JAPAN INTERNATIONAL COOPERATION AGENCY

INDIA
MINISTRY OF HUMAN RESOURCE DEVELOPMENT

BASIC DESIGN STUDY REPORT

ON

THE PROJECT

FOR

IMPROVEMENT OF EDUCATIONAL MEDIA PRODUCTION FACILITIES

OF

INDIRA GANDHI NATIONAL OPEN UNIVERSITY

IN

INDIA

MARCH, 1993

YAMASHITA SEKKEI INC.

JAPAN INTERNATIONAL COOPERATION AGENCY

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PREFACE

In response to a request from the Government of India, the Government of Japan decided to conduct a basic design study on the Project for Improvement of Educational Media Production Facilities of Indira Gandhi National Open University and entrusted the study to the Japan International Cooperation Agency (JICA).
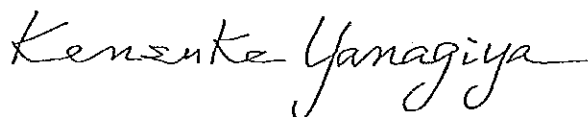
JICA sent to India a study team headed by Dr. Hidetoshi Kato, Director-General, National Institute of Multimedia Education, Ministry of Education, Science and Culture, and constituted by members of Yamashita Sekkei Inc., from August 17 to September 13, 1992.

The team held discussions with the officials concerned of the Government of India 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 India 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 India for their close cooperation extended to the teams.

March, 1993

Kensuke Yanagiya

President

Japan International Cooperation Agency

Mr. Kensuke Yanagiya
President
Japan International Cooperation Agency
Tokyo, Japan

Letter of Transmittal

We are pleased to submit to you the basic design study report on the Project for Improvement of Educational Media Production Facilities of Indira Gandhi National Open University in India.

This study has been made by Yamashita Sekkei Inc., based on a contract with JICA, from August 12, 1992 to March 26, 1993. Throughout the study, we have taken into full consideration of the present situation in India, and have planned the most appropriate project in the scheme of Japan's grant aid.

We wish to take this opportunity to express our sincere gratitude to the officials concerned of JICA, the Ministry of Foreign Affairs, the Ministry of Education, Science and Culture and the Ministry of Posts and Telecommunications. We also wish to express our deep gratitude to the officials concerned of Ministry of Human Resource Development, Indira Gandhi National Open University, JICA India office, Embassy of Japan in India for their close cooperation and assistance during our study.

At last, we hope that this report will be effectively used for the promotion of the project.

