitted from the top of Mt. Pidurutalagala, the highest mountain of Sri Lanka, located slightly to the south of the center of Sri Lanka. The wave transmitted from this point can cover radius of within 200 km, as it is surrounded by big and small mountains and hills causing poor reception in some areas. Within these poor reception areas, some cities, having rather high population densities, Ratnapura and Badulla for example, are included and the people living in these cities complain of poor reception.

2-3 Present Situation and Future Prospects of Educational TV Programmes

Regular educational broadcasting began on May, 1983. However, Sri Lanka has an expansion plan for educational programmes, based on the result of the current broadcasting. The present situation and future prospects of the educational programmes are described below.

(1) Target of the programmes

In the existing educational system, the 11th and 12th grades are called the A level (Advanced Level) and the 9th to 10th grades are called the O level (Ordinary Level), and the students take the G.C.E. examinations at the end of each level. The present educational TV programmes are intended for the A level and science course students. There are 465 schools all over the country where these kind of students attend. The number corresponds to only 5% of all schools. The Ministry of Education has supplied all of these schools with TV receiver sets. These schools are limited in number because there are not enough teachers (less than 2% of all the teachers) nor laboratory equipment and materials for the A level science courses. The other reason is that only 10% of the schools have electric power supply. Thus the above mentioned schools are appropriate as the object.

CLASSIFICATION OF TARGET SCHOOLS FOR ETV

DISTRICT	CLASSIFICATION			TOTAL
	Sinhalese	Tamil	Multiple	
Colombo	31	3	11	45
Homagama	10	-	-	10
Gampaha	19	2	2	23
Minuwangoda	17	1	1	19
Kalutara	19	5	1	25
Kandy East	8	4	-	12
Kandy West	17	1	6	24
Matale	8	1	1	10
Nuwara Eliya	6	1	1	8
Galle	30	-	1	31
Matara	24	1	-	25
Tangalle	9	-	-	9
Jaffna	1	48	-	49
Mannar	-	6	-	6
Vavuniya	1	3	-	4
Mullaitivu	-	3	-	3
Batticaloa	-	8	2	10
Amparai	3	-	-	3
Kalmunai	-	13	-	13
Trincomalee	3	7	2	12
Kurunegala	16	1	-	17
Kuliyapitiya	8	1	-	9
Nikaweratiya	6	-	-	6
Puttalam	2	3	1	6
Chilaw	10	2	-	12
Anuradhapura	7	2	-	9
Polonnaruwa	3	-	-	3
Bandarawela	18	2	1	21
Moneragala	3	-	-	3
Ratnapura	15	2	-	17
Kegalle	17	4	-	21
(TOTAL)	311	124	30	465

(2) Broadcasting programmes

There are only science, mathematics and English programmes broadcasts because the target of the broadcasting is limited to the A level science course students. The first half of the broadcasting time is a programme for English, based on skits and rebroadcasting of the news in English once broadcasted on the previous day. The programme is very useful for learning live English. The latter half is a science programme. On Mondays, zoology or botany for Sinhalese students are broadcasted alternately every two weeks; on Tuesdays, the same for Tamils; on Wednesdays, chemistry or physics for Sinhalese; on Thursdays, again the same for Tamils; on Fridays, mathematics and applied mathematics are broadcasted alternately for Sinhalese or Tamils.

WEEKLY SCHEDULE ON EDUCATIONAL PROGRAMME

Week / Hours	Monday	Tuesday	Wednesday	Thursday	Friday
10:00 - 10:15	English On we go	English On we go	English Sadrina Project	English Sadrina Project	English On we go
10:15 - 10:30	News- English				
10:30 - 10:55	Additional Programme				
11:00 - 11:20	Zoology (Sinhalese)	Zoology (Tamil)	Chemistry (Sinhalese)	Chemistry (Tamil)	Pure Maths App. Maths (Sinhalese)
11:30 - 11:50	Botany (Sinhalese)	Botany (Tamil)	Physics (Sinhalese)	Physics (Tamil)	Pure Maths App. Maths (Tamil)
12:00 - 12:20	Zoology (Sihalese) Repeat	Zoology (Tamil) Repeat	Chemistry (Sinhalese) Repeat	Chemistry (Tamil) Repeat	Pure Maths App. Maths (Tamil) Repeat
12:25 - 12:45	Botany (Sinhalese) Repeat	Botany (Tamil) Reoeat	Physics (Sinhalese) Repeat	Physics (Tamil) Repeat	Pure Maths App. Maths (Sinhalese) Repeat

These programmes are produced by the CDC (Curriculum Development Center) of the Ministry of Education and the SLRC.

