BASIC DESIGN STUDY REPORT ON THE PROJECT FOR ESTABLISHMENT OF AUDIO VISUAL EDUCATION CENTRE IN THE OPEN UNIVERSITY OF SRI LANKA

AUGUST 1991

JAPAN INTERNATIONAL COOPERATION AGENCY

BASIC DESIGN STUDY REPORT
ON
THE PROJECT FOR ESTABLISHMENT
OF
AUDIO VISUAL EDUCATION CENTRE
IN
THE OPEN UNIVERSITY OF SRI LANKA

AUGUST 1991

JAPAN INTERNATIONAL COOPERATION AGENCY

PREFACE

In response to a request from the Government of the Democratic Socialist Republic of Sri Lanka, the Government of Japan decided to conduct a basic design study on the Project for Establishment of Audio Visual Education Centre in the Open University of Sri Lanka and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Sri Lanka a study team headed by Dr. Hidetoshi KATO, Director General, National Institute of Multimedia Education, Ministry of Education, Science and Culture, from February 28 to March 24, 1991.

The team held discussions with the officials concerned of the Government of Sri Lanka, and conducted a field study at the study area. After the team returned to Japan, further studies were made. Then, a mission was sent to Sri Lanka in order to discuss a draft report and the present report was prepared.

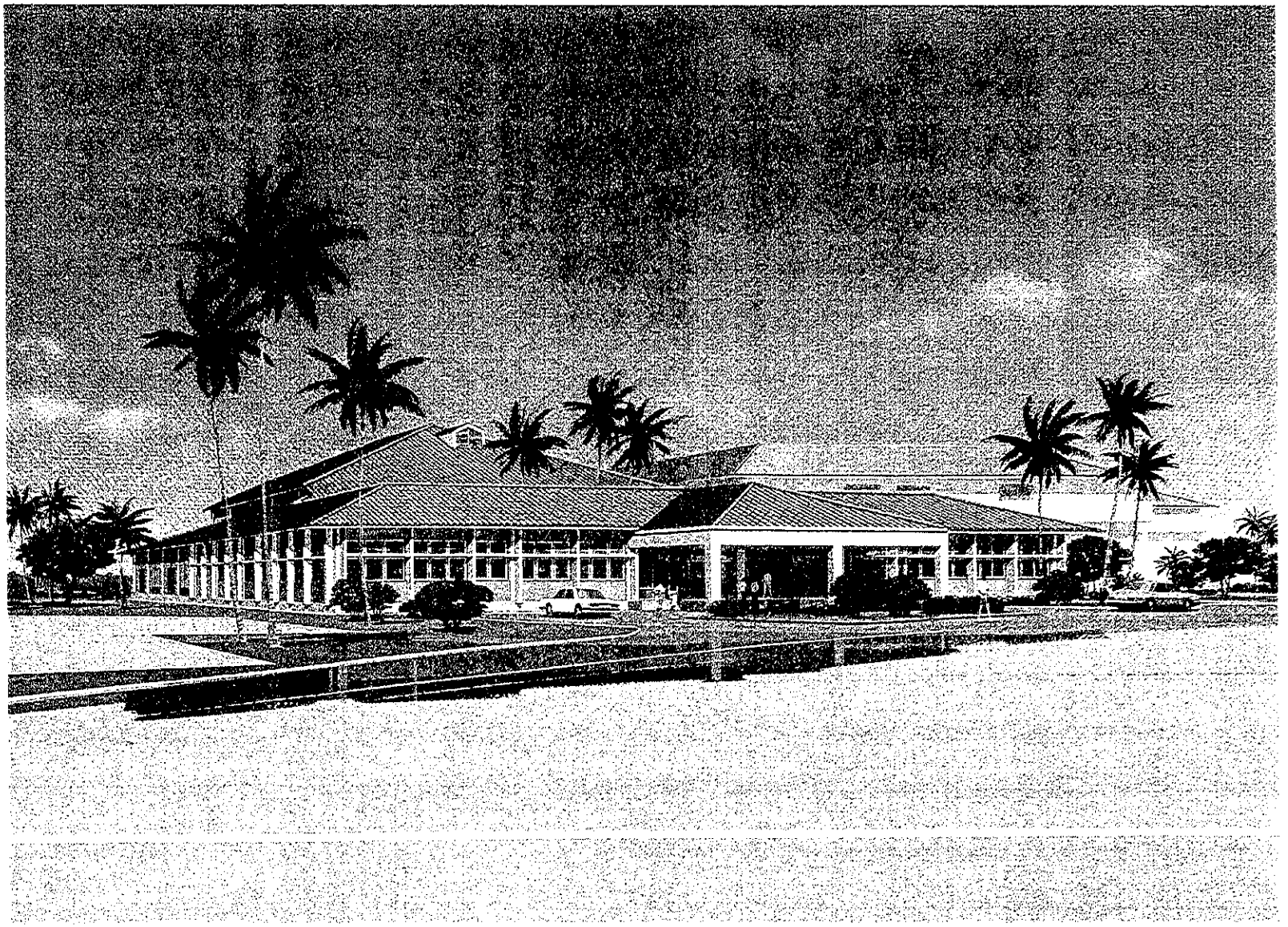
I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

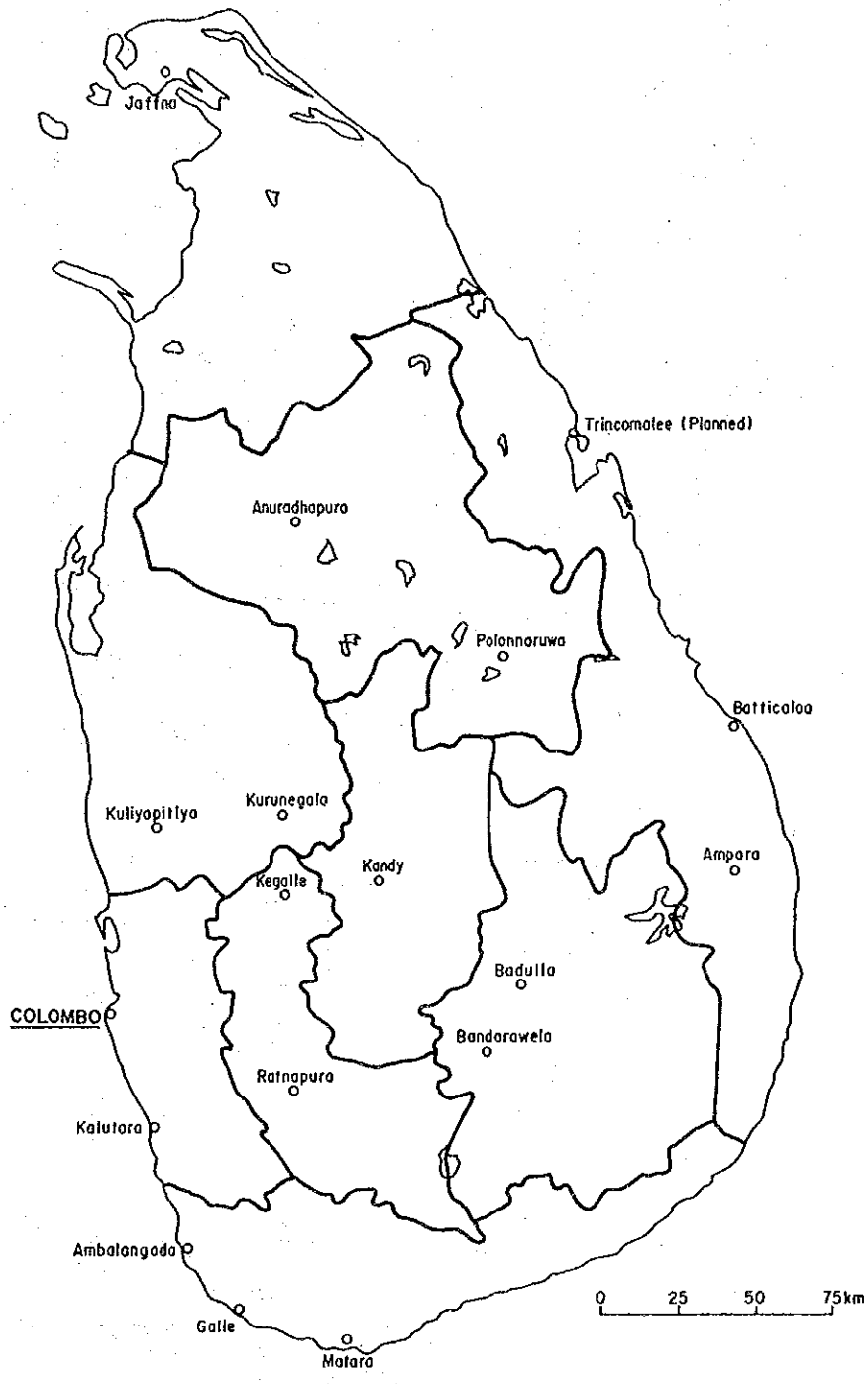
I wish to express my sincere appreciation to the officials concerned of the Government of the Democratic Socialist Republic of Sri Lanka for their close cooperation extended to the teams.

August 1991

Kensuke Yanagiya

Kensuke Yanagiya
President
Japan International Cooperation Agency





LOCATIONS OF THE REGIONAL/STUDY CENTRES OF OUSL
DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA (PROVINCE BOUNDARIES)

MAP OF COLOMBO

SUMMARY

SUMMARY

The Democratic Socialist Republic of Sri Lanka (hereinafter referred to as Sri Lanka) is an island country situated off the southeastern coast of the Indian subcontinent. Since attaining independence from Britain at the end of World War II, Sri Lanka has steadily been tackling the task of nation-building. However, despite its great endeavours, there have been no major changes in the nation's agriculture-based economy, the mainstays of which are tea and rubber. As a result, the nation's GDP continues to grow only slowly.

The Government of Sri Lanka attaches great importance to education, which it recognizes as a means by which the country can be pulled out of its economic recession and national development can be promoted. Hence, the people of this country are exempted from payment of tuitions up to the level of university. As a result of the government's policy on education, substantial achievements have been made, particularly in primary and secondary education. Primary school attendance exceeds 90% and the literacy rate has reached as high as 88.6% (1986/87 survey).

However, owing to the shortage of universities, the gate has perpetually been narrow for the aspiring students to enter the universities that foster human resources to become the nucleus of national development projects. In 1990/91, about 25,600 students passed the examination that qualified them to apply for enrollment in a university. Yet, because there are only eight national universities, only about 9,200 students (compared to about 6,000 students each year up to 1989/90) were admitted. This represents a little more than a third of those who had applied for admission. Further, the figure represents only about 2% of the total number of children who reached school age in the same year (about 25% in Japan). Besides the eight national universities, there are 24 technical colleges, which are considered as higher educational institutions. Nevertheless, even if the number of students admitted to technical colleges are included, the ratio of those who were given the chance of receiving higher education in 1990/91 turned out to be not more than about 6%.

It was, in fact, with a view to providing greater access for those seeking university education that the Government of Sri Lanka in 1980 established the Open University (hereinafter referred to as OUSL) under distance education system.

OUSL accepts applicants aged 18 and over. One of its main features is that it provides university education for a very large number of students through a total of 17 regional/study centres across the country, thereby catering even to those students who live in remote areas. OUSL has three faculties: Humanities & Social Sciences, Natural Sciences and Engineering Technology. It offers various academic courses, from the Certificate Courses (1 year) to Postgraduate Courses (2-5 years). In 1990, about 14,800 students were enrolled. The figure represents about half the total enrollment (about 30,000) at all eight national universities for 1988/89. Since its establishment and up to 1989/90, about 11,500 students have graduated and, variously employed, they are making effective use of the specialized skills and expertise they acquired at OUSL.

Following government approval, OUSL put into motion a plan to increase its enrollment to 50,000 students by the year 2000, already constructing some buildings at the new campus in Colombo. The nucleus of this plan is to be the AV Education Centre.

OUSL uses both printed teaching materials and AV materials, the latter supplementing the former to help improve the students' learning efficiency and levels, especially in the subjects for which audio visual methods are highly effective, such as chemistry experiments and language lessons.

However, the existing OUSL facilities have only two small studios and some superannuated equipment. Consequently, the volume of AV teaching materials produced is so small that the 3 OUSL faculties own only about 240 audio and 70 video tapes. Not a few subjects are taught without. While OUSL has a great desire to increase the quality and quantity of both its output and stock of AV teaching materials in the interests of improving education and catering to the growing student population, the goal is difficult to achieve with the pesent facilities.

The Government of Sri Lanka has, thus, developed a plan to set up an AV Education Centre at the Colombo Campus of OUSL and to increase its stock of AV teaching materials. And it is in connection with this plan that the Government of Sri Lanka has requested Japan to provide Grant Aid cooperation for its implementation.

In response to this request, the Japanese Government decided to carry out the Basic Design Study on the Project for Establishment of Audio Visual Education Centre in the Open University of Sri Lanka and,

accordingly, the Japan International Cooperation Agency (JICA) sent a study team to Sri Lanka for 25 days from February 28 to March 24, 1991.

As a result of the discussions and field survey in Sri Lanka, confirmation has been made of the effects of AV material production on the OUSL education and the ability of OUSL to promote this project and to manage and operate the facilities and equipment. Thus the significance of the project has been acknowledged.

The objective of this project is to enrich OUSL education, by increasing the quality and quantity of the University's stock of AV teaching materials through the establishment of an AV Education Centre. In order to achieve this goal, the following facilities and equipment will be planned.

Facilities	Equipment · Room Function
Production Studio for Video Teaching Materials	Video, audio, lighting and related equipment
Production Studio for Audio Teaching Materials	Audio and related equipment
Audio Dubbing Studio	Audio, video equipment, Tape synchronizing control equipment
Post Production Studio	Video and audio equipment for post production
Editing Room	Editing equipment
Faculty Viewing Room	Relevant equipment
Outdoor Coverage Equipment	Outdoor shooting equipment, Vehicle
Central Equipment Room	Video and related equipment, Time-signal generator
Multiple Cassette Copying Room	Tape-copying equipment
Maintenance Workshop	Measuring instruments and tools

Facilities	Equipment · Room Function
Power Supply Room · Airconditioning Equipment Room	Power supply and distributing equipment, Airconditioning equipment
	Spare parts
Planning Office	To discuss the production policy and the effective use of materials
Producer/Director Room	To make necessary preparations for actual production work
Visual Art Workshop	To make TELOPs, patterns, etc.
AV Library	To keep the original tapes of materials, and to store and supply unused tapes
Technical Staff Room	To conduct technical examinations on production

The equipment planned for each of the 13 Study Centres will be as follows.

13 Study Centres	Video viewing equipment

The project is divided into 2 phases. In the first phase (facilities), it will take 4.5 months for a detailed design and 11 months for construction to be completed. In the second phase (equipment), it will take 3.5 months for a detailed design and 11 months for construction to be completed.

The implementation of the project and the management and operation after the completion will be undertaken by OUSL and an increase of 5 million Rupees for management and operation cost per year will be needed because of increased personnel and maintenance expenses. The amount is equal to 0.59% (1988) of the government expenditure on university education and OUSL has got the approval of UGC for an additional budget allocation.

OUSL is preparing for the implementation of the project with a concrete plan of the management and operation of the AV Education Centre and there seems to be no particular problem about the OUSL's ability to carry out the project and maintain the facilities and equipment.

After the completion of the AV Education Centre, the number of AV materials produced and stored by OUSL will increase substantially. If the project has been smoothly implemented, by the year 2000 which is the goal line of the OUSL's development plan, OUSL will store anew about 600 audio materials, 2.6 times the present number of stored materials and about 500 video materials, 7.5 times the present number of stored materials.

The education provided by the University is expected to improve markedly in quality and quantity, enabling the University to produce many high-calibre graduates who can be instrumental in the nation's development.

The AV Education Centre is also probably to play the role of producing AV materials for the whole higher education in a governmental reform plan of tertiary education in Sri Lanka. The government plans to establish university colleges all over the country, starting 9 colleges in 1991 to begin with, to provide more chances for higher education. The the government plans to run those universities and colleges in a flexible manner, which will utilize AV materials produced by OUSL as a method of education. When the AV Education Centre comes to play the role, its effect will cover the entire higher education beyond the OUSL perimeter.

As above-mentioned, the project will contribute greatly to the development of human resources needed urgently by the nation through AV material production. In all respects, there thus seems to be ample justification for carrying out the project with Grant Aid cooperation from Japan.

Finally, it is recommendable that, in order to ensure more effective use of the AV Education Centre, the training of OUSL personnel be conducted as follows, with Japanese technical cooperation:

(1) That 2 experts (one engineering, one production) be sent from Japan to OUSL for guidance.

(2) That several persons from OUSL who are responsible for the production of teaching materials undergo a short period of production training.

(3) That OUSL consider taking advantage of the Third Country Training Programme in broadcasting sector organized by JICA.

In addition, it is desirable that OUSL send new employees to the SLBC and SLRC training facilities in Colombo for basic production training.

CONTENTS

CHAPTER 1 INTRODUCTION

CHAPTER 1 INTRODUCTION

The Government of the Democratic Socialist Republic of Sri Lanka (hereinafter referred to as Sri Lanka) established the Open University (hereinafter referred to as OUSL) in 1980 to provide the maximum number of people with an opportunity to receive higher education. Offering distance education by such means as home-study using textbooks and AV (Audio Visual) teaching materials, OUSL had a total enrollment of 14,800 students as of 1990.

To further enhance the education it provides, OUSL wished to enrich its AV teaching materials. However, since it has only two small studios (one audio and one video) for the production of those materials and inadequate equipment, OUSL is currently finding it next to impossible to improve either the quality or quantity of its teaching materials.

OUSL plans to increase its student enrollment to 50,000 by the year 2000, for which reason it wishes to improve and expand its AV teaching materials. However, it has been hindered by the inadequacy of its production facilities.

Consequently, the Government of Sri Lanka plans to establish an AV Education Centre to update OUSL's AV material production facilities, and has requested Japan to provide Grant Aid for the establishment.