Very truly yours,

Project Manager, Shotaro Hayashiya
Basic design study team on
the Project for Improvement of Educational
Media Production Facilities of
Indira Gandhi National Open University
Yamashita Sekkei Inc.
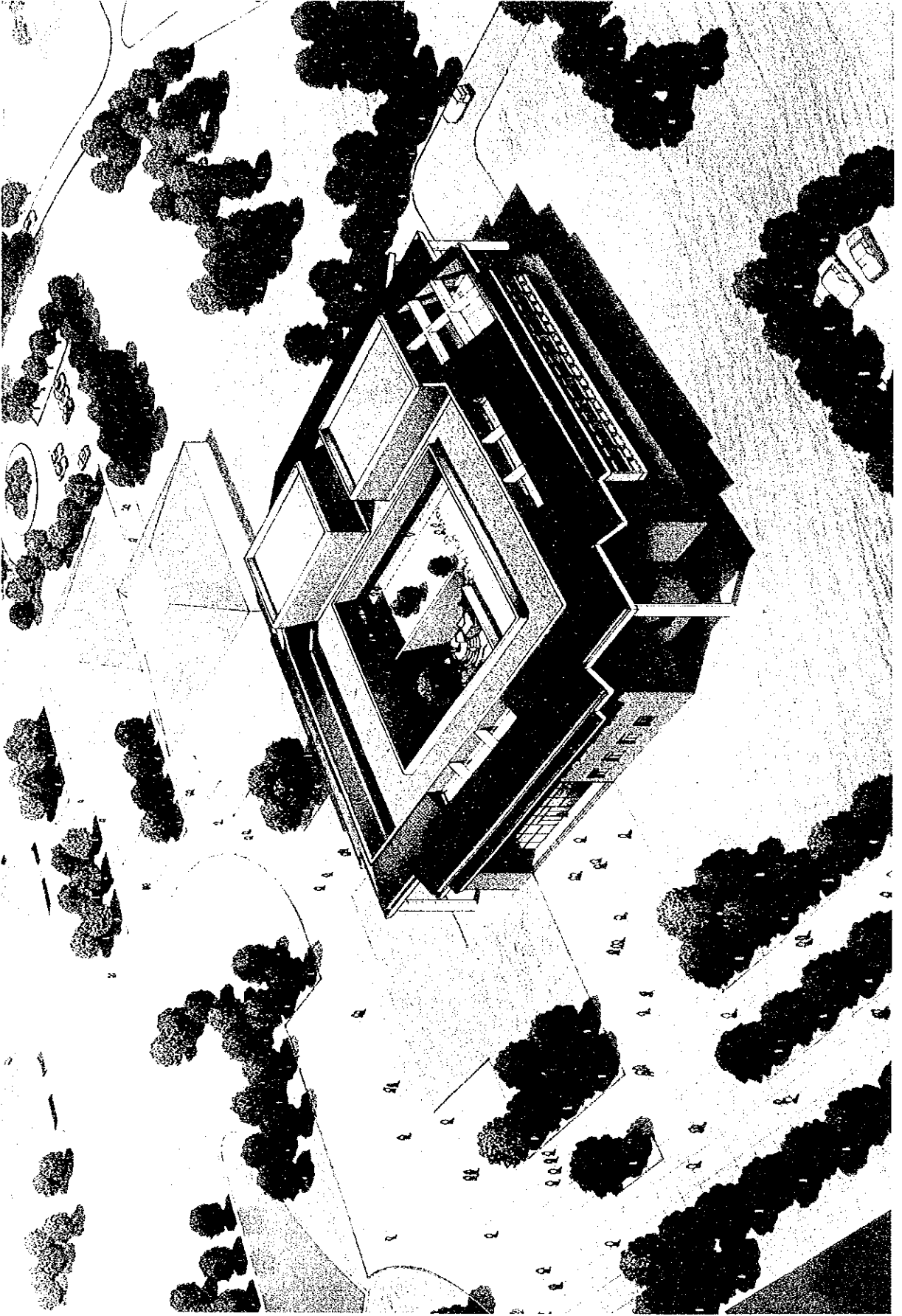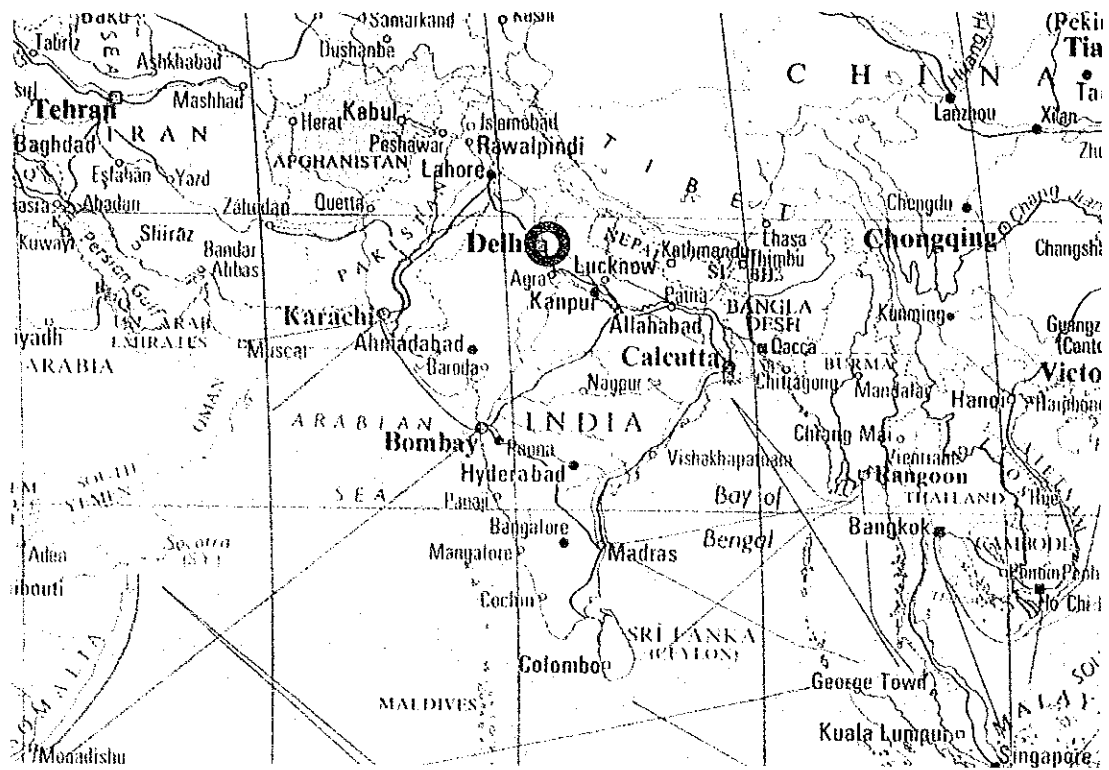
MAP OF INDIA
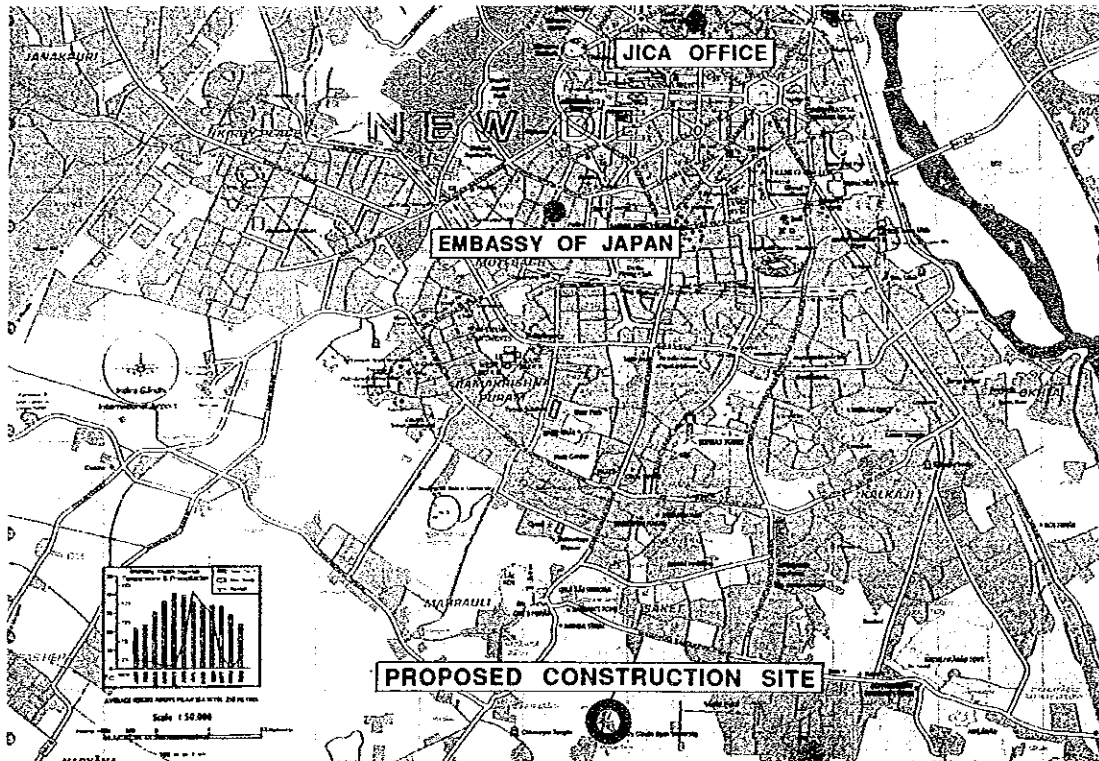
MAP OF DELHI