The Centre is engaged in research and study, drawing up of the courses of study and training of teachers. The CDC writes scripts of the programmes and the SLRC produces and broadcasts them. The teachers of the CDC give classes in the TV programmes. The programmes are of a typical direct-instruction type, taking just the same method as in a class room. The quality and method of the programmes will be controverted in the future. At present, they are producing programmes for broadcasting over 2 years: that is, 4 subjects x 8 programmes x 3 terms x 2 years x 2 languages = 384 programmes of science, and 2 subjects x 4 programmes x 3 terms x 2 years x 2 languages = 96 programmes of mathematics; in total, 480 programmes. All the programmes will be completed in April, 1985.

3) Evaluation

As the educational programmes just began, the evaluation has not been concrete. Full research and study on the programmes will be carried out in the future. For the moment, the ETV programmes division of the SLRC made an research during the period of experimental broadcasting in October and December, 1982. The following table shows the classified answers to the questionnaire asking the impression of the programme, according to the subject.

OVERALL ASSESSMENT OF ETV PROGRAMME BY STUDENTS AT EACH SUBJECT

Subjects / Assessment	Chemistry	Physics	Zoology	Botany	Pure Maths	App. Maths
Very Good	26.4%	16.5%	23.5%	27.8%	30.4%	27.6%
Good	51.6%	47.5%	54.5%	52.8%	53.0%	48.7%
Fair	19.8%	26.2%	19.5%	17.2%	15.0%	19.0%
Poor	1.9%	7.5%	1.7%	1.8%	0.8%	4.4%
Very Poor	0.3%	2.3%	0.8%	0.4%	0.8%	0.3%

The students had favorable impression on every subject and the programmes appeared welcome. Professor Mizukoshi of Osaka University who has taught at CDC, as an expert dispatched from JICA, also made a comparative study on the audiovisual abilities of the students last year and a favorable result has been obtained as well. This is a hopeful material for development of educational broadcasting.

2-3-1 Future plans

The Sri Lanka Broadcasting Corporation is planning to expand the present educational broadcasting to broadcast formal programms aimed at students of every academic level and non-formal programmes aimed at the general public. The plan is summarized as follows:

Phase I : 1984 - 1985 -1986

1. Formal Education :
   a. A/L Physics, Chemistry, Biology, Zoology, Pure and Applied Maths
   b. Piloting of A/L Geography, Economics, Computer Education.
2. Non Formal Education
   a. News for Young People
   b. Piloting of Integrated Aesthetic programmes for pre-school children.

Phase II : 1985 - 1986 - 1987

1. Formal Education
   a. Telecasting of A/L Geography, Economics, Computer Education
   b. Piloting of English Programmes for Grades 6/7 accent on spoken English
   c. Piloting of limited Secondary Maths/Science programmes.
2. Non Formal Education
   a. News for Young People
   b. Magazine Programmes in Health and Nutrition.
   c. Programmes in Aesthetics - involving the community and village.

Phase III : 1987 - 1988 - 1989

1. Formal Education

   a. Piloting of Grades 9 /10 Science/Maths.

   b. Telecasting English Programmes for Grades 6/7.

   c. Telecasting of Grades 6/7 Maths Programmes.

2. Non Formal Education

   a. Telecasting News for Young people.

   b. Aesthetics - Programmes in Drama

   c. Programmes in Population Education.

   d. Special Programmes for University viewers (General topics).

Phase IV : 1989 - 1990

1. Formal Education

   a. Telecasting of Science and Maths for Grades 9 / 10 .

   b.Piloting of English programmes for Grades 8/9.

   c. Telecasting of Maths programmes (Grades 6/7).

   d. Piloting of Social Studies (Grades 6/7).

2. Non Formal Education

   a. News Magazine Programme for Young People.

   b. News for Young Children.

   c. Programmes for Special viewers, e.g.: Mahaweli, New Housing Projects.

   d. Piloting programmes for Universities (Specializing in various subjects areas, according to the needs prevailing).

Phase V : 1990

Commencement of the educational programmes broadcasting by using separate TV channel.

In Japan, experimental broadcasting of educational programme at NHK TV, has been carried out at the same time as general programmes, when experimental broadcasting was expanded in 1951. In 1953, regular broadcasting started and then, in January 1959, a separate educational channel started service. The above mentioned plan by the SLRC is similar to the past process of NHK.