In response to this request, the Government of Japan decided to carry out a Basic Design Study and, accordingly, the Japan International Cooperation Agency (JICA) sent a study team led by Mr. Hidetoshi KATO, the Director General of the National Institute of Multimedia Education at the Ministry of Education, Science and Culture, to Sri Lanka for 25 days from February 28 to March 24, 1991.

Through discussions with the officials concerned on the Sri Lankan side, the study team grasped the background of the project and contents of the request from the Sri Lankan government and then conducted a survey of the management of OUSL, the condition of the existing facilities and the planned construction site, etc., and also gathered relevant materials.

On the basis of the analyses and studies it conducted of the survey upon its return to Japan, the study team reaffirmed the appropriateness of extending Grant Aid for this project and carried out the basic designing of facilities and equipment that are both necessary and the most appropriate. After the team made the draft final report and a mission was

sent to Sri Lanka in order to discuss it with the Sri Lankan side, this report was compiled to present the outcome of the studies.

Incidentally, the lists of the members of the JICA study teams and the study schedules, the list of the Sri Lankan parties concerned and the minutes of the discussions held are attached to the end of this report as the APPENDIX.

CHAPTER 2 BACKGROUND OF THE PROJECT

CHAPTER 2 BACKGROUND OF THE PROJECT

2-1 Background of the Project

2-1-1 Education System in Sri Lanka

Education in Sri Lanka is mainly composed of the 3 systems which are the School system, the University system and the Tertiary education system, and is under the jurisdiction of the Ministry of Education and Higher Education. Part of the tertiary education is taken charge of by other ministries.

Education starts at the age of 5 and the school system consists of the following 5 levels:

Primary School	5 years
Junior Secondary School	3 years
Senior Secondary School	3 years
Collegiate Course	2 years
University	3-5 years

Besides, there are the technical/vocational education institutions at the collegiate level and the technical colleges at the higher education level.

The above may be illustrated as follows:

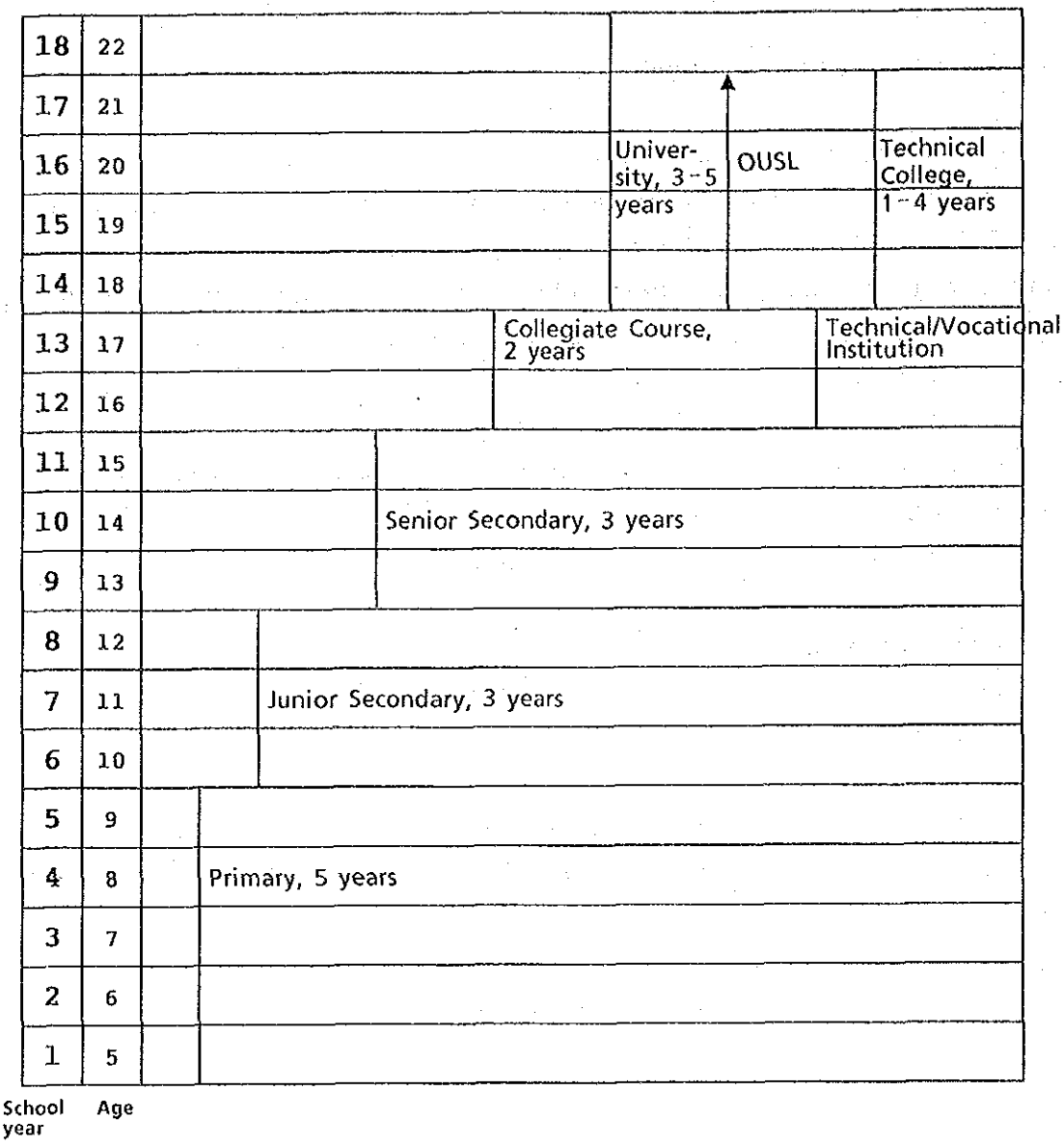


Fig. 2-1 Education System

The Government of Sri Lanka has put great emphasis on education as the foundation of nation-building. For example, in the current expenditure of 1989, the allocation for education is 6,770 million Rupees (12.3% of the total), the second largest to Welfare, 10,149 million Rupees.

Reflecting this government policy, educational institutions are mostly governmental. No school fee is charged and, moreover, since 1989,

lunches are subsidized (3 Rupees per student) under the Janasaviya Programme.

The government has determined 11 years up to the end of the senior secondary level as basic education for all children.

The enrollment rate at primary schools is more than 90 percent, and people's literacy rate is as high as 88.6% (1986/87 survey).

On the other hand, however, there are a considerable number of dropouts in mid-course of schooling owing to various reasons including poverty, notably in plantation regions and urban slums. In 1987, during the 10 school years from the 1st primary school year to the 2nd senior secondary school year, 17% of students dropped out in mid-course. (from the Asian Development Bank-sponsored "Education and Training in Sri Lanka.")

One of the main points in which the educational system of Sri Lanka differs from that of Japan is that, during the period from primary to secondary school years, a nationwide test is given to the students at each of the three stages shown below. Especially based on the test result of the 3rd stage, a strict screening of students is conducted to select those who may be allowed to proceed to universities.

(1) Primary Scholarship Test

This test is conducted at the time the students complete their 5-year education at primary school. If they pass the test, they are given the qualifications to enter any desired secondary school. In addition, the students from poor families become eligible for a scholarship of 100 Rupees (350 Japanese yen, if converted at the rate of 1 Rupee = 3.5 yen). The maximum annual number of students eligible for the scholarship is 5,000 persons but this number is due to be increased fivefold to 25,000 as from 1991.

(2) General Certificate of Education, Ordinary Level (abbreviated as GCE-OL) Test

This is conducted in December of the 11th school year when the students complete their senior secondary course. There will be tests in 8 subjects including mathematics, science and English, and the students will pass the test if they get 55 marks or more respectively in 3 subjects and 40 marks or more respectively in 3 other subjects. Most of the students who have passed the test will prepare themselves

for the test of the next stage at a senior secondary school that has a Collegiate Course. The ratio of successful students is said to be 25% or less. Those who have failed in this test must choose one of the two alternatives; to stay on for another year in order to have one more try at the test or to drop out of the school.

(3) General Certificate of Education, Advanced Level (abbreviated as GCE-AL) Test

This test is conducted in August of the 13th school year when the students are in the Collegiate course. The test is divided into 3 courses, viz., Science, Commerce and Literature. The test is conducted for 4 subjects in each course. The students will pass the test if they get 40 marks or more respectively in 3 subjects and 20 marks or more in one other subject. In the 1989 test, 188,842 students took the test and 37,356 students (19.8%) passed the test. The successful students become eligible for entrance into universities. Those who have failed in the test may have another try at the test.

2-1-2 University Education in Sri Lanka

General education in Sri Lanka has achieved good results in the enrollment rate and literacy rate, while in the field of higher education, the reinforcement of the fostering of human resources is now a problem that needs to be tackled.

Sri Lanka, ever since its independence, has been energetically promoting economic development. While the agriculture continues to be the mainstream of the nation's industries, extensive industrialization is in progress nationwide, particularly in the processing of farm products. However, the economic development has not necessarily been making smooth progress, as recessive conditions persist with the average GDP growth rate in recent years hovering at 2.7%.

As the targets of its economic development, Sri Lanka has set such objectives as the promotion of employment, enhancement of living standard and acceleration of economic growth. And in order to attain these targets, the nation is now pressed with the needs of increasing the agricultural output and also of further pushing the industrialization forward.

In positively promoting such economic development as mentioned above, the nation seriously needs human resources trained in higher education, especially in technological sector, but the number of ordinary universities and technical colleges is limited. Accordingly the number of students is also limited.

There are only 8 universities which are all national institutions. In addition, with the exception of special facilities such as those related with Buddhism, the educational facilities called a 'university' are virtually non-existent, excepting OUSL. Nor is there a private university.

The tuition for the 8 national universities is free. The university's school year being from October to July of the following year, any school year is indicated, for instance, as 1990/91 (the school year for primary and secondary schools runs from January to December of each year).

The names, locations and faculty names of the 8 universities are as follows:

(1) University of Colombo : Colombo city
Arts, Commerce & Management, Law, Science and Medicine

(2) University of Peradeniya : Kandy city (in the central region of Sri Lanka)
Arts, Commerce & Management, Science, Medicine, Dental Science, Veterinary Medicine, Agriculture and Engineering

(3) University of Sri Jayewardenepura : Eastern suburbs of Colombo
Arts, Commerce & Management and Science

(4) University of Kelaniya : Northern suburbs of Colombo
Arts, Commerce & Management and Science

(5) University of Moratuwa : Southern suburbs of Colombo
Engineering and Architecture

(6) University of Jaffna : Jaffna city (in the north of Sri Lanka)
Arts, Commerce & Management, Science and Medicine

(7) University of Ruhuna : Matara city (in the south of Sri Lanka)
Arts, Commerce & Management, Science, Medicine and Agriculture

(8) Eastern University, Sri Lanka : Batticaloa city (in the east of Sri Lanka)
Arts, Commerce & Management, Science and Agriculture

The respective numbers of 8 university students in 1988/89 are as follows.

Table 2-1 Student Numbers of 8 Universities

	Colombo	Peradeniya	Sri Jayewar-denepura	Kelaniya	Moratuwa	Jaffna	Ruhuna	Eastern	Total
Arts	1,808	2,170	1,710	2,259		719	880	97	9,643
Commerce & Management	834	113	2,652	649		540	663	83	5,534
Law	970								970
Science	1,260	895	667	921		572	1,028	197	5,540
Medicine	1,336	614				346	613		2,909
Dental Science		415							415
Veterinary Medicine		233							233
Agriculture		842					256	99	1,197
Engineering		1,535			1,520				3,055
Architecture					285				285
Total	6,208	6,817	5,029	3,829	1,805	2,177	3,440	476	29,781

Source: Higher Education Statistics, 1988

It is the University Grants Commission, or UGC for short, within the Ministry of Education & Higher Education that is in overall charge of the running of the nine universities including OUSL, such as, allocation of government budgets, decisions on curricula, selection of students to be

admitted into universities and personnel management. The position of UGC within the Ministry is as follows:

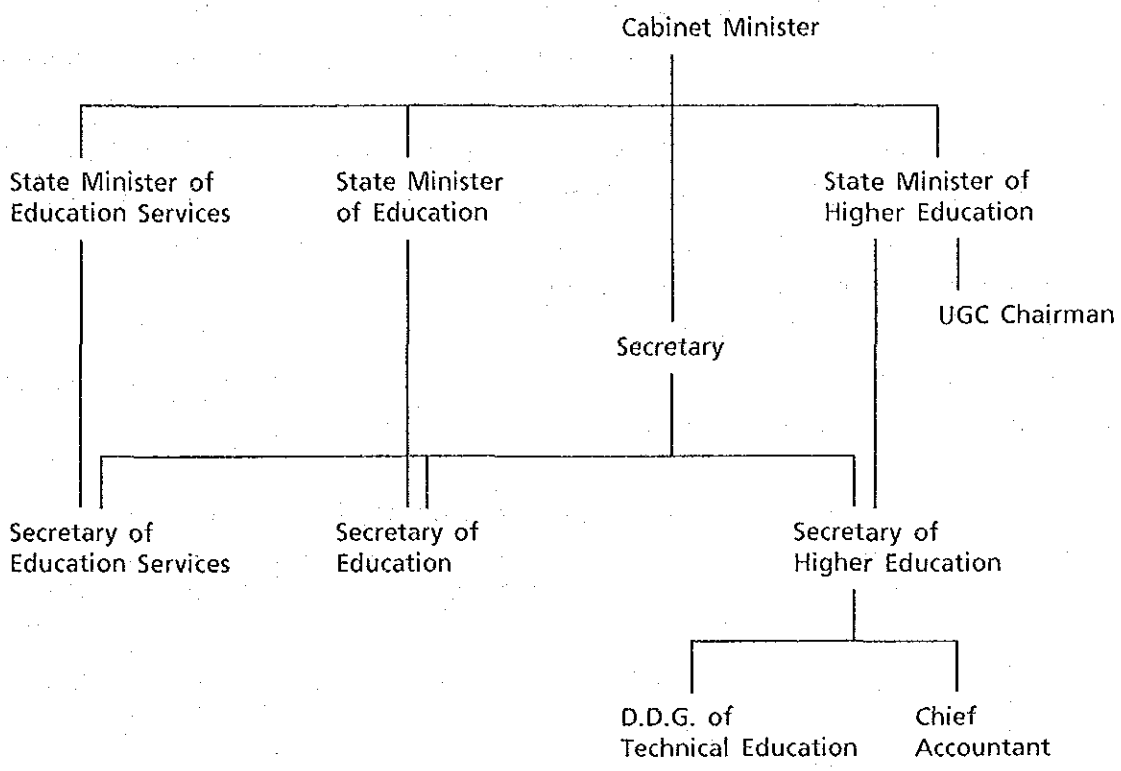


Fig. 2-2 Organization of the Ministry of Education

UGC consists of 5 members including the Chairman. The members are appointed by the President of Sri Lanka. The term of office of each member is 5 years.

The students to be admitted into the 8 national universities are selected by UGC according to the results of the GCE-AL Test of the applicants as well as the number of students each university can accommodate and the number of applicants. At the time of selection, considerations are given also to the regional differences in educational environment. When the selections are made, the minimum marks are set for each Course of Study. However, even for the same Course of Study, the marks differ according to where the applicants come from (which of the 25 districts). The marks are the highest for the Colombo District which includes the city of Colombo.

For example, according to the table of minimum marks for each Course of Study and for each district in 1990/91, published by UGC in March 1991, the highest mark of 278 is assigned to the applicants from the Colombo District for the Medicine, while the lowest mark is 180 assigned to several cases including the applicants for the Physics from the Badulla District.

At the time of enrollment of the students who have been selected by UGC, no test is given, but, since the number of students the eight universities can accommodate is restricted, the selection itself by means of the minimum marks is extremely strict.

The following is a table showing a comparison among the numbers of students who passed the GCE-AL Test, those who actually applied for university admission and those who were selected for the admission.

Table 2-2 Percentages of Students Admitted into Universities

	1986/87	1987/88	1988/89	1989/90	1990/91
(a) Numbers of Students Who Passed AL Test	16,946	24,004	31,375	34,491	37,356
(b) Numbers of Students Who Applied for University Admission	12,311	16,879	18,802	17,438	25,577
(c) Numbers of Students Selected for University Admission	5,581	6,208	6,143	6,463	9,199
(c) as % of (a)	32.9	25.9	19.6	18.7	24.6
(c) as % of (b)	45.3	36.8	32.7	37.1	36.0

Source: Higher Education Statistics, 1988
OUSL

Among the students who had passed AL test (140 marks in minimum), there seems to be those who did not apply for university admission (180 marks in minimum) because of bad test results. Anyway the ratio of the Applied to the Passed is about 70% every year except for 1988/89 and 1989/90, a period affected by internal conflicts. Accordingly the

university admission ratio of the Applied is higher than that of the Passed, for instance, 36.0% to 24.6% in 1990/91.

For those who have passed the GCE-AL test, there is a way to receive higher education at technical colleges which currently total 24 throughout the country. Minimum marks are set by each college individually. In 1988/89, the total number of the entrants to technical colleges is 15,614 and the total enrollment is 21,446 students.

Furthermore, based on the concept that university education should also be free of charge, there is no move toward establishing a private university either. Consequently, among the sons and daughters of the richer families, there are those who have chosen to study abroad at universities.

After all, of all the children who entered the 1st grade of primary school at the same time, only about 2% have the chance of receiving higher education at one or the other of the eight national universities. Even coupled with the entrants to technical colleges, about 6% have the chance of higher education.

Incidentally, in Japan, there are a total of 499 universities and colleges including national, public and private institutions as of 1989. 24.6% of the children entering primary schools at the same time eventually go on to colleges and universities.

According to UNESCO statistics, the enrollment ratio in higher education in 1990 is 13.5% in world total, 8.2% in Asia and 8.3% in developing countries. Though they are not entrant ratios, they show the trend for higher education in the world, higher in numbers than in Sri Lanka.

The government expenditure on higher education, university education and technical education in the last 10 years (1979-1988) was as follows.