CHAPTER 3 BASIC PLAN

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3-1 Objective of the Plan

In order to improve the level of education and culture, extension of TV studio will be planned to increase broadcasting time of educational programmes and to develop the quality of the programmes and to acquire sufficient broadcasting equipment, including VTR editing equipments and system converters. Furthermore, installation of transposer stations will be planned to eliminate a part of the poor reception areas on the principle of equal opportunity of education.

3-2 Programme Production Plan and Additional Studio

The SLRC has a plan for broadcasting expansion to produce five 20-minutes ETV programmes a week and to produce various non-formal programmes including drama, etc. as well.

Broadcasting time of general programmes is planed to be prolonged to 7 hours a day, of which 60% to be covered by self-production.

JICA team studied the production plan to work out the number of studios required. In the following table of programme production plan, formal and non-formal ETV programmes are arranged according to the plan of SLRC, and as for general programmes, the numbers indicated in parenthesis are of the plan of SLRC and those outside the parenthesis are of the arranged one in this study.

To decide the number of studios, the Studio Occupation Factor, S.O.F., relative to the complexity of the programme, the number of the sets, the operatability of the equipment and the technical level of programme production, etc. is used for calculation. (S.O.F. = time during which the studio is occupied for programme production / broadcasting time of the programme). The S.O.F. is determined by analyzing the present condition of use. The time of use of the studio per day is set to 14 hours and 30 minutes (from 8:30 to 23:00) at maximum. The result is that the studio is occupied for 31,540 minutes a week, that is, for about 75 hours a day. If it is used for 14 hours and 30 minutes a day, 6 studios will be necessary.

Programme	Broadcasting Hours (Minutes)	Times per Week	Numbers of Performers	Numbers of Sets	S. O. F.	Studio Occupation Hours		
						Studio 1	Studio 2	New Studio
1. Formal ETV	20	5	1- 2	1	10		1000	
2. Non-Formal ETV								
News for Young People	15	21	1	1	3		945	
Children's Programme	30	2	20-40	2- 4	25			1500
Aethetics Programme	30	1	1- 2	1	15		450	
University Programme	30	1	1- 2	1	10		300	
Current Affairs	30	1	1- 2	1	5		150	
Drama	30	1	10-25	2- 4	30			900
3. General TV								
Cultural Dance	30	2 (4)	10-20	1- 2	20	1200(2400)		
Musical Shows	15	1 (2)	10-20	1- 2	20	300 (600)		
- do -	30	2 (4)	15-25	1- 2	20	1200(2400)		
- do -	60	1 (2)	20-40	2- 4	20			1200(2400)
Drama	30	1 (4)	10-15	1- 2	30	900(3600)		
- do -	60	1 (1)	20-40	2- 4	30			1800(1800)
Children's Programme	30	0 (8)	20-40	1- 2	25			(6000)
Youth Programme	30	1 (2)	10-20	1- 2	15	450 (900)		
Classical Music	30	2 (4)	10-20	1- 2	20	1200(2400)		
Quiz Programme	30	1 (2)	20-30	1	20			600(1200)
Discussion	15	2 (2)	2- 4	1	5		150 (150)	
News	30	21 (21)	1	1	3		1890(1890)	
Current Affairs	20	2 (4)	2- 6	1- 2	5		200 (200)	
World News Headlines	5	7 (7)	1	1	3		105 (105)	
Foreign Report	10	1 (1)	1	1	5		50 (50)	
		Weekly Studio Occupation Hours (Minutes)				5250(12300)	5240(5440)	6000(13800)
		Daily Studio Occupation Hours (Hours)				12.5(29.2)	12.5(13.0)	14.3(32.9)

If the plan is drawn up with the objective of substantial educational programmes, a new 400 sq. mts. studio is sufficient to meet the demand of SLRC. This studio also enables producing more general programmes: 10 hours or so of self-produced programmes a month and larger programmes than before, even they are not sufficient.

3-3 Poor Reception Improvement Plan and Transposer Stations

To solve the poor reception problem, the SLRC has made investigation, which was traced and restudied by JICA team on Ratnapura and Badulla areas, both including large cities. At some schools TV programmes were quite invisible on the screen or only images with much noise were observed.

Suriyakanda and Namunukula were proposed as transmitting points by the preexamination of SLRC and after the propagation test on location and map survey, both locations were found appropriate for the following reasons.

(1) Access road and city power line to the existing P & T radio station are available.

(2) The signal from the key station (Pidurutalagala station) can be received in good condition. (line of sight)

(3) Wide service area can be obtained because of high altitude.

If both stations are newly installed, the area in which TV programmes are available will increase by 27.4% (in dimensions), by 40.5% (in population) in Ratnapura and by 3.6% (in dimensions) and 39.5% (in population) in Badulla. However, the hilly country may still prevent some pocket areas from TV receiving. For these areas, including the areas investigated this time and those excluded from this plan, further investigation in details should be made and service with transposer stations on a small scale or cable TV should be studied.

CHAPTER 4 GENERAL CONDITIONS OF THE PROJECT SITES

CHAPTER 4 GENERAL CONDITIONS OF THE PROJECT SITES

4-1 Number of the Project Sites

Proposed sites for the constructions covered by the Project are 3 in number and as follows.

(1) Proposed site adjacent to the existing facilities of SLRC's Colombo Studio Centre in the capital city, for the construction of additional TV studio for educational programme.

(2) Proposed site at Suriyakanda for the construction of a transposer station for improvement of the TV receiving conditions of the existing shadow area in Ratnapura District.

(3) Proposed site at Namunukula for the construction of a transposer station for improvement of the TV receiving conditions of existing shadow area in Badulla District.

4-2 Proposed Site for the Additional TV Studio for Educational Programme

4-2-1 Situation of Site, etc.

(1) Situation

Proposed site for the construction of the additional TV studio by the Project is a part of a land that adjoins northwardly to the existing Colombo Studio Centre. The existing Colombo Studio Centre locates at the northeastern corner lot at the intersection of Torrington Avenue and Baudahaloka Mawatha and is situated in lat. 06° 54'06" N and long. 79° 51'53" E. The lot number is Independence Square, Colombo 7. The site is 4 - 5 kilometres off the commercial centre areas of Fort and Pettah, however, it is situated almost at the centre of the city area and has a suitable environment. There are in the neighbourhood Independence Memorial Hall, Bandaranaike Memorial International Hall and other public buildings.

A building of 2 storeys (3 storeys in future) as a new office block is now being constructed in the present estate of SLRC.

(2) Access

Two roads which run along the SLRC's site are principal avenue and street of the city, making traffic to and from other areas very easy. Traffic congestion does not happen even in the rush hours.

The nearest railway station is Bambalapitiya, which is 5 km away from SLRC. There will be few problems in transport of goods and materials during the construction period.

4-2-2 Natural Conditions, etc.

(1) Climate

Noticeable climatic features of Sri Lanka are the small annual range of the monthly mean air temperature at every part of the country and marked variations of rainfalls by month and also by district.

Land can be roughly divided into three climatical zones as northeastern dry low country, southwestern wet-low country and central wet-high country.

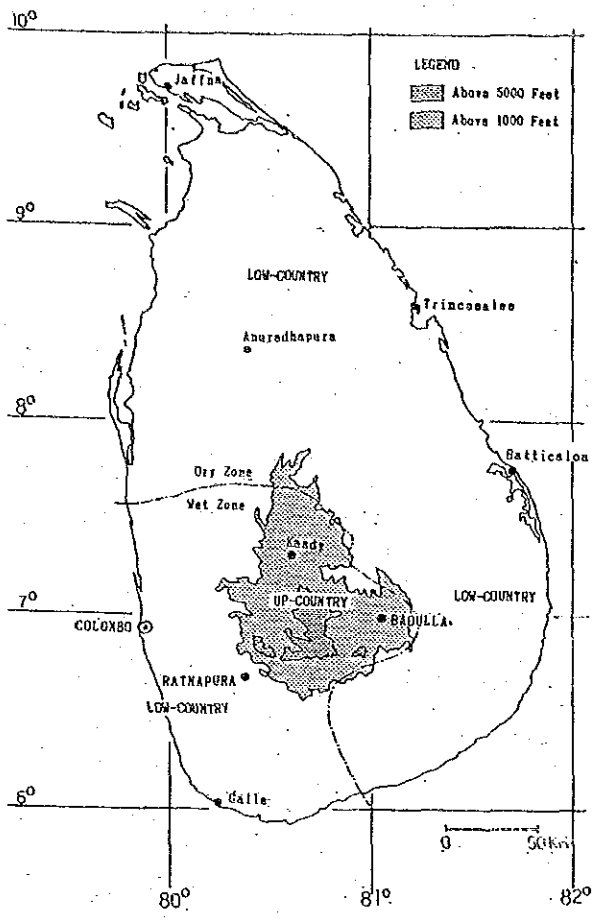
Those zones are the results of topographical features of the land and influences of the monsoons.

Northern half of the land is flat and central area of southern half is a mountainous country of 1,000 -2,500 m (ASL) surrounded by the coastal plains.