Table 2-3 Education Expenditure

(Million Rupees)

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
(a) Higher Education	159.1	278.4	338.0	421.9	512.4	691.6	723.3	1,057.9	1,000.1	1,080.1
(b) University Education	125.8	256.3	309.5	376.1	443.9	570.3	588.9	720.3	674.4	775.0
(c) Technical Education	29.7	29.6	22.2	38.4	50.1	73.0	94.1	100.4	100.2	78.7
(b) as % of (a)	79.1	92.1	91.6	89.1	86.6	82.5	81.4	68.1	67.4	71.8
(c) as % of (a)	18.7	10.6	6.6	9.1	9.8	10.6	13.0	9.5	10.0	7.3

Source: Higher Education Statistics, 1988

The expenditure on both higher education and university education kept increasing every year except in 1987 and showed an annual increase rate of about 25% on average, while the expenditure on technical education showed an increase rate of 15.3%.

As for the annual ratio to higher education expenditure, university education expenditure showed 81.0% on average and technical education expenditure 10.5%.

2-2 Present Status of OUSL

2-2-1 Outline of OUSL

(1) Objectives of Establishment

OUSL is a university, established in June 1980, that conducts distance education as a part of Sri Lanka's educational system. The prescribed objects of OUSL are:

- Make higher education available to everyone.
- Provide an opportunity to study while remaining in employment.
- Make life-long education possible.
- Provide education even to geographically isolated areas.

In order to attain the above-mentioned objectives, OUSL aims at contributing to the education and training of people with scientific and technological capabilities whom the country requires and also at conducting training for engineers, teachers and lawyers and offering general-purpose education, under the slogan of "IT IS NEVER TOO LATE TO START."

(2) Social Function

OUSL is an education facility established with the purpose of opening the doors wider to the people seeking the opportunities to receive university (higher) education. It is open to all who desire receiving university-level education, not only to those who have passed the GCE-AL test.

The open universities, which are being established one after another around the world, are considered to have the following advantages as compared with the ordinary type of universities:

1) As long as one is over an age eligible for enrollment in a university, anyone is accepted into this university, which is capable of educating a large number of students at the same time.
2) By means of distance education, students can receive the university education while staying at home. So, anyone can enroll in an open university, no matter where he or she lives. And even when the students are working outside their homes, they can study without being inconvenienced in their work.
3) The facilities required are the university headquarters and the local centres. So, considering the large number of students, it

may be said that an open university can be run more efficiently than ordinary universities.

As disadvantages of an open university, the following points can be considered:

1) Since the range of day-to-day learning in the classrooms is generally restricted, the chances tend to be less for teacher-student and student-student contacts and communication, and this inevitably affects the quality of learning.
2) The number of dropouts in mid-course tends to be larger in an open university, although it depends on study courses and subjects.

Meanwhile, the actual learning conditions at OUSL are as follows:

1) The enrollment in 1990 was 14,779 students, which was almost half the total number of students enrolled at the other eight universities.
2) Approximately 80% of the OUSL students are working. As to the student's ages. 74% of the total enrollment is accounted for by those who are 26 or older, the age group corresponding to that of full-fledged members of society.
3) Since the land area of Sri Lanka is quite compact, the establishment of a network of local centres is easy. In fact, almost a half of the total numbers of the regional and the study centres (4 regional and 13 study) scheduled for construction have already been completed.
4) In the case of ordinary universities, the operational expenses are paid entirely by the Government. However, in the case of OUSL, only about 60% of its annual revenues comes from the Government subsidy. And on the other hand, OUSL requires payment of tuitions, while the ordinary universities are free of charge.
5) In accordance with the needs for human resources required in promoting national development, OUSL places special emphasis on science and technology education, as can be seen from the fact that two of the three faculties established are devoted to science and technology education.
6) In the case of those who have passed the AL test, the existence of OUSL means that they have more chances of receiving university

education. And the statistics show that, by graduating from a university, people are in better position in finding employment. Even during the period in the late 1980's when the 8 universities closed down for 2 years and a half because of internal disputes, OUSL, taking advantage of its characteristics as the provider of distance education, never discontinued its educational activities except at some of its local centres. In fact, in the world of university education which is more or less closed to the general public, OUSL may be an OPEN university in true sense of the word.

(3) Locations of Its Campus and Centres

Headquarters Campus	:	Nawala Road, Nugegoda, Colombo District	
Local Centres	:	17	
Regional Centres	:	4	(Colombo, Jaffna, Kandy and Matara)
Study Centres	:	13	(Ambalangoda, Ampara, Anuradhapura, Badulla, Bandarawela, Batticaloa, Galle, Kalutara, Kegalle, Kurunegala, Kuliyapitiya, Polonnaruwa, Ratnapura)

(See the Map of Sri Lanka at the beginning of this report)

(4) Organization

The following chart shows the organization of OUSL. The production of AV teaching materials is taken charge of by the Media Unit.

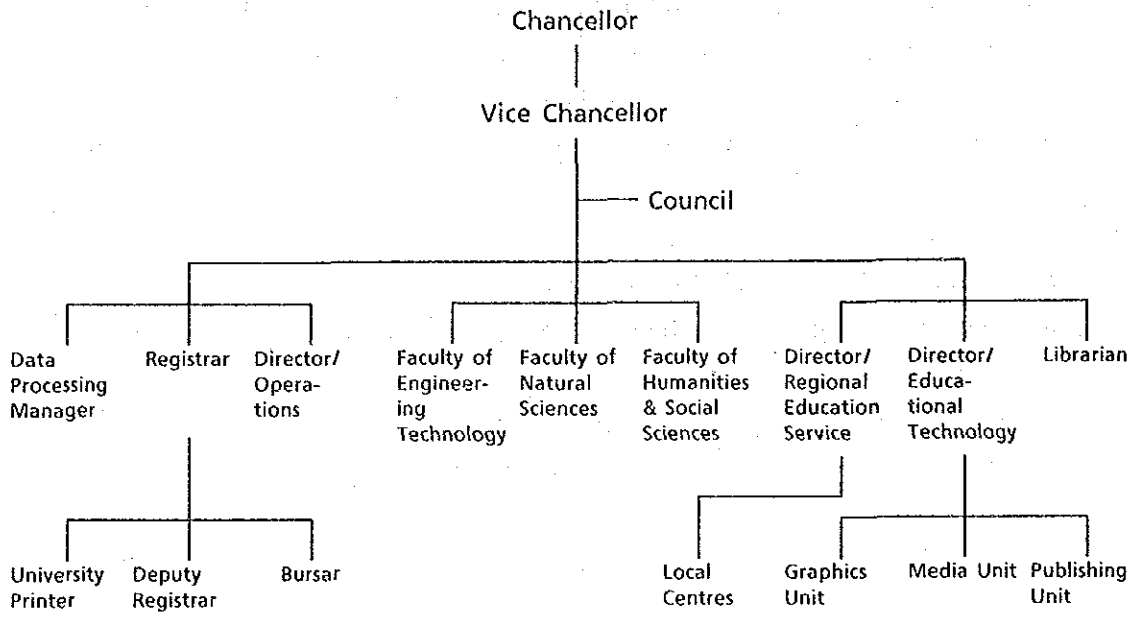


Fig. 2-3 Organization Chart of OUSL

The chancellor is an honorary post and it is the Vice Chancellor that actually corresponds to the Chancellor. Of the Officers of the Dean/ Director level including the Deans of the 3 Faculties, 3 posts, viz., Director of Educational Technology, Librarian and Bursar, are vacant as of March 1991.

The numbers of OUSL staff as of December 31, 1990 are 684 in approved cadre and 554 in position. Of these, the numbers of teachers are as shown in Table 2-4.

Table 2-4 Numbers of Teachers

	Professor		Senior Lecturer		Lecturer		Assistant Lecturer		Assistant		Demon-strator		Total	
	A	P	A	P	A	P	A	P	A	P	A	P	A	P
Humanities & Social Sciences	4	2	9	10	12	11	0	1	18	17	0	0	43	41
Natural Sciences	5	2	11	12	21	9	0	0	40	37	28	28	105	88
Engineering Technology	3	2	8	17	20	13	0	1	24	23	28	16	83	72
Total	12	6	28	39	53	33	0	2	82	77	56	44	231	201

Under Sri Lanka's university system, there are posts for associate professors. However, in the case of OUSL there is, no post established for associate professors. Even so, OUSL has a solid group of senior lecturers and their actual number exceeds the fixed number by 40%.

(5) Income and Expenditure Accounts

The income and expenditure accounts for the 10 years since the establishment (1981-1990) were as follows:

a) Income (in thousand Rupees)

Table 2-5 Income

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Government Grant	3,000.0	5,850.6	7,000.0	10,300.0	13,102.6	12,811.6	16,207.8	23,526.9	37,000.0	38,500.0
Registration Fees	241.5	258.8	450.0	345.4	860.0	632.6	555.6	638.6	443.6	639.6
Tuition Fees	428.0	3,781.0	3,685.1	3,975.7	5,892.3	9,684.1	8,185.0	9,321.1	8,584.4	13,411.1
Examination Fees	65.3	13.5	176.4	252.9	894.9	531.0	691.0	1,028.1	362.0	134.3
Sale of Publications	304.0	147.0	56.0	0	0	0	0	371.5	749.3	1,730.8
Interests from Investments & Loans	428.5	578.2	813.3	778.7	674.6	886.0	1,071.9	1,211.4	1,266.3	1,528.0
Others	524.7	45.6	215.2	5,433.5	6,198.0	2,478.0	0	7,845.9	8,105.6	6,649.8
Total	4,992.0	10,674.7	12,396.0	21,086.2	27,622.4	27,023.3	26,711.3	43,943.5	56,511.2	62,593.6

The income showed a rising tendency with some fluctuations throughout and the government grant was the largest steady source of income, occupying about 60% of the total every year.

Unlike the case of the 8 national universities, education in OUSL requires payment of a fee. As mentioned below, the annual amount of fee differs from course to course.

Registration fee : 50 - 125 Rupees (175 - 437.5 yen)

Tuition fee : 800 - 6,500 Rupees (2,800 - 22,750 yen)

b) Expenditure (in thousand Rupees)

Table 2-6 Expenditure

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Salaries	1,154.3	1,934.4	4,531.9	5,951.9	6,649.3	8,282.3	8,651.1	17,144.6	25,678.0	25,731.9
Allowances & Pensions	1,009.6	1,783.7	1,757.0	2,791.2	3,766.5	4,311.0	6,285.9	7,823.0	8,181.8	10,669.2
Visiting Lecture Fees, etc.	724.0	867.7	2,218.1	1,994.5	2,522.3	2,769.2	2,318.0	3,359.8	2,463.9	5,796.9
Supplies & Requisites	792.1	1,269.8	3,824.2	4,357.4	4,251.8	2,822.4	8,861.2	7,228.0	5,956.7	10,688.8
Maintenance Charges	69.1	134.5	443.2	506.5	319.2	556.6	933.6	1,449.0	1,193.2	1,320.1
Travel, Communication Expenses, etc.	366.5	531.3	853.8	828.4	904.1	1,765.3	1,952.6	2,597.5	1,911.4	3,574.7
Others	587.9	288.4	824.7	3,761.2	4,430.2	3,543.8	4,276.9	7,749.0	6,321.2	11,074.5
Total	4,703.5	6,809.8	14,452.9	20,191.1	22,843.4	24,050.6	33,279.3	47,350.9	51,706.2	68,856.1
Difference between Income and Expenditure	288.5	3,864.9	△2,056.9	895.1	4,779.0	2,972.7	△6,568.0	△3,407.4	4,805.0	△6,262.5

Though the difference between income and expenditure was fluctuating pretty sharply, the income-expenditure trend showed the continuing expansion of academic activities of OUSL.

(6) Facilities

In the south-southeastern suburbs of Colombo and on a patch of land of about 7 acres (approx. 28,000m^2) surrounded by Nawala Road and Kirillapone Canal, there stand an administration building constructed in 1980 at the time of establishment of OUSL and a group of school buildings totalling 20 which were completed one after another up to 1985. The administration building consists of two wings which are of makeshift structure, low-eaved and simple single-story buildings totalling about 2,900m^2 in floor space. The buildings are generally in a superannuated condition, especially the roof portions and around the openings. The unit producing AV teaching materials occupies a

part of the western wing and consists of a video production studio of about 40m^2 in floor space and an audio production studio of about 25m^2 in floor space, each with a control room. However, with regard to these studios, there are many problematic points, such as, they are both of a structure that is acoustically very inadequate and, moreover, the indoor airconditioners are installed directly in the studios.

The groups of school buildings are arranged on the eastern and western sections of the site in clusters; with three connecting paths running from north to south being sandwiched by such faculty facilities as research rooms, laboratories, training rooms, library and faculty room as well as the Colombo Regional Centre. The school-building groups are apparently used with much care, as can be seen from their well-cleaned and well-maintained conditions. The passages and gardens on the campus are well attended to, creating an environment that is generally suited as a place for study.

OUSL owns a large piece of land of about 22 acres (about 88,000m^2) for future development, on the western side of the existing campus and with a waterway running through it.

The layout of the project site and the existing facilities is shown in Fig. 2-4.

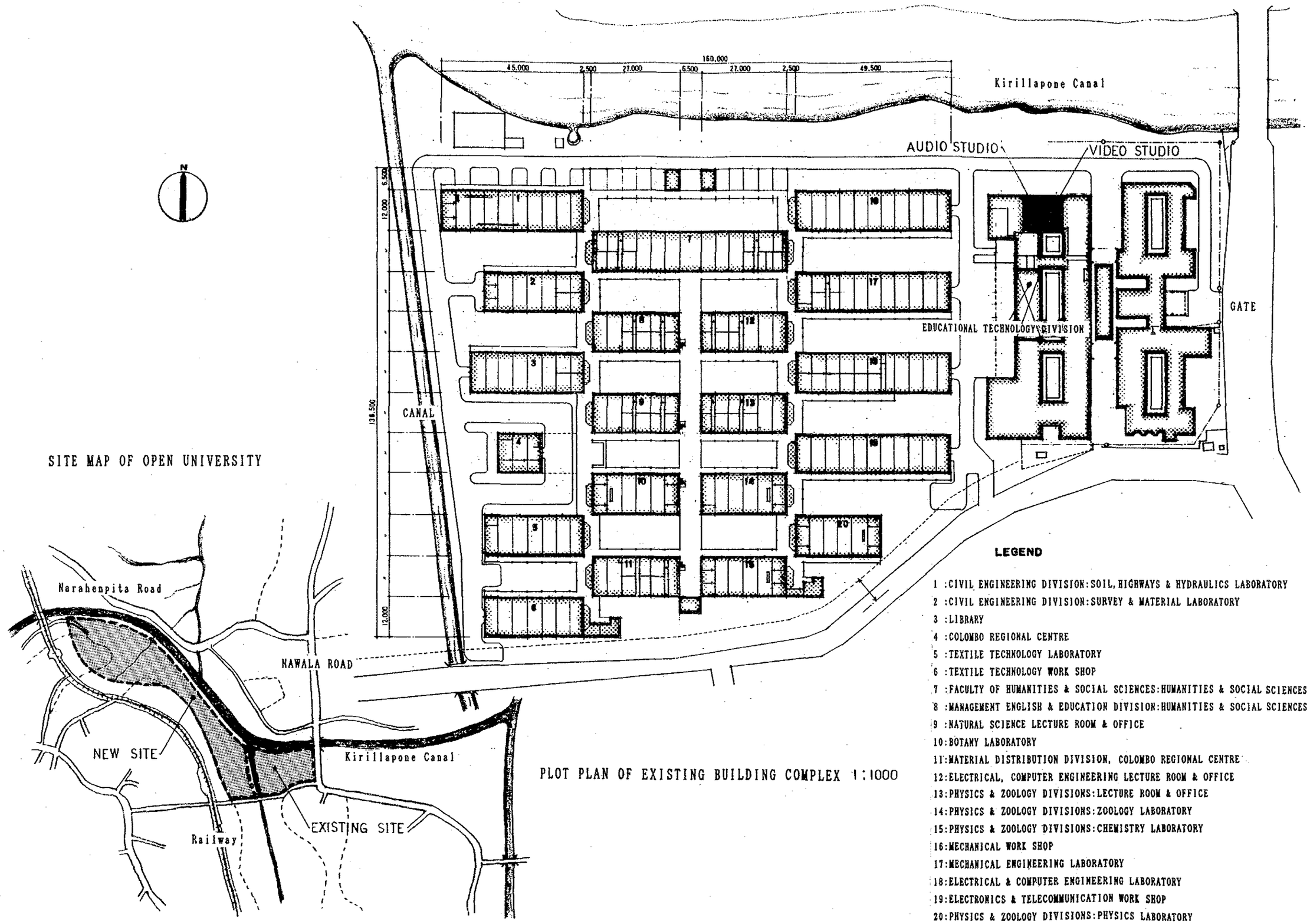


Fig. 2-4 SITE MAP AND PLOT PLAN OF EXISTING BUILDING COMPLEX OF THE AV EDUCATION CENTRE

(7) Faculties and Divisions

Each of the 3 Faculties has 5 Divisions, as follows:

a) Faculty of Humanities & Social Sciences
   - Education
   - Legal Studies
   - Language Studies
   - Management Studies
   - Social Studies

b) Faculty of Natural Sciences
   - Mathematics
   - Chemistry
   - Physics
   - Zoology
   - Botany

c) Faculty of Engineering Technology
   - Civil Engineering
   - Electrical and Computer Engineering
   - Mechanical Engineering
   - Computer Studies
   - Textile Technology

(8) Academic Courses

The basic types of academic courses are as follows:

Foundation Course	(for students without GCE qualifications; 2 years)
Certificate Course	(1 year)
Diploma Course	(2 years)
Bachelor's Degree Course	(3-4 years)
Post-Graduate Course	(Diploma, Master, Doctor; 2-5 years)

The courses conducted by the 3 faculties are as given below. The classroom-instruction subjects constituting each course are taken charge of by the division concerned. There are 350 subjects in all as of June 1991, of which the entire list is given in the Appendix at the end of this report.