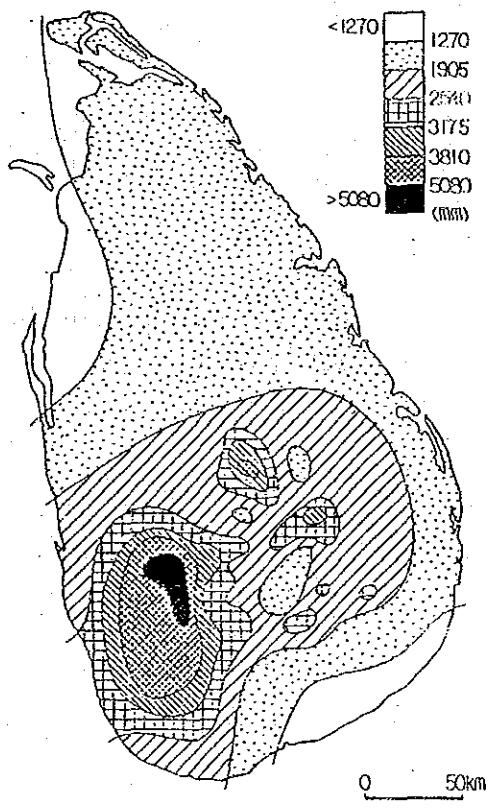
The southward advance of the equatorial air mass from November to March causes the north-east monsoon and the northward advance of the equatorial air mass from May to September causes the south-west monsoon.

Climate of Colombo; Colombo located on the southwestern coast in the wet-zone, has the annual mean temperature of 27°C with minimum mean temperature of 23°C in December, January and maximum temperature of 32°C from March to May. Average of total annual rainfall is approximately 2,400 mm. It has the heavy rainfalls from

CLIMATIC & TOPOGRAPHICAL ZONES



ANNUAL RAINFALL
(Average from 1911 to 1940)

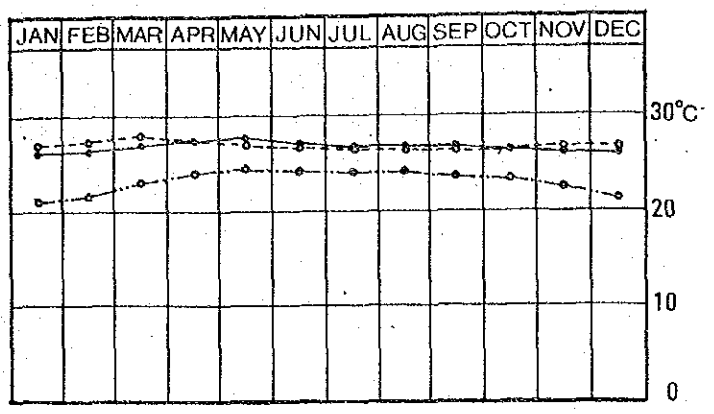


METEOROLOGICAL DATA

OBSERVATORIES

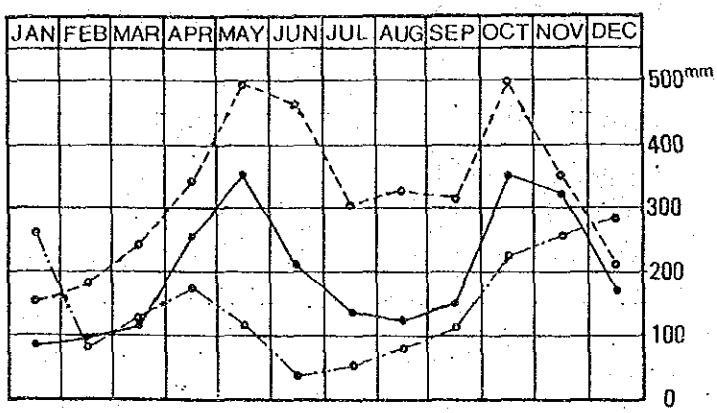
	Location	Elevation
Colombo	: 06° 54'N—79° 52'E	6m A.S.L.
Ratnapura	: 06° 41'N—80° 24'E	46m A.S.L.
Badulla	: 06° 59'N—81° 03'E	667m A.S.L.

TEMPERATURE
Average of daily mean



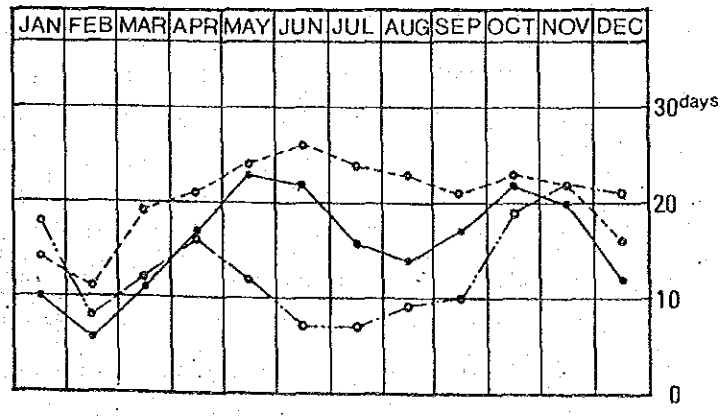
—— Colombo (Average from 1931 to 1960)
- - - - Ratnapura (Average from 1931 to 1960)
—·—· Badulla (Average from 1927 to 1958)

RAINFALL



—— Colombo (Average from 1931 to 1960)
- - - - Ratnapura (Average from 1931 to 1960)
—·—· Badulla (Average from 1911 to 1940)

NUMBER OF DAYS WITH RAINFALL EXCEEDING 0.25mm



—— Colombo (Average from 1931 to 1960)
- - - - Ratnapura (Average from 1931 to 1960)
—·—· Badulla (Average from 1911 to 1940)

April to May and also from October to November, and the light rainfalls from January to February. The maximum rainfall during 24 hours ever recorded from 1931 to 1970 is 290 mm. Mean relative humidities are about 70 -80% in the daytime and raise up to about 85 - 93% at night through the year.

Heavy lightning occurs frequently during the active seasons of the monsoons.

(2) Earthquake

Sri Lanka locates out of the earthquake zones of the world. Reviewing the past records, it is not necessary to take earth tremor into consideration when doing structural calculations.

(3) Land Features

The land for the Project is adjoining to the estate of the existing SLRC's buildings as shown on the site layout plan of the basic drawings.

The land is nearly square with about 121m in width, 133 -143m in depth, and some 16,500 sq.mts in area.

Elevation of the land surface is several ten centimetre lower than that of Torrington Avenue.

There are some fill-up parts and also ditches within the land, however, the land surface can be said almost flat.

JICA team established a limited plot within the available land mentioned above as the construction site for the Project (hereinafter refer to as the Site).

The Site is bounded by a temporary border line settled in parallel and 38mts apart from the existing temporary border line provided with barbed wire fence.

The elevation of the Site surface is almost the same to that of the exterior area of the existing building works. The Site is left as it is without any effective drainage of rain and underground water and covered with wild grass.

As the elevation of the ground floor of the newly planned building can not be allowed to be raised so high

against the situation of the existing building, the drainage system of the site must be carefully designed.

(4) Subsoil Conditions

No investigation of the subsoil of the Site has been made for the Project. Presuming from the results of the subsoil tests for the construction of the existing studio building and of the new office block under construction the subsoil conditions of the Site may not be so good. The subsoil at the above mentioned test area has a layer at the depth of about 1.5m that has the bearing strength to a certain extent. The thickness of this sandy soil layer is about 4 - 5m however, this varies from one test bore to the other and the layers thereunder are soft and do not have enough bearing strength.

The report of a plate loading test for the construction of the existing studio building presumes that a foundation 4m wide should sustain settlements of less than 25mm.

A civil engineer of SLRC also considered that the subsoil conditions of the Site are the same as those of the existing site.

(5) Obstructions

At present, there are some obstructions in the whole land procured for the Project.

Several small buildings of Transport Division of SLBC occupy the northwest corner, and a sub-station of Ceylon Electricity Board (CEB) and a few temporary private shops stand along the Torrington Avenue. These buildings except the sub-station are planned to be removed. There are no trees in the site area that can not be cut down.

The sub-station is a single-storeyed small building; approximately 82 sq.mts in floor area, and built in a plot land of about 200 sq.mts in area 10.3m apart from the temporary boundary of the existing premises of the SLRC.

4-2-3 City Facilities

(1) Power Conditions

The Ceylon Electricity Board is responsible for the supply of electrical power in Sri Lanka with an installed capacity of 552 megawatts (401 MW hydro power). Hydro power projects are in hand to increase the installed capacity by 481 MW in total at Victoria, Kotmale, Randenigala, etc., and the CEB is also promoting installation of solar powered units in villages not provided with electrical power to improve the condition. Reliability and voltage regulation of power supply in Sri Lanka are by no means good at present. In some areas, the voltage may vary by ±15% due to heavy demand of electrical power. SLRC Colombo Studio Centre suffered from 2 hours power-cut every day from last November through February however, have received a stable supply in these days.