Humanities & Social Sciences

Foundation Course	: English
	: Social Sciences
Certificate Course	: Pre-School Education
	: Professional English
	: Small Business Management
	: Journalism (planned to start in August 1991)
Diploma Course	: Distance Education (started in September 1990)
	: Management
Bachelor Course	: Laws
Post-Graduate Course	: Diploma in Education, Master of Philosophy, Diploma in Management (planned to start in January 1992)

Natural Sciences

Foundation Course	: Science
Bachelor Course	: Mathematics
	: Chemistry
	: Physics
	: Zoology
	: Botany
Post-Graduate Course	: Master of Philosophy

Engineering Technology

Foundation Course	: Textile Technology
Certificate Course	: Textile Technology
Diploma Course	: Civil Technology
	: Communication Technology
	: Electrical Technology
	: Electronic Technology
	: Mechanical Technology
	: Management
Bachelor Course	: Civil Engineering
	: Electrical and Electronic Engineering

: Computer Engineering
: Mechanical Engineering

Post-Graduate Course : Master of Philosophy,
Diploma in Construction Management (planned to start in July 1991),
Master in Construction Management (planned to start in July 1991)

Besides those mentioned above, there are the courses for public education that do not issue qualification certificates, such as those listed below. In these courses, the associate students selecting the subjects concerned will participate.

Computer Awareness Programme (6 months)
Introductory Course in Tamil (6 months)
Community Education Course (4 months)

(9) Methods of Teaching

The following five methods are adopted:

a) The students will study at home using such printed materials as textbooks and reference books.

b) The students will study at local centres or at home using such AV teaching materials as films, cassettes and slides.
On radio, a 30-minute programme (in Sinhala, Tamil, English) used to be broadcast once a week, but this has been temporarily suspended since April 1990. On TV, one 30-minute programme is currently broadcast every month for viewing by the students.

c) The students study at the headquarters by participating in practical work.

d) The students receive classroom tuition and counselling at local centres.

e) The students do the homeworks given them, complete the studies at home and send their reports to the headquarters. They also take examinations given at local centres.

The following chart shows the relationship outlined above:

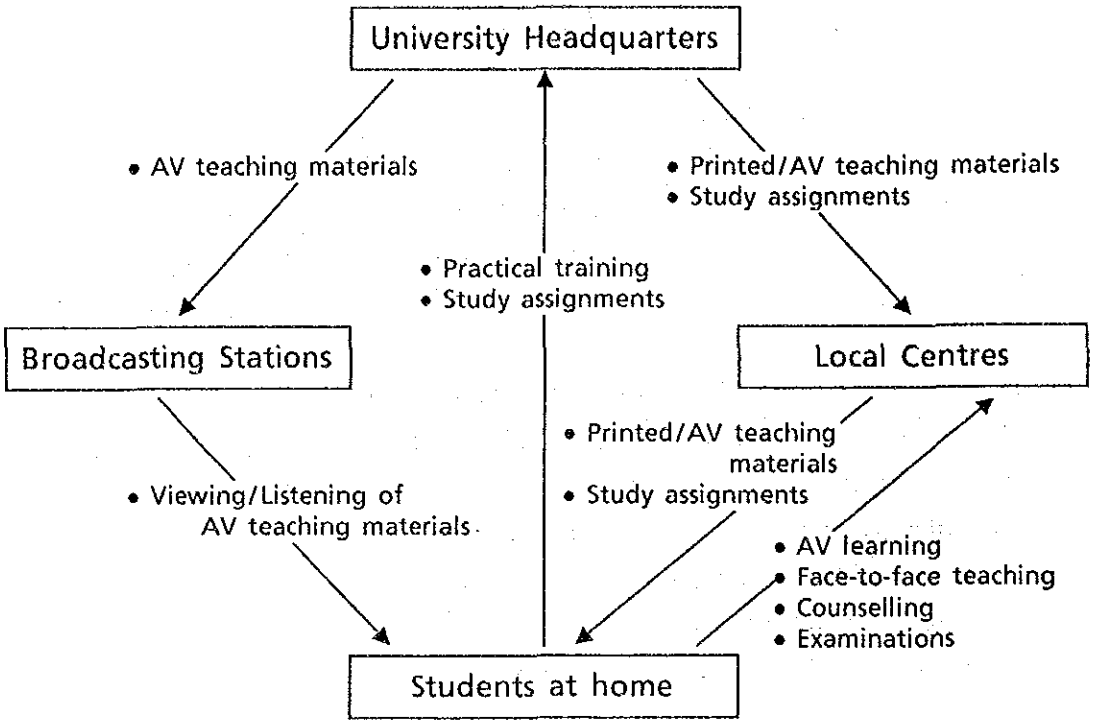


Fig. 2-5 Flow Chart of Education at OUSL

The classes of Foundation and Certificate courses are given in principle in 3 languages, viz., Sinhala, Tamil and English, while the classes of advanced courses in English. Any change in the lecture schedules is made public through the media. When the students have completed the prescribed studies (more than 420 hours a year per each credit) using textbooks, AV teaching materials, classroom tuition, etc., and have had their achievements acknowledged, they are presented with various qualifications.

(10) Effects of AV Materials

At present, education in OUSL is largely dependent on student's reading of printed materials and less dependent on listening and viewing of AV materials. A course credit requires 420 hours of study, 40 hours of which, comparatively rather short hours, are for listening and viewing. This is not because AV materials are not effective but because AV materials are not sufficiently available to students due to inadequate facilities to produce AV materials.

Though AV materials may be less needed for theoretical subjects like

pure mathematics, video material viewing is very effective in such experimental subjects as chemical experiment, equipment handling, nature observation, geographical study, etc. Audio material listening is useful to language study. The combined use of printed and AV materials in those subjects will promote student's understanding and study efficiency.

Since OUSL produces AV materials at the Colombo campus, lessons by veteran teachers in the capital could be recorded. By listening and viewing of these materials, a student resident in remote area can take advantage of lessons on a level with those in the capital. AV materials will lead to the promotion of student's study level as a whole.

OUSL plans to increase the number of students up to 50,000 by the year 2000 (See "2-2-4 Development Plans") and to cope with the increase by producing many more AV materials and promoting student's study efficiency and level.

OUSL is scheduled to make listening and viewing hours for a course credit longer than the present 40 hours after the establishment of AV Education Centre and more production of AV materials. AV materials can be called an irreplaceable resource for OUSL to improve its education both in quality and quantity.

(11) Students

Any person is eligible for enrollment in OUSL, as long as that person is an adult who is 18 or older. Among the entrants to advanced courses above Diploma course, those without basic educational qualifications are to register for Foundation course.

The following table shows the enrollments at OUSL during the recent years. The number of students in 1990, 14,779, is almost equal to half of the total of all the students in the other 8 universities in 1988/89, 29,781.

Table 2-7 Enrollments

Courses	1986	1987	1988	1989	1990
CERTIFICATE					
Pre-School Education	376	606	594	594	559
Professional English	2,449	2,681	2,467	2,167	2,288
Small Business Management	76	230	270	346	574
Textile Technology	—	—	—	71	84
DIPLOMA					
Technology	3,252	3,469	3,129	1,832	2,447
Management	—	—	—	734	3,020
BACHELOR					
Laws	909	1,569	1,356	2,155	1,719
Science	1,624	1,570	1,843	1,866	1,918
Engineering	—	—	—	52	220
POST-GRADUATE					
Diploma in Education	1,377	2,994	3,510	3,510	1,913
Master of Philosophy	—	—	28	28	37
TOTAL	10,063	13,119	13,197	13,355	14,779

As can be seen from the above table, there was a sharp drop in the numbers of students in the Diploma in Technology course from 3,129 in 1988 to 1,832 in 1989. That was because of the large number of dropouts. Although OUSL does not provide for an upper limit to the years the students are allowed to stay on, it is a normal practice for the students to quit if they fail to acquire the qualifications within 5-6 years after enrollment.

The average ratio of dropouts is about one-third of the total number of the students enrolled.

The Certificate in Textile Technology course, the Diploma in Management course and the Bachelor in Engineering course were opened in 1989 and therefore the columns for these 3 courses are left vacant

up to 1988.

The reason the number of students dropped sharply from 1989 (3,510) to 1990 (1,913) in the Post-Graduate in Education course is that, in view of the capacity of the faculty, OUSL had set the upper limit to the number of students in that course to 2,500.

The following is the explanation of the relation between the above table and the courses of the 3 faculties mentioned previously.

1) The number of students of the Foundation courses is included in that of the related advanced courses.
2) The number of students of the Diploma in Distance Education course is not added up because of time shortage after the course opening.

Incidentally, the number of associate students is not included in the table.

The numbers of persons who have obtained various qualifications are as follows. Data for 1989/90 are not yet complete.

Table 2-8 Numbers of Persons Who Have Obtained Different Qualifications

	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	TOTAL
Pre-School Education (Certificate)	375	105	—	154	158	277	340	—	1,409
Professional English (Certificate)	765	475	988	897	—	812	988	—	4,925
Small Business Management (Certificate)	375	127	—	46	31	93	87	—	759
Technology (Diploma)	—	—	—	—	—	—	51	—	51
Laws (Bachelor)	—	—	—	—	—	—	—	39	39
Science (Bachelor)	—	—	—	—	—	—	—	65	65
Education (Post-graduate Diploma)	174	549	502	549	623	1,854	—	—	4,251
TOTAL	1,689	1,256	1,490	1,646	812	3,036	1,466	104	11,499

The professions and work places of those who have obtained qualifications are as follows.

1) 50% of those qualified in the Certificate in Pre-School Education have started their own pre-schools and the others working for other organizations.
2) 50% of those qualified in the Certificate in Entrepreneurship are engaged in their own self-employment and the others in other organizations of small business management.
3) Those qualified in the Diploma in Technology are working as engineering assistant technicians and preparing for higher studies to become graduate engineers
4) Law graduates are all employed. 50% of them are administrators; 25% are attorneys; 20% are law enforcing officers and 5% are in other executive posts.
5) Science graduates are all employed too. Most of them are teachers and the others are holding executive posts in scientific organizations.
6) About 3,000 graduate teachers have received their promotion.

As shown in the above table, the numbers of dropouts from the Bachelor of Laws and the Bachelor of Science courses were so large that it was only in 1989/90 that the first graduates from these courses were sent out. In 1990/91, however, 140 Bachelors of Laws and 150 Bachelors of Science are due to be graduated.

The reason why the column for those who have obtained the qualifications in the P-G Diploma in Education is left vacant for 1988/89 and 1989/90 is that the qualification test could not be conducted in 1989 because of internal unrest in Sri Lanka.

The numbers of those who obtained the qualifications in the 1989/90 Certificates/Diplomas have not yet been calculated and hence the small number of the total.

(12) Regional/Study Centres

The regional/study centres of OUSL are engaged in such services as the registration, distribution of course materials, face-to-face contact sessions and counselling, and conducting of examinations.

Since a regional centre has more assigned teachers and equipment than a study centre, some subjects are given only at a regional centre.

Video viewing equipment is not installed at a study centre. Reflecting these aspects, a comparatively large number of students have registered at the Colombo and Kandy Centres which are better provided than the others.

Many of the centres share the facilities of other educational institutions. Offices are mostly set up in technical colleges and the classrooms in colleges and secondary schools. The only centre having both the office and the classrooms on its own is the Regional Centre in Kandy.

The total operational budgets of the 17 local centres across the country are:

1988	6,983,062 Rupees	(approx. 24,440,717 yen)
1989	8,731,651 Rupees	(approx. 30,560,778 yen)

The total enrollment at OUSL as of 1990 is 14,779 which breaks down as follows by local centre.

Table 2-9 Numbers of Students by Local Centre

Locations	Number of Students
Colombo	8,469
Jaffna	339
Kandy	2,120
Matara	752
Ambalangoda	315
Ampara	68
Anuradhapura	205
Badulla Bandarawela	162
Batticaloa	255
Galle	268
Kalutara	225
Kegalle	374
Kurunegara	716
Kuliyapitiya	116
Polonnaruwa	157
Ratnapura	238
Total	14,779

Given below is a list of cassettes kept in store by the local centres for use by the visiting students for their studies. These are audio cassettes. The videocassettes are kept in custody by the headquarters of the Colombo Campus for loan to users on request.

Professional English - Certificate Course	2 kinds
Business Management - Diploma Course	1 kind
Laws - Bachelor Course	7 kinds
Science (Mathematics) - Bachelor Course	8 kinds
Tamil - Foundation Course	2 kinds

The types of cassette players owned by the local centres are:

Video — One set each at the four regional centres.

Audio — Five sets at the Colombo Regional Centre, two at the Kandy Regional Centre and one each at the rest of the regional/study centres (excepting the Kuliyapitiya Centre).

2-2-2 Production of AV Materials

In order to ensure success of distance education which consists mainly of studies by self-teaching, reinforcement of AV teaching materials along with the textbooks is indispensable.

Two years after the establishment of OUSL in 1980, a minimum necessary facility for the production of AV teaching materials was set up with the assistance from UNDP and UNESCO. Using this facility of restricted scale, OUSL has been producing AV teaching materials up to now. The AV teaching materials roughly comprise the teaching materials in audio cassette tapes and the videocassette tapes. As for the audio teaching materials, a total of 234 tapes have so far been produced. Of these 234 tapes, 189 have been used for broadcast and have actually been broadcast from SLBC. And 45 of them were made into numerous copies for distribution to the students along with textbooks. The tape copies have also been sent to the regional/study centres and are used effectively by the students in their studies.

As to the video teaching materials, none of them is distributed directly to the students but, after they are produced, are kept permanently by the AV Resource Centre at OUSL's headquarters for viewing there by the students. At the four regional centres, videocassette players are installed but no video teaching material is permanently

available for viewing. What is normally done is either for the lecturers to bring the cassettes from the headquarters or to have the cassettes sent from the headquarters whenever they are needed.

(1) Production System

The production of AV teaching materials is the responsibility of the Media Unit of the Educational Technology Division. The Media Unit staff consist of:

Media Officer	1	Direction in the Unit and coordination between outside parties and the Unit
Educational Assistant	1	Coordination between the three faculties and the Unit, and programme director of the AV material production in the studios
Assistant Media Officer	1	Arrangement of video material production work
Programme Assistant	1	Arrangement of audio material production work
Illustrator	2	Arrangement and drawing of illustration
Audio Video Technician	4	AV material production work
Technician	1	Assisting work of AV material production work
Typist	2	Clerical work
Clerk	1	Clerical work
Labourer	2	Miscellaneous work in the Unit

(2) Existing Facilities and Equipment

The Educational Technology Division has an audio teaching material production studio and a video teaching material production studio within the administration wing of OUSL headquarters and, in these studios, the Division produces AV teaching materials.

The following is a list of existing facilities:

a) Audio Teaching Material Production Studio (about $25m^2$)

Audio Control Console	1 set
Tape Recorders	4
Audio Tape High-speed Copier	1

Audio Double Cassette Deck	1 set
Radio with Stereo Cassette Player	1
Audio Monitor (Speaker, amplifier)	1 set

b) Video Teaching Material Production Studio (about 40m^2)

Colour Video Camera (3-tube type)	1
Portable Video Camera	1
Monochrome Video Camera	1
Operating Console (Video switcher, audio mixer)	1 set
Video Effect Signal Generator	1 set
Time Base Corrector	1
Editing Controller	1
3/4-inch VTRs (low band)	3
Portable 3/4-inch VTR	1
Videocassette Deck (VHS)	1 set
Monitors (video and audio)	1 set
Lighting Equipment	1 set

More than eight years having passed since their installation, superannuation of these equipment has progressed considerably and, besides, they are of old models which are now quite obsolete. Moreover, they are of simple and crude functions and deteriorated also in reliability and durability.

Concerning the repairs of minor troubles with the existing equipment, 5 members of production engineering staff conduct them at the studios and the workshop of the Engineering Technology Faculty, with the cooperation of Faculty's engineers. However at the workshop are conducted mainly the maintenance and repairs of the experiment equipment for classroom lessons. The maintenance system of AV equipment is not necessarily on a satisfactory level and spare parts for the maintenance of AV equipment are not retained quite enough. So the repairs of more serious breakdowns are taken care of by the agents in Colombo of manufacturers concerned.

Though those agents conduct mainly the repairs of television receivers, they have their workshops and the capability to repair AV equipment with enough spare parts retained.

Moreover, the buildings of OUSL, both the faculty and administration wings, are single-storied and are generally without an air-conditioning system. Even though the AV production studios have an

individual air-conditioner stalled in each of them, the noise of the air-conditioners are so loud that they have to be stopped each time the teaching materials are recorded.

(3) Current Status of Stock of AV Teaching Materials

During the three years from 1988 to 1990, the number of audio teaching materials produced reached 234 tapes including those for broadcast use. The number of tape copies for distribution to students has reached some 36,000 during the last three years. As for the video teaching materials, 67 tapes have been produced so far.

Thus, as far as the number of tapes is concerned, the output of audio tapes is overwhelmingly larger. This is due to the fact that video material production requires more time and labour than audio material production under the present constraints in terms of staff and equipment. A minor cause would be that only the 4 Regional Centres have video viewing equipment, while the 13 Study Centres have not.

The following is a list showing the numbers of AV teaching materials produced so far and kept by different faculties:

Faculties	Teaching Materials	
	Audio	Video
Humanities & Social Sciences	33	25
Natural Sciences	10	16
Engineering Technology	2	13

Besides those listed above, 13 videotapes for publicity of OUSL and 189 audio teaching-material tapes, which have already been used for broadcast, are kept in the files of the AV Resource Centre.

2-2-3 Materials Broadcast by SLBC and SLRC

(1) Materials Broadcast by SLBC

Though SLBC had broadcast OUSL's audio teaching material (30 minutes) in Sinhala, Tamil and English once a week with charge, the broadcast was suspended in April 1990. The number of materials which were broadcast by the suspension totalled to 189. SLBC is ready to re-start the broadcast if circumstances permit.