The power receiving equipment and the transformer provided in Sub-station in the SLRC's premises receives the city power of 3 phases, 3 wires and 11 kilovolts and supply the existing facilities with the power of 3 phases, 4 wires and 400/230 volts. The power equipment is controlled and maintained by the CEB.

As the existing transformer and the sub-station hut do not have enough spare capacity, another sub-station and a transformer are to be provided for the Project.

(2) Telephones

MDF (Main Distribution Frame) installed in the existing studio building has the extra capacity enough for distributing the new lines to the new building.

(3) Water

The existing buildings are supplied with city water. The water is received in an underground reservoir and pumped up to a high-raised tank and distributed to the terminal fittings. The high-raised tank has enough capacity to supply the new building facilities.

(4) Sewerage

The city sewer main runs under and along both of Bauddhaloka Mawatha and Torrington Avenue. No disposal facility for soiled water and waste water is required in the Site.

4-2-4 Noise Conditions of Surroundings

The Site faces on Torrington Avenue at its eastern part, but at present there is not so much traffic in the avenue as to cause the obstructive noises. However the site is centrally situated at the city, it seems that the circumstances makes the avenue less important for city communication. Bauddhaloka Mawatha runs along the south boundary of the existing premises has denser traffic than that of Torrington Avenue however, there will be no problem of noise as the distance to the Site is over 130m and also existing studio building stands in between.

Outside the north boundary of the land there are buildings of the Sri Lanka Foundation Institute and Training Centre of SLRC (under construction) and outside the west boundary there is a large open space so there is no noise source in both north and west directions.

4-2-5 Conditions relating to Construction Work

(1) Construction Industry

The construction industry has grown at considerable rate until 1980 in private sector, but the pace of its activities has slowed down since 1981.

The relative shares of the gross construction output to GNP were 4.6% in 1978, 5.5% in 1980, 5.1% in 1981 and 4.8% in 1982. The GNP in 1982 was Rs. 89,621 millions. The shares of building construction sector out of total construction output were about 70% in 1978 and around 50% in 1982. This declining trend was mainly due to the fast growth of civil engineering activities including the Mahaveli Programme.

Construction costs rose quickly and reached a peak in 1980. Since them, costs have increased at a lower rate. Annual rise of costs of all construction activities and of non-residential buildings from 1980 to 1982 were as follows:

All Construction Activities	30%, 16%, 7.3%
Non-Residential Buildings	31%, 16%, 7.3%

(2) Contractors, etc.

In Sri Lanka, many departments, authorities and corporations under the ministries plan and design the construction projects in public sector and sometimes they supply themselves with the construction materials and/or equipment and manage the construction directly. Such corporations and their likes have been equipped with construction equipment to some extent and are capable of executing fairly large scale works, but they do not take on the works of the private sector. On the contrary, the contractors of the private sector are not well equipped with construction equipment, although they do large scale works to a extent including public works but their work is inefficient.

As Sri Lanka has received a good deal of aids for construction programmes from foreign countries and international organizations, many construction works are being executed by foreign contractors or contractors jointed with foreign companies.

There are number of speciality contractors in building equipment installation, however, most of them inexperienced in high technical works.

Frankly speaking the level of construction of domestic contractors are not high enough to be able to construct buildings which have severe qualitative requirements and limited construction periods, however, a few domestic contractors can be expected to do well as a subcontractor under an experienced Japanese contractor for the Project.

(3) Building Construction Methods and Materials

In Sri Lanka main members as foundations, columns, girders and floor slabs of ordinary buildings except those of small houses are constructed of reinforced concrete and walls are mostly built by brick masonry. Roofs are usually covered with corrugated asbestos-cement sheets or clay roof tiles on pitched wood-frames or pitched steel-frames according to the scale of roof spans. Sometimes foundations of small building are constructed by small masonry. Small houses are almost always of brick masonry.

There being no earth tremors in Sri Lanka, the structures of buildings look very slender. Building construction works are executed mainly by manual labor. The lack of mechanical power, shortage of skilled technicians and laborers and unsteadiness of supply of some building goods and materials are very serious problems of this sector and often cause the delay of scheduled times of completion.

Principal building materials are available in the local market, however, it seems that some of them lack the qualities required for the Project and steadiness in supply.

Wooden doors and windows are used for most buildings.

High-grade metal doors and windows, high-grade finishing materials and building equipment are imported.

Local timber is of tropical hardwoods and are very solid and suitable for materials of furniture but not so good to be used as building materials as it is too hard for carpentry. Local timber of large sizes in section and in length are not available. Imported timber such as Kempas from Malaysia are also used.

Clay roof tiles of red tint is the most popular and traditional roofing material. These are usually laid on wood purlins but sometimes used as decorative covering on corrugated asbestos-cement sheet roofing or on metal roofing.

(4) Building Law, Regulations and Standards

The most related law/regulations for the Project is the UDA Planning and Building Regulations-1983 based on the Urban Development Authority Law No. 41 of 1978. The Regulations provide detailed rules as to submission/permission of plan of land use and building installation, restrictions and standards on and of urban planning and building planning, and also on building equipment systems. The Regulations, however, do not provide concrete rules on special buildings as TV studio and on building equipment systems of high-grade. Those matters are the subjects of the individual investigation of the authority. It seems that the Regulations do not effect greatly on the Project.

As to the standards of materials and engineering the Regulations do not provide concretely but indicate that the standards approved by the authority could be applied. Generally, British Standards (BS) are applied and Ceylon Standards (CS) are also adopted in the specifications on material for public works. As to the construction works aided by foreign countries or designed by foreign consultants/engineers, the standards of the related country are applied in general.

Basically the plannings and designs are to be executed by the qualified architects and/or engineers on their responsibility.

4-3 Proposed Sites for Construction of New Transposer Stations

4-3-1 Situation of Site, etc.

(1) Situation

1) Suriyakanda Transposer Station

Proposed Site is situated on the peak of Suriyakanda of 1,310m in height (A.S.L.), where is about 36km southeast apart from Ratnapura City and in lat. $06^{o}26'24"$ N and long. $80^{o}37'07"$ E.

The site is planned to be placed west about 200m away from the existing P&T's microwave relay station on the same peak. The required land lot for the site is of 18m by 12m, that is 216sq.mts in area.

2) Namunukula Transposer Station

Proposed site is situated on the peak of Namunukula of 1,680m in height (A.S.L.) where is about 10km southeast apart from Badulla City, and in lat. 06°54'33" N, long. 81°06'13". The site is to be placed northwest about 200m away from the existing P&T's microwave relay station on the same peak. The required land lot is of 18m by 10m, that is 180sq.mts in area.

On condition that the transmitting aerials will be able to be mounted on the existing steel antenna tower of P & T, the whole facilities of the transposer station will be planned to be installed in the ground of the microwave relay station.

(2) Access

Main road from Colombo to Galle via Ratnapura and Pelmadulla passes by the east side of the site of Suriyakanda Transposer Station.

Main road runs from Colombo to Badulla via Ratnapura and Bandarawela, and further a main paved road of 5m in width passes near the site of Namunukula Transposer Station. At either site, an access road from the public road above-mentioned to the P&T's microwave relay station is well provided with the maintenance, so the road will have to be extended to the transposer station by about 200m.

4-3-2 Natural Conditions

(1) Land Features etc.

A distinctive land feature of the shadow areas is that many mountains around the Mt. Pidurutalagala form so many folds and undulations. The cities and towns having a large population are situated in such mountain folds.

The mountains block the radio wave transmitted from the Pidurutalagala Transmitting Station and make it difficult for people to enjoy TV broadcast.

The site of Suriyakanda Transposer Station planned on a ridge at the peak having a comparative flat lot of about 20m in width and about 480m in length, where the bush covers the whole area.

The site of Namunukula Transposer Station is also planned on a ridge at the peak having a small flat area of 23m in length, 5m in width at access side and 10m in width at the other side.

(2) Subsoil Conditions

Observation on the cuttings for the access roads near the peaks shows that the subsoil of either site can be presumed to be of residual soil of granite together with rocks of 2 - 3m in diameter.

4-3-3 Infrastructure

(1) Commercial Power Source

There is a P&T microwave relay station near each of the proposed sites.

Both microwave relay stations are being supplied with commercial high-voltage power of 3 phases, 3 wires and 50 kVA.

(2) Others

Both transposer stations are planned to be installed adjacently to the existing P&T's facilities. Of the facilities, access road and main power line at Suriyakanda, and access road, main power line and tower at Namunukula may possible to be utilized for common use. The possibilities of common use of those facilities are to be thoroughly examined with P&T from the viewpoints of systems and expenses of operation and maintenance to lessen the project cost.

4-3-4 Conditions Relating to Construction Work

As to general conditions refer to section 4-2-5. It is already agreed that the construction and/or installation of building, tower and other civil works required for the transmitting stations are to be done by the Sri Lankan side.

The building required is very small, so the construction of the building by a local contractor is possible. As an example, the tower installed recently by ITN shows that some local contractors have enough ability to fabricate and install towers.