Incidentally, SLBC is also broadcasting other educational programmes. In March 1991 SLBC started the broadcasts of programmes (English, mathematics and science) for secondary school students. The programmes are produced by the Ministry of Education and broadcast for 1 hour and half every weekday afternoon.

As for general educational programmes, SLBC is broadcasting various programmes on English, health, economy, etc., of 15-30 minute length every week. The total weekly broadcast hours of these educational programmes are 14 hours and a half on average.

SLBC plans to start in future early morning broadcasts of educational programmes at secondary and university levels.

(2) Materials Broadcast by SLRC

SLRC has broadcast OUSL's video teaching material (30 minutes) once a month with charge. The broadcast for February 1991 was at 1730 of 19th and the material was on the marriage law in Tamil. The broadcast for March 1991 was at 1730 of 19th too and the material was on veiled women in English.

Incidentally, SLRC also started in March 1991 the broadcasts of programmes (English, mathematics and science) for secondary school students. The script of a programme is prepared by the Ministry of Education and the production works are the charge of SLRC.

In April, August and December, yearly school vacation periods, SLRC broadcasts programmes for secondary school students for 3-4 hours every morning. The programme production is shared by the Ministry and SLRC.

Besides, SLRC broadcasts other educational programmes every afternoon for 1.5-2 hours.

(3) Equipment Maintenance in SLRC and SLBC

Both SLRC and SLBC have a maintenance staff of about 20 people respectively for the studios in Colombo and conduct all maintenance work on their own with enough spare parts.

SLRC in particular puts emphasis on preventive maintenance to keep troubles from happening in addition to repairs of troubles. SLRC conducts regular maintenance work of studio equipment and studio electric and airconditioning facilities once a week and of editing

rooms once every other week. For studio maintenance cost in 1991, SLRC earmarked 8 million Rupees and SLBC 5 million Rupees.

SLRC suggested to OUSL the necessity of securing a maintenance staff of about 10 people in consideration of the scale of the OUSL project and showed their readiness to cooperate with OUSL, if requested, in planning maintenance programme and giving maintenance training.

2-2-4 Development Plans

(1) Economic Development

Economic development of Sri Lanka has been promoted for increase of employment, enhancement of quality of life, etc. under the Public Investment Plan. However, the average GDP growth rate in 1986-1989 was rather sluggish with 2.7% mark and the per-capita income during the same period was less than 400 U.S. dollars.

Consequently the Government of Sri Lanka has made the structural adjustment programme, including reform of public enterprises, stimulation of private investment, etc. and has started the Janasaviya programme.

(2) Educational Development

The nation certainly needs human resources trained in higher education, who could be the core for promotion of economic development, to rapidly free itself of economic sluggishness. However, it is hardly possible to strengthen the training of human resources, due to the limitations of the number of universities and technical colleges.

Therefore, to provide more chances for higher education, the government of Sri Lanka plans to establish a university college in each district within 4-5 years and to start one in each province in 1991 to admit a total of 2,000 students to begin with.

University college will provide 2-year university education in affiliation with the existing universities and its students are to graduate for employment with the acquisition of certificate and diploma. A graduate who wishes to take degree will get into an advanced course in a university after employment period.

The Government of Sri Lanka is also planning a reform of higher education in order to meet the need for flexibility in its system, including the flexibility as regards methods of education. In this

concept, OUSL is envisaged to admit diploma graduates for advanced courses, maintaining its "Openness" as an open university.
The Government of Sri Lanka is contemplating, as a method of education, utilization of AV education and thus expecting much from OUSL's production of AV materials. Though the AV Education Centre is primarily planned in the OUSL's interests, the Centre will function in the interests of the whole higher education when the new method of education has been introduced.

(3) OUSL Development

OUSL plans to expand the facilities of the Colombo headquarters and the local centres and to increase the enrollment to 50,000 students, from now to the year 2000.
The existing facilities of OUSL include 17 regional and study centres in addition to about 20 school buildings at the headquarters. Still, the number of students that can be accommodated with the above-mentioned facilities and the present strength of teaching staff is said to be about 15,000. This means that OUSL is already near the limit as far as the capacity is concerned, since its enrollment as of 1990 is 14,779 students.

OUSL plans to construct with a budget of 480 million Rupees a group of about 20 school buildings on the new headquarters campus and the construction was started in January 1990 of the Directorate Building, the Administration Building, the H.S.S. Academic Building and the Dormitories as a part of the 1st-phase construction plan and is to be finished in October 1991. The layout plan of the new school buildings in shown in Fig. 2-5. Then, as the 2nd-phase construction plan, OUSL will start to construct the Hall, the Library and infrastructure works like the Bridge. OUSL also plans to establish a study centre in Trincomalee in the north-eastern area, if quietness is restored in that area.
Through such expansion of facilities, OUSL plans to increase enrollment to 25,000 students by around 1993.

Furthermore, OUSL plans to complete the construction of all the school buildings including the AV Education Centre at the headquarters and 5 regional centres and 2 study centres. Thus the

number of regional-cum-study centres comes to 9 and that of study centres 16. This means that a regional centre will be constructed in each of the 9 provinces throughout the country and a study centre in each of the 25 districts. In this way, OUSL aims at increasing the enrollment to an ultimate target number of 50,000 students.

Though the construction of the AV Education Centre has been planned as a part of the 2nd-phase construction work, the construction cost of the Centre has not been included in the budget on the assumption that foreign assistance could be counted on for the provision of sophisticated AV equipment and the construction of the building to contain them. Of the about 20 buildings to be constructed on the new site, those which are directly related with the students' learning activities are, besides the AV Education Centre, the 3 Faculty Buildings, the Senior-Staff Room, the Library, the Hall, etc. The Hall will be newly established facilities; the Library will have a floor space 6 times as large as the existing one and the other facilities will have their own proper functions respectively. The unique facility having special functions is the AV Education Centre which will produce the AV teaching materials.

As mentioned previously, the AV teaching materials are extremely effective in enhancing the learning efficiency and levels of the students who are receiving distance education. So, when the AV Education Centre is completed, OUSL hopes to be able to dramatically reinforce its output and stock of AV teaching materials, further enhance the quality of its education and thereby cope more effectively with the further increase of students.
The reinforcement of the headquarters facilities and the expansion of the local-centre network can be compared to the 2 wheels of a vehicle. So, it may be said that the projected AV Education Centre has unique importance among the new headquarters facilities.

The AV Education Centre is envisaged to be the most important source of AV material production in a reform plan of higher education of the Government of Sri Lanka. Coming to be that source, the Centre will undertake a greater task beyond OUSL requirements.

Concerning AV material production, OUSL hopes to increase the number of AV materials produced and stored by the year 2000, and has made an operational plan of material production just after the start of the AV Education Centre, that is, 50 audio and 40 video materials per year.

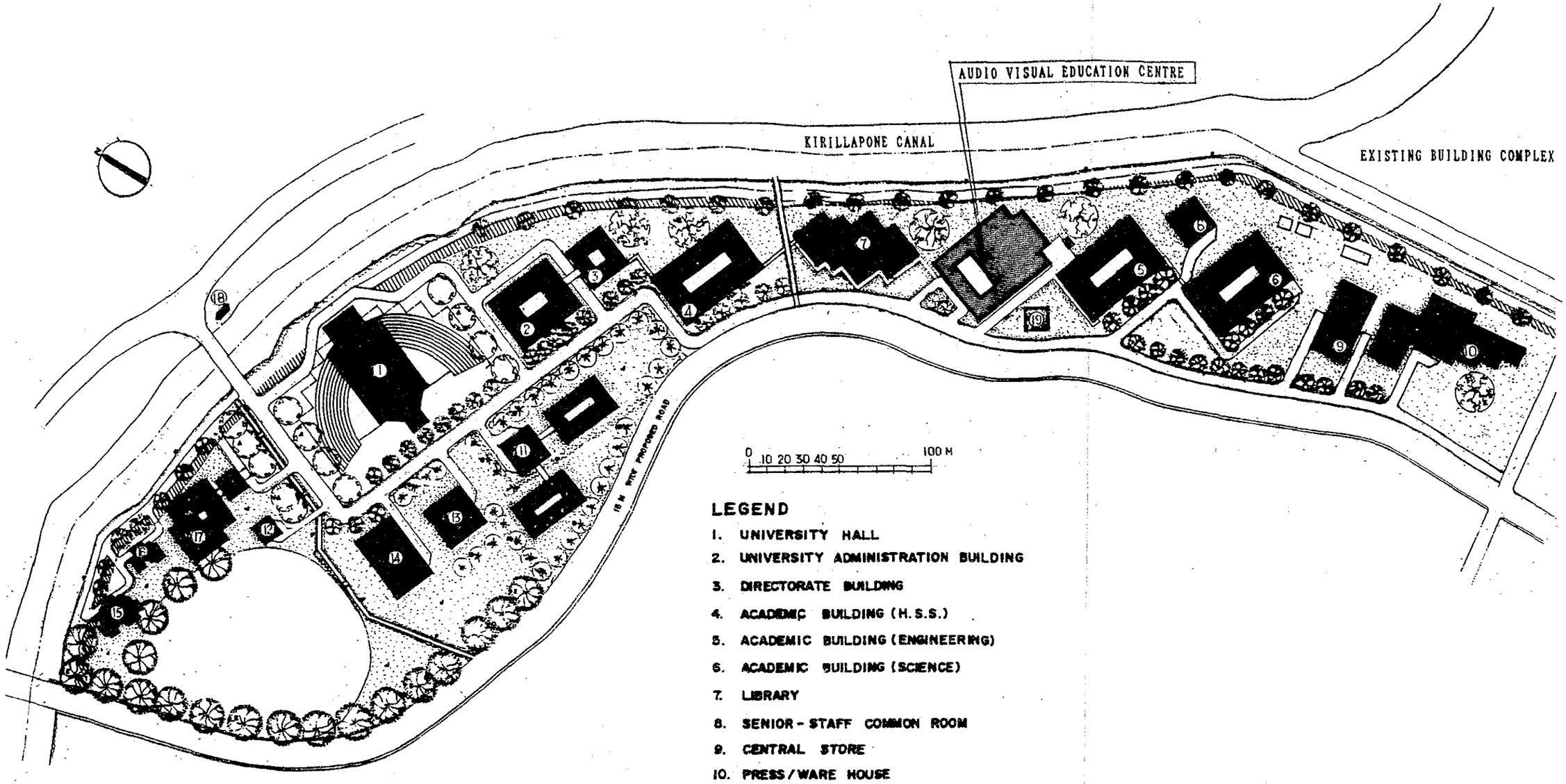
OUSL has decided the list of subjects to be accompanied with AV materials for the 1st 2 years, the number of which by the facilities is as follows.

Humanities & Social Sciences	Audio	55	Video	50
Natural Sciences	Audio	35	Video	28
Engineering Technology	Audio	18	Video	22
Total	Audio	108	Video	100

The above number is beyond that of the operational plan. However, since the number is based on educational needs, OUSL hopes to produce all materials if technically possible.

OUSL is examining the list of subjects to be accompanied with AV materials from the 3rd year on. OUSL intends to increase the production number of AV materials, based on educational needs as well as production experiences, to 80 audio materials per year from the 3rd year on and to 70 video materials from the fourth year on.

Following the above production schedule, OUSL hopes to produce about 600 audio and about 500 video materials by the year 2000.



LEGEND

1. UNIVERSITY HALL
2. UNIVERSITY ADMINISTRATION BUILDING
3. DIRECTORATE BUILDING
4. ACADEMIC BUILDING (H.S.S.)
5. ACADEMIC BUILDING (ENGINEERING)
6. ACADEMIC BUILDING (SCIENCE)
7. LIBRARY
8. SENIOR - STAFF COMMON ROOM
9. CENTRAL STORE
10. PRESS / WARE HOUSE
11. DORMITORIES
12. HEALTH CENTRE
13. COMMON DINING/ KITCHEN
14. STAFF CLUB
15. GUEST HOUSE
16. V.C'S LODGE
17. C.V.C.D. BUILDING
18. PUBLIC OFFICE
19. PUMP HOUSE

MASTER PLAN OF NEW BUILDING COMPLEX CENTRE

Fig. 2-5 MASTER PLAN OF NEW BUILDING COMPLEX OF THE AV EDUCATION CENTRE

2-3 Outline of the Request

2-3-1 Background of the Request

Since winning independence, Sri Lanka has energetically been pushing ahead its national development focusing on such aspects as development of agriculture and manufacturing industry and enhancement of people's living standard. As a result, in the aspect of industrialization, too, Sri Lanka has been making a certain range of achievements.

Even so, its GDP has recently been more or less at a standstill and this is reflected in the nation's per-capita annual income which in 1989 was a little less than 400 U.S. dollars. In order to further increase agricultural and industrial outputs and to enhance the economic growth, Sri Lanka needs more human resources who possess new scientific knowledge and skills. However, owing to the limited number of higher-education institutions which foster such desired human resources, entrance into universities has now become extremely difficult.

So, in order to expand the opportunities for higher education, the Government of Sri Lanka in 1980 established the Open University based on the system of distance education. OUSL has since made such a good progress as to attain the enrollment close to 15,000 students as of 1990. OUSL plans to increase this enrollment further to 50,000 by the year 2000. And OUSL strongly desires to further reinforce the output and stock of AV teaching materials as the effective means of coping with the increase of students as well as for the purpose of further enhancing the quality of its distance education. However, OUSL has been finding it difficult to achieve the desired reinforcement of AV teaching materials, owning to the extreme inadequacy of the existing facilities for the production of AV teaching materials.

For that reason, the Government of Sri Lanka, in order to improve OUSL's production system for AV teaching materials, established its plan to set up an AV Education Centre in the OUSL development plan and requested the Government of Japan to provide Grant Aid for implementation of the plan.

2-3-2 Contents of the Request

The objectives of the request lie in establishing an AV Education Centre at OUSL, dramatically reinforcing the AV teaching materials and thereby substantially improving the quality of OUSL's distance education so as to cope effectively with the sharp increase in the number of students.

The executing organization of this project is OUSL. OUSL owns a wide piece of land as the site for a new campus adjacent to the headquarters' campus located in the south-southeastern suburbs of Colombo city.

The equipment and the building (about 2,300m^2) requested for the establishment of the AV Education Centre are as follows:

(1) Production Studio for Video Teaching Materials

(1 room; 144m^2)

Colour camera system, caption scanner, video production switcher system, audio production equipment, videocassette recorder system, studio lighting equipment, monitoring equipment, studio intercom equipment, etc.

(2) Production Studio for Audio Teaching Materials

(1 room; 48m^2)

Stereo sound production equipment, stereo tape recorder, monitoring equipment, etc.

(3) Dubbing Studio (1 room)

Stereo sound dubbing system, videocassette recorder, monitoring equipment, etc.

(4) Post Production Studio (1 room)

Videocassette recorders, editing system, video production equipment, telecine system, sound production equipment, monitoring equipment, control console, racks, etc.

(5) Editing Rooms (3 rooms)

Single-step editing system, monitors, etc.

(6) Outdoor Coverage Equipment (5 sets)
VTR-combined camera, audio equipment, monitoring equipment, lighting equipment, portable engine generator, vehicle, etc.

(7) Viewing Rooms (4 rooms)
Colour video projection system (100-inch), 16mm/8mm film projector, slide projector, overhead projector, etc.

(8) Language Laboratory Classrooms (3 rooms)
Language laboratory device, master-slave tape recorders, display device, colour video projector, etc.

(9) Printing Room (1 room)
Printer equipped with an electronic editor, copying machine, etc.

(10) VHF Communication System
VHF radio repeater station facilities, VHF radio communication equipment (for use between the University's headquarters and the centres), antenna and mast (15m), etc.

(11) TV Programme Transmission Link
Microwave transmission/reception equipment, parabolic antenna and antenna tower (30m), VHF radio equipment for technical communication, and other equipment.

(12) Measuring Equipment and Tools

(13) Power Supply Equipment (1 room)
Power-receiving panel, distribution panel, automatic voltage regulator, non-utility power generator (250kVA), etc.

(14) Airconditioning Equipment Room
Airconditioning equipment

(15) Colour video projection system (150-inch). (17 sets)

(16) Construction materials

(17) Spare Parts

(18) Office (1)

(19) Laboratory (1)

(20) Conference Room (1)

(21) Maintenance Room (1)

(22) Tape Store (1)

(23) Store (2)

(24) Stage-Setting Storeroom (1)

(25) Makeup Room (2)

(26) Dressing Room (2)

(27) Toilet (4)

CHAPTER 3 OUTLINE OF THE PROJECT

CHAPTER 3 OUTLINE OF THE PROJECT

3-1 Objectives of the Project

The Open University of Sri Lanka was established as a distance-education university for which the enrollment is free, with the purpose of coping effectively with the shortage of human resources who have been given higher education.

In order to further enhance the quality of education and to cope more effectively with the increase of students, OUSL strongly desires to reinforce the output and stock of AV teaching materials which is one of the most important factors in distance education. However, such reinforcement efforts are facing a difficulty because of inadequate facilities for production of AV teaching materials.

OUSL has already put to a start under Government approval a development plan with an aim set on the year 2000 as the target year and has started the construction of some of the buildings planned to be constructed on the new site of the university headquarters. It is as one of the principal facilities under this development plan that the AV Education Centre is now planned to be constructed for the purpose of having it undertake the work of producing AV teaching materials.

The objective of this project is to establish an AV Education Centre for the production of AV teaching materials at OUSL on its own and thereby carry out a dramatic reinforcement of teaching materials so as to improve OUSL's education both in quality and quantity.

3-2 Study and Examination on the Request

3-2-1 Appropriateness of the Project

By the Government of Sri Lanka, OUSL is positioned as an important facility for the fostering of high-calibre human resources of the nation. In fact, as the funds to cover the expenses required in constructing part of the buildings on the new site of the university headquarters under the University's development plan up to the year 2000, OUSL has already received from the Government a budget allocation of 149 million Rupees, an amount that corresponds to more than 2 times as much as the OUSL's income for 1990.

The objective of the AV Education Centre is to produce the AV teaching materials, which are indispensable for the enhancement of the level of education conducted by OUSL, in an amount large enough to enable OUSL to achieve its educational goals. The Centre, therefore, is going to be the nucleus of the facilities being constructed under OUSL's development plan. Once AV materials have been enriched, students' efficiency and level of studies will be enhanced. In the development plan, OUSL expects to increase its student enrollment to 50,000, which can be realized only when the students' studies have been promoted with enriched AV materials.

As a part of the long-term national development plan that sets its target on the year 2000, OUSL has established an operational plan for an AV Education Centre including increases in the amount of budget and the number of personnel. Hence, OUSL is preparing itself for the implementation of this project with great enthusiasm.

Moreover, the Government of Sri Lanka is giving top priority to this project as one involving international cooperation in the field of education. UGC has already approved increases in the number of personnel and the amount of budget required in the establishment of the AV Education Centre.

The AV Education Centre is envisaged to play the role of an AV material production centre for the whole higher education in a higher education reform plan of the Government of Sri Lanka.

Judging from the OUSL's overall posture toward the project and the role to be played by the project in fostering human resources, this project can be considered to have ample justification as an object of Grant Aid from Japan.

3-2-2 Execution and Operational Plans of the Project

Within the organization of OUSL, the section that is in charge of production of AV teaching materials is the Media Unit of the Educational Technology Division. (See Fig. 2-3: Organization of OUSL.)

After this project is implemented, the Media Unit will be facing the need of increasing the number of its personnel in order to cope with the increased volume of work.

The following is the breakdown of the increase in the number of personnel scheduled by OUSL:

Management staff	2
Clerical staff	2
Programme production staff	4
Technical staff for AV production	15
Illustrators	2
Maintenance staff	2
Store keeping staff for material tapes	1
TOTAL:	28

The above would mean an increase by a number equal to 1.7 times as many as that of the existing number of personnel which is 16. So, when added together, the total number of personnel is planned to be 44.

Of the above-listed personnel, with the exception of the personnel in charge of management, clerical work and programme production, those who are to be directly involved in studio works of the AV teaching material production will eventually be as follows:

	Numbers of Personnel		
	Present	Increase	Required Total
Illustrators	2	2	4
Technical staff for AV production	5	15	20
SUB TOTAL:	7	17	24

Incidentally, the reason the programme production staff have been excluded from this table is that, because of the nature of the duties of this staff, it may be judged appropriate to have the 3 faculties provided personnel to act as programme producers.

If the required number of personnel to engage in the studio works of AV teaching material production is examined in the light of the personnel plan of OUSL as outlined above, it can be judged that the required increase in number of personnel will be not more than 11, as follows:

	Numbers of Personnel			
	Present	Increase	Required	Total
Illustrators	2	1	3	
Technical staff for AV production	5	10	15	
SUB TOTAL:	7	11	18	

The amount of personnel expenses required in carrying out this increase is estimated at about 502,000 Rupees per year.

The 18 required personnel will be posted as follows.

Video Production Studio	Cameraman	2
	Video switcher	1
	Audio mixer	1
	Video adjustment (concurrently in charge of lighting)	1
	Illustrator	2
Audio Production Studio	Audio mixer	1
Audio Dubbing Studio	Audio mixer	1
Post Production Studio	Video switcher	1
	Audio mixer	1
	Illustrator	1
Outdoor Coverage Equipment	Cameraman	2
Editing Room	Video Editor	3
AV Tape Copying Room	Copying	1

Of the above-proposed increase in the number of personnel, one will be of engineer-class and the remaining 10, those of technician-class. Regarding the employment of these personnel, OUSL has in mind the possibility of employing from among its graduates and those who have an experience in the production of AV programmes and teaching materials. In consideration of SLBC's past recruitment experiences when the average success ratio for engineer was one success to 3-4 applicants and the ratio for technician was one success to 50 applicants, it is judged that there will be no substantial difficulty in employing those personnel for the projected AV Education Centre. However, there also could be the

possibility of adopting the method of increasing the number of personnel in about three stages each year.

On the occasion of recruitment, an observer each from SLRC and SLBC will join the OUSL's selection board.

Since education and training of these newly employed personnel are indispensable, it is important to ensure that those personnel will acquire skills as soon as possible for the full-scale work of producing AV teaching materials with assistance from other organizations such as SLBC and SLRC, as well as the Japanese technical cooperation in the forms of long term dispatch of Japanese experts and the acceptance of Sri Lankan trainees.

As to the operational expenses required after completion of the AV Education Centre, an increase of about 1.5 million Rupees is estimated by OUSL, including such other expenses as the cost of operating the facilities and equipment and that of procuring the consumables.

In connection with the increase in operational expenses estimated by OUSL as mentioned above, there is the need of estimating a further increase of 3.55 million Rupees per year if such factors as an increase in consumption of electric power and AV tapes as well as the costs of maintenance and repair of facilities and equipment were taken into account.

Meanwhile, the income and expenditure accounts of OUSL during the 10 years from 1981 are as shown in Tables 2-5 and 2-6.

It can be judged that there will be no problem in realizing increases in the amount of the budget and the number of personnel, in view of the following facts: that the amount of government grant has been increased every year, that the establishment of an AV Education Centre is a part of OUSL's long term development plan and the estimated increase in personnel and budget has already been approved by UGC and that the number of students is expected to increases further so that OUSL may count on some raise in the tuition even if that raise may not be much.

3-2-3 Relations with Similar Projects and Other Assistance Projects

OUSL has received financial assistance from the following overseas organizations since immediately after its establishment in 1980 until the end of 1989. During these years, a UNDP representative stationed in OUSL to take charge of coordinations until 1990 when he left Sri Lanka. This

marked the end of a development plan of the UNDP. The following is the outline of assistance that OUSL has received up to now:

(1) Development Plans of UNDP, UNESCO and SIDA

From UNDP, UNESCO and SIDA (Swedish International Development Authority), assistances totalling 59,444,439 Rupees were received in equipment, books, vehicles, etc. The equipment include such items as studio video cameras, videocassette recorders (VCRs), printers, science laboratory instruments, photocopiers and office machines.

As to assistance in terms of human resources, experts had been sent to Sri Lanka from various countries up to the end of 1989 as UNDP/UNESCO's project staff even though such dispatches were made on an occasional basis, one after another. These experts gave guidances in education at OUSL faculties and also in the production of AV teaching materials.

Assistances and guidances were also given by many Sri Lanka's consultants in various disciplines.

(2) NORAD (Norwegian Organization for Regional Asian Development)

a) Environmental Project 525,000 Rupees

The financial assistance given under this project was used in covering the cost of producing video teaching materials required by the Natural Sciences Faculty.

b) Pre-School-Education Project 817,500 Rupees

The assistance given under this project was used in covering the expenses to purchase training materials and equipment of the Humanities & Social Sciences Faculty.

(3) Asia Foundation (American aid organization headquartered in California)

a) Staff development in AV programmes 911,500 Rupees
Costs of dispatching lecturers, compiling textbooks and conducting ceremonies.

b) Cost of compiling textbooks for use in the education of Professional English. 90,000 Rupees

c)	Cost of compiling textbooks for teaching Journalism.	650,000 Rupees
d)	Cost of holding meetings among the national universities.	100,000 Rupees
e)	Cost of producing AV teaching materials for use in providing knowledge on laws.	462,000 Rupees

3-2-4 Component Factors of the Project

The requests from OUSL may be classified into the following component factors:

- Facilities and installations related with the production of AV teaching materials (the facilities and equipment of the AV Education Centre)
- Installations related with the broadcasting of AV teaching materials (TV programme transmission devices)
- Installations related with the supplementation of classroom-teaching (VHF radio communication devices and language-laboratory installations)
- Installations related with regional centres (colour video projection system)

An examination of each factor will be made as follows.

(1) Facilities and Installations related with the production of AV Teaching Materials

As mentioned previously, distance education is basically correspondence education. So, it naturally centres on studying at home using textbooks. Hence, as a means to promote the learners' understanding in their home studies, AV teaching materials can play an extremely important role. The capability of producing AV teaching materials of high quality in large quantities can, therefore, be considered as an effective means of enhancing educational effects.

(2) Installations related with the Broadcasting of AV Teaching Materials

OUSL plans to further expand its activities of making effective use of AV teaching materials through broadcasting and, for that purpose, strongly desires to install a TV programme transmission device from

OUSL to SLRC so that it may directly transmit the AV teaching materials through broadcasts.

This desire of OUSL is fully understandable, as it is extremely important to ensure further enhancement of the effects of students' studies at home by making effective use of radiowaves. However, it seems that the idea of the university making direct uses of a transmission device will be somewhat premature to be implemented from the points of view of operation, maintenance and management. Besides, there is the SLRC, the TV broadcasting station, nearby and therefore it can be judged that OUSL's plans can be achieved fully by simply delivering the AV teaching materials it has produced to SLRC. It is judged that this is a question that should be examined in combination with the question of the future plan to establish a TV channel for exclusive use in broadcasting educational programmes.

(3) Installations related with Teaching Support

Unlike the education given at ordinary universities, the distance education offers extremely few chances for the students and lecturers to come into direct contact with each other. It is in order to supplement such lack of direct contacts between teachers and students that OUSL makes it a rule to conduct face-to-face lecture classes and counselling at local centres and practical training at the headquarters.

Also, in connection with the preceding paragraph, the use of AV teaching materials through broadcasting consists mainly of listening and viewing by students at the local centres. Hence, in order that question-and-answer sessions may readily be conducted between the lecturer at the headquarters and the students at the local centres about any question raised by the students viewing the lecture, installation of a two-way radio communication device using VHF is strongly desired by OUSL.

The lack of communication between the students and the lecturer who are separated by a long distance is, to be sure, an unavoidable fate of distance education. The extremely great importance of doing something to supplement this lack is fully understandable. However, the implementation of a device to enable two-way communication simultaneously with broadcasting is expected to be extremely difficult owing to such reasons as, the limitations in broadcasting

time, the order of priority for the local centres from which the students' questions are asked, selection of questioners, radio-communication incapability caused by simultaneous emission of radiowaves from more than one region, and other reasons related with radiowave control. This question, therefore, is considered to be one that should be examined in future while keeping an eye on the progress of improvements in the telecommunication systems in Sri Lanka, such as telephones.

Although the language laboratory is an extremely effective means of language learning, it has no direct relations with the production of AV teaching materials.

(4) Installations related with Local Centres

OUSL is requesting provision of colour video projection systems in order to promote effective use of AV teaching materials at the local centres. However, sophisticated equipment such as colour video projection system is not suitable to be installed at a local centre because of possible structural insufficiency in checking heat, humidity and dust. There may be problems of maintenance also.

Still, it is important to improve listening and viewing equipment at the local centres from the standpoint of equal opportunities in distance education. Therefore, as a substitute for colour video projection system, the equipment consisting of video cassette deck and television receiver, which has been in actual use at the Regional Centres, will be planed for each of the 13 Study Centres and procured in the local market.

Based on the studies made from various viewpoints as outlined above, it has been concluded that this project should place primary emphasis on the establishing of the AV Education Centre for production of AV teaching materials and that provision of TV transmission device, VHF radio communication device, language laboratory installations and colour video projection systems shall not be included in the project. However, as a substitute for colour video projection system, video material viewing equipment will be planned for each of the 13 Study Centres.

3-2-5 Contents of the Requested Facilities and Equipment

As mentioned in the preceding paragraph, this project shall place its emphasis on the establishment at OUSL of the AV Education Centre for production of AV teaching materials.

Of the various items of equipment requested it has been decided, as a result of examinations made in the preceding section, to exclude the following items from this project: TV programme transmission equipment, VHF communication system, colour video projection system and language laboratory. However video viewing equipment for each of the 13 Study Centres will be added to the project.

The following Fig. 3-1 shows the flow of work at the Centre from planning to completion of AV teaching materials.

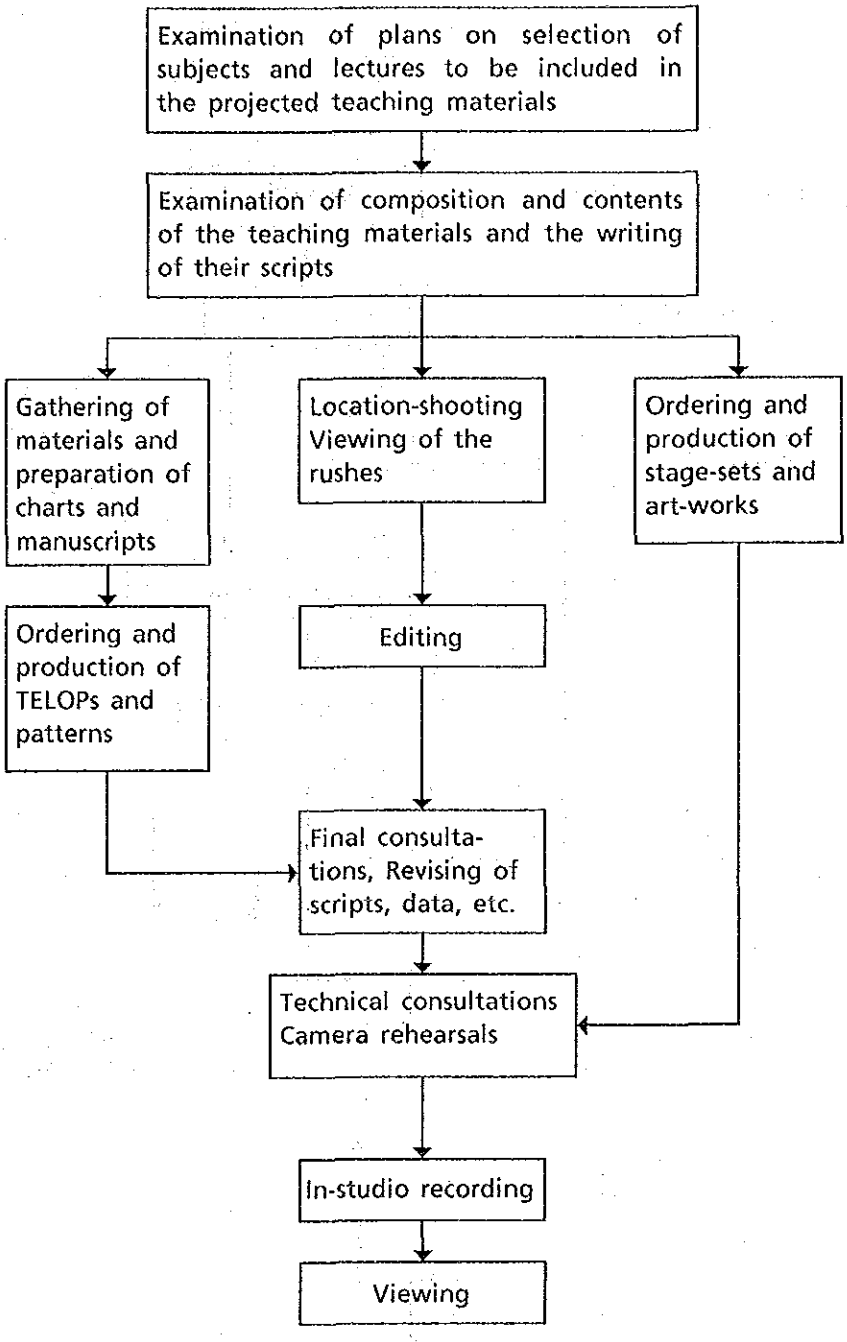


Fig. 3-1 Flow of AV Teaching Material Production Work

Fig. 3-2 shows the flow of materials in the production of AV teaching materials.

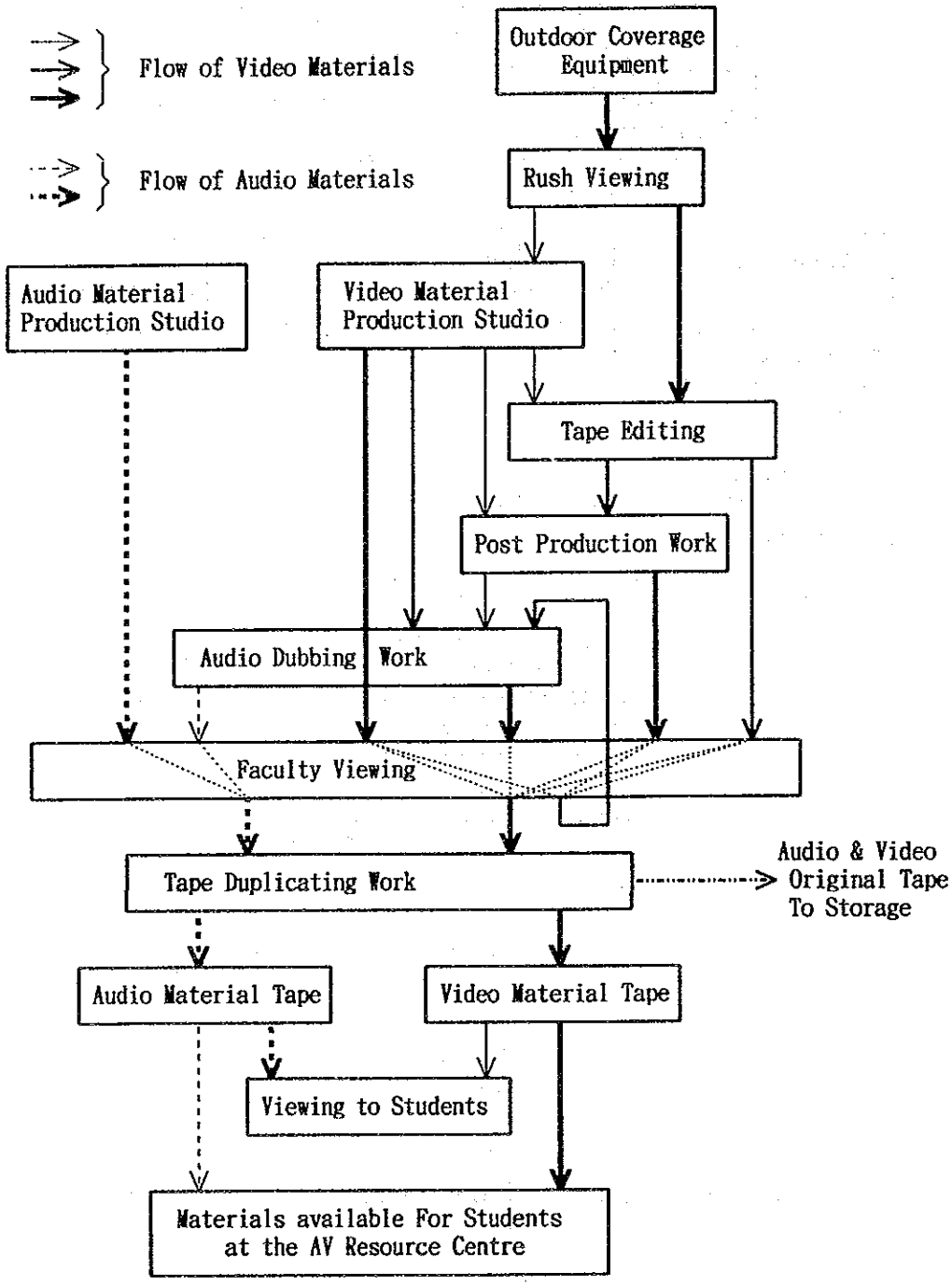


Fig. 3-2 Flow of Materials in the Production of AV Teaching Materials

(1) Contents of the Requested Facilities

The following are the contents of the requests made about the facilities of the AV Education Centre to be established at OUSL. In the following pages, the contents of the requests will be examined item by item.

Names of Facilities	Functions Required	Included or Otherwise in This Project
Video Material Production Studio	This is a space required at the time of video teaching-material production, for production activities, such as, performances, arranging stage-settings and other artworks, camera-work, setting up microphones and lighting devices.	Included
Production Control Room for Video Teaching Materials	This is a space required for the production control work, such as, directing the progress of the production work, switching, audio mixing, camera video adjustments, lighting adjustments, etc., and also for the installation of devices and equipment required by the production work.	Included
Audio Material Production Studio	Required as a space for use by performers in the course of production of audio teaching-materials, such as giving oral performances. The space is also necessary for the work of setting up microphones at appropriate locations in the studio.	Included
Production Control Room for Audio Teaching Materials	Required as a space for production control work, such as, directing the progress of the production work and audio mixing, and also for installation of facilities and equipment for the production control work.	Included
Audio Dubbing Studio	In this studio, audio dubbing will be conducted on the newly-produced or existing video materials and teaching materials supplied by foreign countries. This, therefore, is a space for conducting such work as audio dubbing and mixing in coordination with the required audio recording and video-copying work, and also for the installation of equipment needed for such work as mentioned above. There also is the need of setting up an announcer's booth for the recording of the voices to be dubbed into the materials.	Included

Names of Facilities	Functions Required	Included or Otherwise in This Project
Post Production Studio	This is a space for post production work which includes putting the video and audio materials recorded in the audio or outdoors through sophisticated editing work or applying special-effect techniques to video and audio so as to add variety to the contents and make the materials more persuave. For that purpose, it is necessary to install various equipment and facilities in this studio.	Included
Editing Room	This is a room required for the work of editing the materials recorded on location according to the script for production of teaching materials. In the case of ordinary outdoor location-shooting, the total length of tapes in which recordings are made comes up to more than ten times the length of the programme itself. And for the editing of these tapes, 3-5 times the total length of time of the recorded tapes is normally required. Hence, a minimum of three editing rooms would be required if the peak work hours were taken into account.	Included
Viewing Room	This is a room required by those concerned with the producing faculties at OUSL and others concerned with the production in viewing the completed video teaching materials and in checking their contents and outcome. It can also be used for viewing of the rushes of the tapes recorded on outdoor location.	Included
Control Apparatus Room	This is a room required for the production of synchronous signals and test signals needed by various video equipment and the time-pulse signals to be distributed to each room. It is also necessary for installation of TV-receiving equipment and inter-room communication device. As a result of examination, it has been decided that this room should be called the "Control Apparatus room."	Included

Names of Facilities	Functions Required	Included or Otherwise in This Project
Printing and Copying Room	This is required as a room for the copying of video and audio cassette tapes of AV teaching materials. As a result of examination, it has been decided that this room should be called the "Multiple Cassette Copying Room."	Included
Power-supply Room	This is necessary as key installations that support the AV Education Centre.	Included
Airconditioning Machine Room	This room is necessary in maintaining optimum environment for the equipment and facilities to produce AV teaching materials.	Included
Maintenance Room	This room is required for maintenance and repairs of equipment and facilities, and also for the storage and management of spare parts and standby equipment. As a result of examination, it has been decided that this room should be called "Maintenance Workshop."	Included
Tape Store Room	This is a room required for the storage and supply of unused tapes needed for AV teaching-material production and also for use in storing and keeping in custody of the original tapes of the completed teaching materials. As a result of examination, it has been decided that this room should be called the "AV Library."	Included
Language Laboratory	This provides supplementary functions in language learning and has no direct relations with the AV teaching-material production itself.	NOT included
Stage-setting Storeroom	This is necessary for the production and storage of artworks and stage-sets required for use in the video studio.	Included
Warehouse 2	Required for storage of cameras and lighting equipment.	Included

Names of Facilities	Functions Required	Included or Otherwise in This Project
Conference Room	For use by those concerned with the work of producing teaching-materials.	Included, Reclassified as shown in the separate table
Laboratory	This is a laboratory for students and is not directly associated with AV teaching-material production.	
Office	For use by the AV Education Centre's staff in charge of AV teaching-material production.	
Makeup Room	A room for the performers to prepare themselves or to put on makeup before entering the studio.	Included

As a result of examination, it has been decided that the conference room, Laboratory and office should be reclassified as follows:

Names of Facilities	Functions Required	Included or Otherwise in This Project
Planning Office	This is a room required for such purposes as, for the lecturers and those of OUSL faculties in charge of the production of teaching materials and those in charge of printed or AV teaching materials to meet and discuss the production policy for teaching materials such as selection of subjects and contents of proposed lectures to be recorded. The room is also intended for use by lecturers and directors to discuss the means of making effective use of the audio-visual methods in university education on the basis of the contents of lectures proposed by the lecturers in charge.	Included
Producer/Director Room	This is a room required by producers and directors in making necessary preparations for such work needed to be undertaken before and after the recording of AV teaching materials, such as, the writing of scripts, examination of the TELOPs and patterns, edited tapes and complete scripts.	Included

Names of Facilities	Functions Required	Included or Otherwise in This Project
Visual Art Workshop	Required by the illustrators in making TELOPs and patterns based on various materials gathered and charts drawn.	Included
Technical Staff Room	Required by the technical staff in conducting technical examinations based on the script, such as camera-blocking, switching, audio-mixing and lighting plans.	Included

(2) Contents of the Requested Equipment

The contents of the request made for provision of equipment for the AV Education Centre are as shown in the following table. So, an examination will now be made of the contents of the request made.

Equipment	Functions	Included or Otherwise in This Project
a) Equipment for the Video Material Production Studio	This studio is necessary for the production of a great variety of video teaching materials, such as lectures, dialogues, discussions, science experiments, music and skits.	Included
• Colour camera	Device to shoot the movements of performers and changes in conditions and phenomena in the studio.	
• Caption scanner	Device to shoot TELOPs and patterns containing drawings and graphs.	
• Video switching equipment	Device for use in controlling the video pictures from camera, caption scanner, VTR, etc., and also in making smooth switching of pictures.	
• VTR	Device for the recording of video teaching materials and for play-back of the recorded materials.	
• Audio mixing equipment	Device for smooth mixing and control of the audio accompanying the video.	

Equipment	Functions	Included or Otherwise in This Project
• Tape recorder/player	Device required for the recording of audio teaching materials and for the play-back of the recorded audio materials.	
• Cassette tape recorder/ player	Device for use in playing the tapes kept in the library to use them as materials.	
• Monitoring equipment	Device for use in controlling the video and audio and in monitoring the picture and sound quality in the course of production of video teaching materials.	
• Intercommunication equipment	Device for use in maintaining communication and sending of orders between the staff working in the control room and those working in the studio, such as cameramen and floor directors.	
• Lighting equipment	Device for use in adjusting the quantity of light at the optimum level for the objects in the studio being shot.	
b) Equipment for the Audio Material Production Studio	This studio is necessary for the production of audio teaching materials of diverse contents, such as lectures, dialogues, discussions, music and skits.	Included
• Audio mixing equipment	Device for use in controlling the audio output from more than one microphone in the studio and also in conducting smooth audio mixing.	
• Sound-effects equipment	Device to apply special effects, such as echo, to the audio.	
• Disc player	Device to play discs.	
• Tape recorder/player	Device needed in playing the recorded audio materials and in recording the materials for use in producing audio teaching materials.	
• Cassette tape recorder/ player	Device for use in playing the tapes kept in the library to use them as materials.	

Equipment	Functions	Included or Otherwise in This Project
• Monitoring equipment	Device for use in controlling the audio and in monitoring the sound quality in the course of production of audio teaching materials.	
c) Audio Dubbing Studio	This studio is required in conducting audio dubbing of the completed video teaching materials and teaching materials procured overseas or supplied by foreign countries.	Included
• Audio mixing equipment	Device for use in controlling the audio of the original video teaching materials that require audio-dubbing and the audio from such sources as multi-track tapes, disc player, tape recorder/player and cassette tape recorder/player, and also for use in conducting smooth audio mixing.	
• Multi-track tape recorder/ player	Device for simultaneous recording of multi-channel sounds from such sources as the voices to be dubbed, sounds from the original tapes and discs, and other tapes.	〃
• Disc player	Device for playing discs. However, this item will be deleted from this project, as it is considered that the disc player installed in the Audio Material Production Studio should be used instead.	NOT included
• Tape recorder/player	Device required for the playing of recorded audio materials and recording of materials for use in producing audio teaching materials.	Included
• Cassette tape recorder/ player	Device for use in playing the tapes kept in the library to use them as materials.	〃
• VTR	Device for use in playing the original video teaching materials that require dubbing and also in recording the dubbed video teaching materials.	〃

Equipment	Functions	Included or Otherwise in This Project
• Tape synchronizing control equipment	Device to put in motion the multi-track tapes and other tapes synchronously with the original video teaching-material tapes.	Included
• Monitoring equipment	Device for the audio control and audio-quality monitoring in the course of production of audio teaching materials.	〃
• Sound-effects equipment	Device for use in applying echo and other special effects to the audio. However, this item will be deleted from the project, as it is considered that the equipment for shared use should be brought in whenever the need arises.	NOT included
d) Equipment for the Post Production Studio	Necessary for such work as conducting sophisticated editing of the materials based on the video and audio materials recorded in the studio or outdoors, or applying special effects to video and audio so as to produce pictures that are richer in variety and thereby to complete the materials into those having strong persuasive power.	Included
• VTR	Necessary for conducting sophisticated editing of tapes. It is essential for switching smoothly from one recorded tape to another while adding special effects.	
• Video switching equipment	Device for conducting video control and smooth switching of scenes, the work required for sophisticated editing.	〃
• Audio mixing equipment	Device for conducting audio control and smooth mixing of the sounds accompanying the edited pictures.	〃
• Tape recorder/player	Device necessary for the playing of the recorded audio materials.	〃
• Cassette tape recorder/ player	Device necessary for the playing of the recorded audio materials.	〃

Equipment	Functions	Included or Otherwise in This Project
• Monitoring equipment	Device for use in the editing work, such as, deciding the editing points for video and audio, controlling the video and audio and monitoring the qualities of video and audio.	Included
• Telecine system	This equipment is needed in using 16mm and 35mm films, slides, etc., as editing materials. However, it will be deleted from this project, because the number of films possessed by OUSL is so small that it is considered more advantageous to use those films after converting them into video materials.	NOT included
e) Outdoor Equipment	Equipment necessary in conducting wide-ranging gathering of materials that cannot be shot in the studio, such as lectures, talks, theatrical plays, dramas and documentaries, as well as social and natural phenomena of all kinds taking place outside the studio.	Included
• VTR-combined colour camera	Equipment for coverage and recording.	
• Audio mixing equipment	Device for audio recording as a part of coverage and shooting work.	
• Monitoring equipment	Device for use in viewing and checking the videotaped materials immediately after they are shot and recorded.	
• Lighting equipment	Equipment required for the lighting of the subjects at the time of shooting and recording.	
• Vehicles	Necessary for loading the above-mentioned equipment and devices required for the coverage work and for transporting the coverage staff.	

Equipment	Functions	Included or Otherwise in This Project
f) Editing Equipment	Device needed in editing the tapes shot outdoors into insertion materials for use in the video studio production work or into post-production materials.	Included
• Single-step editor	Device for use in conducting editing work.	
g) Equipment for the Viewing Room	These are equipment for use in showing the visual materials to students.	
• 100-inch colour projection system	These are equipment for use in showing the visual materials to students.	NOT included
• 16mm/8mm film projector	— Same —	〃
• Slide projector	— Same —	〃
• Overhead projector	— Same —	〃
	Since the objective of the viewing has been changed from one intended for viewing by the students who are not directly concerned with the production of AV teaching materials to one for use by the faculties in checking the contents of the completed AV teaching materials, it has been decided that the film projector and other projectors should be deleted from this project so that the colour projections should be replaced with video monitors as the viewing equipment.	Changed and included

Equipment	Functions	Included or Otherwise in This Project
h) Equipment for Printing and Copying Equipment • Printer capable of electronic editing	Equipment necessary for the printing of printed teaching materials, or textbooks, and for their copying. As a result of survey and examination, it has been decided that the existing printing equipment should continue to be used. So, these items shall be deleted from this project and, instead, a multiple copying device for AV teaching-material tapes shall be installed.	Changed and included
i) Measuring Instruments and Tools • Video measuring instrument • Audio measuring instrument • Measuring instrument for lighting • Measuring instrument for power-sources	These are necessary for the maintenance of functions of the production equipment possessed by the AV Education Centre, their checking and adjustments and their maintenance and repairs.	Included
j) Powe-supply Installations • Power-receiving board • Distribution board • AVR	Equipment needed in supplying the power-source required in running the AV Education Centre. To receive power from the Lanka Electric Company's commercial source and from the engine generator. Equipment for distributing the received power to each room. Equipment for automatic adjustment within a certain range the voltage fluctuations of the power received from the Lanka Electric Company's commercial source.	Included

Equipment	Functions	Included or Otherwise in This Project
• Engine generator	Equipment necessary in ensuring that a part of the installations will be usable at the time of power failure. Although not included in the request, installation of an insulating transformer shall be added to the list of equipment to be supplied under this project, in order to prevent the noises generated from the lighting equipment from intruding into the AV material production equipment.	
• Automatic switch-over board	This is the board which switches-over the AC power line for AV equipment to the voltage built-up engine power from the city power line in case of power failure on the city power line.	
• Uniterrupted power supply (UPS)	This is the power supply unit which avoids any trouble in the computer adopted equipment in case of AC power failure or glitch.	

3-2-6 Policy for Implementation of Cooperation

From the studies made so far about the implementation of this project,confirmation has been made of such matters as the effects of AV teaching-material production on the distance education and the ability of OUSL to promote this project and to manage and operate the facilities and equipment to be provided under the project. As a result, it has been judged that there is ample justification for this projet being carried out with Japan's Grant Aid assistance in view of all that have been confirmed as mentioned above and also of the fact, for example, that the effect of this project is in conformity with the objectives of the Japanese government's Grant Aid system. So, based on the premise that this project shall be carried out with Japan's Grant Aid, the outline of the project will be examined in the following pages and the basic designing for the project will be conducted. However, as to the actual contents of the request, the appropriateness of making a partial revision of the request

is as explained in detail in the sections in which an examination was made on the component factors of the project and the contents of the requested facilities and equipment.

3-3 Project Description

3-3-1 Executing Organization and Operational Structure

The executing organization of this project is OUSL. Unlike the eight ordinary universities, OUSL plays a uniquely important role in the field of higher education in Sri Lanka in that anyone can be admitted freely into it and that it is disseminating university education even to remote regions by such means as the use of AV teaching materials.

Within OUSL, the organ in charge of production of AV teaching materials is the Media Unit of the Educational Technology Division.

The Media Unit at present has 16 staff members, of whom seven are in direct charge of production of AV teaching materials in the studio. Since the volume of teaching materials to be produced after the establishment of the AV Education Centre is expected to increase substantially, the number of personnel also will be increased by 11 at least to bring the total to 18. The breakdown of these 24 staff members is as stated in 3-2-2 Execution and Operational Plans.

The maintenance and management of OUSL's existing equipment and buildings are conducted quite scrupulously and the produced AV teaching materials testify to the fact that great efforts are being made to make the most of the inadequate equipment.

OUSL has been endeavouring to realize this project with great enthusiasm, as is evident from the fact that it has not only obtained the approval of UGC on its personnel reinforcement and budget increase plan but has also already established its operational plan for the AV Education Centre. So, it can definitely be said that there is no problem whatever about the capabilities of OUSL as the executing and operating body for this project.

3-3-2 Operational Plan

To increase the number of AV materials produced and stored by the year 2000, OUSL plans to produce 50 audio and 40 video materials per year just after the start of the AV Education Centre. Then, based on educational needs and production experiences, OUSL hopes to increase AV material production to 80 audio materials from the 3rd year on and 70 video materials from the fourth year on.

Consequently, if the project has been smoothly implemented, the number of AV materials to be produced and stored by OUSL will reach about

600 audio and about 500 video materials and, adding the present number of materials, about 840 audio and about 570 video materials, by the year 2000.

Table 3-1 Yearly Production and Aggregate Numbers of AV Teaching Material Tapes

	Audio Tapes			Video Tapes		
	Annual	Weekly	Aggregate	Annual	Weekly	Aggregate
Initial year	50	1.0	50	40	0.8	40
2 nd year	60	1.25	110	50	1.0	90
3 rd year	80	1.75	190	60	1.25	150
4 th year	80	1.75	270	70	1.5	220
5 th year	80	1.75	350	70	1.5	290
6 th year	80	1.75	430	70	1.5	360
7 th year	80	1.75	510	70	1.5	430
8 th year	80	1.75	590	70	1.5	500
9 th year	80	1.75	670	70	1.5	570
10th year	80	1.75	750	70	1.5	640

Yearly production of AV material tapes after the completion of the Project is shown in Table 3-1.

At all of the three faculties of OUSL, plans are made to keep on creating additional courses and corresponding materials will be produced. Moreover, there is every likelihood of the needs arising for remaking of teaching materials in response to rapid social changes and the continuing technological innovations. So, even after the year 2000 the number of production and ownership of the audio and video tapes will increase.

3-3-3 Location and Condition of the Project Site

The site on which about 20 new school buildings including the AV Education Centre under this project are scheduled to be constructed spreads long and narrow from north-northwest to south, meandering along the Kirillapone Canal. At first, the AV Education Centre had been scheduled to be built on the narrow central portion of the site. However, this plan had to be given up for the following reason; that particular portion happened to be so narrow —— at the narrowest portion, the width of the site was only about 52m, sandwiched between the waterway running on the eastern side of the site and the planned road (about 15m in width, as determined by the municipality of Colombo) to be constructed on the western side of the site —— that the site was judged as being insufficient for the construction of the AV Education Centre with the scale as envisaged. So, the study team requested OUSL's side to consider the following two points and, as a result of discussions between the two sides, this request was granted.

1. Exchange the site with that of the library which the OUSL plans to construct.
2. The school building for the Engineering Technology Faculty and the elevated water-tank on the neighboring site to the south will be removed toward the south by a necessary distance.

Although the design for the library has already been almost completed, there would be no problem about exchanging the sites as proposed, in view of the planned shape of the floor of the library.

Regarding such questions as the supply of power and drinking water and the laying of main drainage pipe for the group of buildings which are either under construction or being planned to be constructed on the new campus, necessary preparations are being made by OUSL in the context of the entire plan for the new campus. Such work of constructing the infrastructure is being planned by OUSL's side as a part of the 2nd-phase construction work and there also is a possibility of the infrastructure construction work being conducted in parallel with the construction of the AV Education Centre. So, it is essential that the construction of those municipal facilities be completed prior to the completion of the AV Education Centre on the University campus.

The supply of power to the buildings to be constructed on the new campus of OUSL is being planned by the University using the existing

substation located on the southeastern corner of the site. The idea is to supply the power to roughly a southern half of the new campus plus a part of the existing campus. The projected AV Education Centre is also to be built within this power-supply area. At the substation, a 630kVA transformer will be used to lower the distributed voltage of 3-phase 3-wire 11kV 50Hz down to 3-phase 4-wire 400/230V. The power will then be supplied through the distribution board and the branched wires to each of the buildings.

The ownership and maintenance/management of the substation belong to the Lanka Electricity Company.

As to the supply of drinking water to all the buildings on the new campus, the water will first be drawn from the public waterworks and, via the receiving tank, will be pumped up to the main elevated water-tank on the premises so that the water may be fed from there to each building, according to the plan of OUSL. The main elevated water-tank will be 150m^3 in capacity and 18m in height, and is scheduled to be built near the AV Education Centre. The supply of water to the AV Education Centre will be done through a branch pipe stretching from the main pipe to be laid on the premises and will then be drawn into the building.

As to the drainage pipe of the AV Education Centre, its construction will be taken charge of by both the Japanese and the Sri Lankan sides; the former constructing the portion up to the final catch basin outside the building and the latter, from there to the public drainage way.

As to the disposal of sewage and waste-water, a water-purifier tank of an appropriate scale will be set up outside the building so that waste-water may be drained away after putting it through the purification process.

The construction site of the new campus is the land created by the Government in 1985 by filling the marshland and offered for use by OUSL. Prior to the construction of the group of buildings, OUSL conducted a boring survey at ten locations in the site in 1989. According to the report on the outcome of the boring survey, the surface portion of the ground of the projected site consists of reclaimed banking of laterite layer of 1.5-3m in thickness, and under this layer down to about 20m from the ground surface is a long stretch of sandy ground. From the results of a standard penetration test, too, it can be judged that the ground is extremely soft. Of the four buildings currently being constructed by OUSL, the three with three stories are being built with base steel piles

of about 20m long, while the single-storied student dormitory is of flat base. The AV Education Centre to be built under this project is to be a single-storied building but a considerable settlement due to consolidation is expected to occur if it were to be built on a flat foundation. So, there is the need of making careful examination in regard to the designing of the foundation.

3-3-4 Outline of the Project

The following table shows the outline of the facilities and main equipment required to be provided under this project whose objective is the production of AV teaching materials.

Table 3-2 Outline of Equipment for Production of AV Teaching Materials

Facilities	Main Equipment	Functions
(1) Video Material Production Studio	• Colour camera (3CCD) • Caption scanner • Character generator • Video control device • VTRs • Audio mixer • Tape Recorder/player • Cassette tape recorder • Microphones • Monitoring device • Communication device • Lighting equipment	In this studio, teaching materials will be produced by video-recording the images shot with more than one camera together with the audio while switching from one scene to another. Even though this is a small studio, it enables production of various types of video teaching materials (lectures, dialogues, discussions, science experiment, puppet plays, music, dances, dramas, etc.). Easily movable and easy-to-operate cameras will be adopted. The video control device shall have the minimum special functions (chromakey, wipe) in addition to switching, mixing and superimposition functions. Introduction of a caption scanner and a character generator will also be planned so as to enable insertion of titles, charts and texts into the video materials. The VTR can be used for playing of video materials besides the recording of the materials. As for the audio production equipment, introduction of an audio mixer will be planned so that mixing may be done of inputs from VTR audio, tape-players, cassette tape-recorders etc., as well as the microphones.

Facilities	Main Equipment	Functions
(2) Audio Material Production Studio	• Audio mixer • Tape recorder/player • Cassette tape recorder • Disc player • Sound-effects device • Microphones • Monitoring device	In this studio, audio teaching materials will be produced by mixing the audio from more than one microphone. Even though this is a small studio, it enables production of various audio teaching materials (lectures, dialogues, discussions, puppet plays, music, dances, dramas, etc.). As for the audio production equipment, introduction of an audio mixer will be planned so that mixing may be done of inputs from the disc player, tape player, cassette tape recorder, etc., as well as the microphones.
(3) Audio Dubbing Studio	• Audio mixer • Multi-track tape recording/player (4-track) • Tape recorder/player • Cassette tape recorder/ player • Microphones • Monitoring device • VTRs • Tape synchronizing control device	In this studio, audio dubbing of the existing video teaching materials and those supplied by foreign countries will be conducted. In Sri Lanka, a bilingual country using Sinhala and Tamil, English is also used widely. Hence, there is the need of producing two or three different versions for both video and audio teaching materials. This means that the same studio work needs to be repeated in order to produce the same teaching material in different language versions, which is quite inefficient. However, since this studio enables more than one audio to be recorded separately at the same time, once the teaching material is completed in one language, the audio dubbing work can be done entirely independently from the production work in the studio. So, in order to make it possible to conduct the audio dubbing work in the above-mentioned manner, a plan will be made to introduce such equipment and devices as, audio control device, various types of players for play-back of audio materials, multi-track tape recorder/player that enables recording of more than one audio separately at the same time, tape synchronizing control device that drives the foregoing devices synchronously, and VTRs for the playing and recording of video teaching materials. In this studio, production of audio teaching materials of a talk-programme scale is quite possible.

Facilities	Main Equipment	Functions
(4) Post Production Studio	• VTR • Editing control device • Video control device • Audio mixer • Monitoring device	In this studio, video and audio materials recorded in the studio or outdoors are put through a sophisticated editing process and are made into materials of richer variety and of more persuasive contents by being applied special effects to the video and audio.
(5) Outdoor Shooting Equipment	• VTR-combined colour camera • Gun-type microphone • Monitoring device • Lighting equipment • Vehicles	These are equipment for use in conducting the outdoor recording of materials. With these equipment, the recording can be made of various video and audio materials that cannot be recorded in the studio, such as natural and social phenomena and those recorded on location for use in a drama programme.
(6) Editing Room	• VTRs • Editing control device • Monitoring device	In this room, rough editing will be done of the materials recorded outdoors, using simple editor before putting the materials through the post production work. It is also possible to process the materials into completed teaching materials with the simple editor alone.
(7) Viewing Room	• VTRs • Monitoring device	It is a facility for those from the faculties concerned at OUSL and those in charge of production to view the recorded video teaching materials in order to check their contents and to discuss ways to further improve the quality of the materials. It can also be used for the viewing of the rushes of the recorded tapes.
(8) Control Apparatus Room Equipment	• Synchronous signals/test signals generator • Standard-time device • Inter-room communication device • Receiving device • TV system conversion device • VTRs • Monitoring device	The equipment to be installed in this room include the devices to produce synchronous signals and test signals which are required by each unit of video equipment, the device to produce time-pulse signals for distribution to each room, a radio/TV receiving device and a device for inter-room communication. Also to be planned for adoption are a TV system converter and VTRs which will be required in system conversion and recording when the materials recorded under a system different from the one adopted in Sri Lanka are sued.

Facilities	Main Equipment	Functions
(9) AV Tape Multiple-copying Device	• Videotape copying device • Audio-tape copying device • Monitoring device	These are the device for use in producing a large number of copies of the completed teaching materials for distribution to the students and also for storage in the AV Library. Since the audio teaching materials need to be copied speedily and in large quantities onto cassette tapes and the video teaching materials onto VHS cassette tapes, a plan will be made to introduce the type of equipment capable of producing 20 tape copies at a time, each for the audio and video materials.
(10) Measuring Instruments	• Video measuring instrument • Audio measuring instrument • Measuring instrument for lighting • Measuring instrument for power-sources	A plan will be made to provide various types of measuring instruments required for maintenance of the functions of equipment assigned to the AV Education Centre and for their regular check-up and adjustments, and for maintenance and repairs.
(11) Power-Supply Installations	• Power-receiving board • Distribution board • Automatic voltage regulator • Insulating transformer • Generator • Automatic switch-over board • Uninterrupted power supply (UPS)	These installations will include the receiving and distribution boards for the power from the commercial source, an insulating transformer to shut off noise generated from the lighting equipment, an automatic voltage regulator to maintain the voltage fluctuations at a certain level and a generator and UPS that enables a partial use of the installations and equipment in the AV Education Centre at the time of commercial-power failure.
(12) Spare Parts	• Spare parts necessary for maintenance and repair	Important spare parts, particularly the substrates and modules for various units of equipment, and some of the consumables, usable for about two years, will be taken into consideration.
(13) Airconditioning Equipment Room	Airconditioning equipment	The equipment will be installed to preserve good conditions for AV equipment and AV production works.
(14) Stage-Setting Storeroom		Setting for video production will be made, assembled and stored.

Facilities	Main Equipment	Functions
(15) Maintenance Workshop		Maintenance and repair will be conducted for facilities and equipment. Spare parts, spare units and outdoor coverage equipment will be maintained.
(16) Visual Art Workshop		Artworks of diagrams, tables, illustrations and photos will be conducted for TELOPs and patterns.
(17) AV Library		Completed AV materials and unused tapes will be arranged and stored.
(18) Planning Office		The production policy and the effective use of materials will be discussed.
(19) Producer/ Director Room		Preparations for actual production works will be made.
(20) Technical Staff Room		Technical examinations on production will be conducted.
(21) Makeup Room		Video performers will prepare in clothes and cosmetics for recording.
(22) Generator Room		A generator for emergency use will be installed in a separate building.

The equipment planned for each of the 13 Study Centres will be as follows.

Location	Equipment	Functions
13 Study Centres	• Video Cassette Deck (VHS) • TV Receiver	The equipment is for students to view video materials produced at the AV Education Centre.

3-3-5 Maintenance and Management Plans

(1) Maintenance Plan of Equipment

In recent years, as a result of the remarkable development achieved in electronics technologies, the broadcasting equipment have come to be composed of highly-integrated substrates and modules. They have thus become what may be called a "black box" with extremely high reliability and stability. At the same time, following the adoption of digital technology, the number of spots in broadcasting equipment requiring adjustments has been reduced substantially and less time and labour for maintenance than before is necessary. However, it is only natural that failures or breakdowns should occur inevitably from time to time and cases sometimes arise requiring adjustments. In such cases, it is considered extremely difficult for the engineering staff to repair the highly-integrated equipment all by themselves; probing into the "black box" single-handed may be termed as next to impossible. Hence, the restoring of the failed equipment back to normal would consist mainly of finding out the block in trouble and replacing the substrate or the module in question with the spares. Thus it becomes extremely important for OUSL to keep itself supplied with the main spare parts, substrates or modules for its equipment and installations. And the substrates or modules in trouble will have to be sent for repair to the manufacturers concerned through the local agents.

After the installation of sophisticated AV material production equipment, it is necessary to set up the maintenance system emphasizing preventive maintenance, since maximum prevention of troubles with facilities and equipment is of the utmost importance. Prior to equipment installation, maintenance staff has to be surely given basic training to acquire knowledge and skill necessary for maintenance of facilities and equipment.

It is appropriate that the pre-start training will be conducted at the training facilities of SLBC and SLRC which are equipped with the similar equipment with OUSL's. Both stations have shown positive intention to cooperate with OUSL. Japan's Third Country Training Programme in broadcasting sector is to be utilized too.

After the AV Education Centre has been constructed, it is most helpful for the new OUSL staff to have job experiences through the

on-the-job training both in equipment operation and in production planning from Japanese experts who will be dispatched to OUSL on technical cooperation on a long-term basis.

Furthermore, there is the need of arranging to have the personnel repeatedly experience the operation of the equipment so as to have them acquire skills through their participation in the practical training to be given them during the period of construction and installation work under this project.

(2) Budget Plans

1) Personnel Expenses

As mentioned previously, the AV Education Centre requires an increase of 11 persons as the actual operators in the studio work of AV material production. The required annual increase of personnel expenses is as follows:

Illustrator	1	49,000 Rupees
AV Production Technical Staff	10	453,300 Rupees
TOTAL	11	502,300 Rupees

The required annual increase of personnel expenses other than the described above is considered as follows:

Management Staff	2	112,800 Rupees
Clerical Staff	2	50,880 Rupees
Educational Assistant	4	187,200 Rupees
Maintenance Staff	3	124,200 Rupees
Store Keeper for Material Tapes	1	29,520 Rupees
TOTAL	12	504,600 Rupees

Accordingly, the total expenses for personnel increase is estimated approximately 1,000,000 Rupees per year.

2) Maintenance and Repairing Expenses for Facilities

Maintenance and repair of the facilities and equipment after the completion of the project will be conducted in cooperative effort by AV production engineering staff and maintenance staff, even after introduction of the maintenance system emphasizing preventive maintenance mentioned above.

In this project, maintenance and repair expenses in an amount befitting the scale of the facilities will be estimated, taking into account the past records and experiences of the broadcasting stations in Japan as well as Japan's experiences with other ODA projects of similar nature.

Hence, the maintenance and repair expenses estimated to be required in this project will be 1.5 million Rupees per year.

3) Increase in the Amount of Consumption of Tapes for the Production of Teaching Materials

After completion of this project, the consumption of tapes required for the production of AV teaching materials will increase.

Audio tape will increase on average 10 pieces per year from the 3rd year on and video tape 20 pieces for the 1st year, 30 for the 2nd, 40 for the 3rd and 50 from the fourth on.

Estimating the unit price of audio tape at 800 Rs. and video tape at 4,000 Rs., the annual increase of tape expenditure will be 80,000 Rs. for the 1st year, 120,000 Rs. for the second, 168,000 Rs. for the 3rd and 208,000 Rs. from the fourth year on.

In addition to the tapes for AV material production, audio cassette tapes to be distributed to students and VHS cassette tapes to be kept at local centres will be necessary. Thus the total annual increase of tape expenditure will be 424,000 Rs. at least.

4) Amount of Power Consumption

The annual increase in the consumption of power at the AV Education Centre can be estimated at 1,630,000 Rupees.

From the foregoing, the total annual increase in the expenditure of OUSL as a result of implementation of this project is estimated at

4.554 million Rupees. This corresponds to about 0.59% of the amount of the government expenditure on university education in 1988.

3-4 Technical Cooperation

In order to ensure effective operation of the AV Education Centre, OUSL has been strongly desiring technical cooperation from Japan.

With the AV Education Centre being scheduled for establishment under this project, OUSL plans to increase the number of personnel in charge of production of AV teaching materials. The personnel to be newly employed will consist mainly of the engineers and technicians who are to work in the studios and other workplaces. OUSL desires to let those personnel undergo technical training in the operation of equipment being introduced, so that the newly employed personnel may become able to operate equipment with ease.

On the other hand, the producer's work including the planning and composition of AV teaching materials will be taken charge of by the instructors of the three faculties, the same as hitherto. Here, too, OUSL desires to let them undergo production training in order to ensure production of teaching materials of higher quality.

For the training in the field of both the technical operation and the production, OUSL keenly desires long-term dispatch to Sri Lanka of at least two Japanese experts. One is a technical expert in equipment operation and the other is a producing expert in material planning and composition.

OUSL also desires to send several persons who are responsible for the actual work of producing AV teaching materials to Japan for a short period in order to let them learn the actual conditions of work producing AV teaching materials.

The mission has recommended OUSL to consider taking advantage of the JICA's Third Country Training Programme in broadcasting sector for its staff training. A course on colour television engineering is to be held at SLTTI in Colombo in July-August 1991.

For the personnel of OUSL, it is a first-ever experience to tackle the production work using full-scale facilities for production of teaching materials. So, it is expected to be extremely helpful to offer practical training in two ways; one is to send to Sri Lanka Japanese experts who

have long experience in the production of teaching materials and the other is to conduct practical training of OUSL personnel in Japan. And in order to achieve the effects of provision of equipment to the AV Education Centre as quickly and surely as possible, Japan's technical cooperation is considered most essential and indispensable.