PROPOSED CONSTRUCTION SITE

PROPOSED BUILDING

NOTE 1. ONLY THE BUILDING INDICATED AS "PROPOSED BUILDING" IS THE JAPANESE SIDE WORK. ALL OTHER BUILDINGS, ROADS, PONDS, PLANTING ETC., SHOWN IN THE DRAWING ARE THE INDIAN SIDE WORKS.

2. ORIGINAL DRAWING: THROUGH THE COURTESY OF SHARAT DAS AND ASSOCIATES (P) LTD.

IGNOU MAIDAN GARHI CAMPUS MASTER PLAN
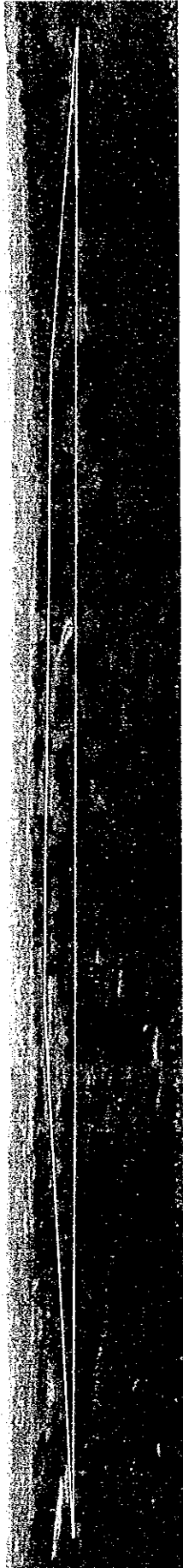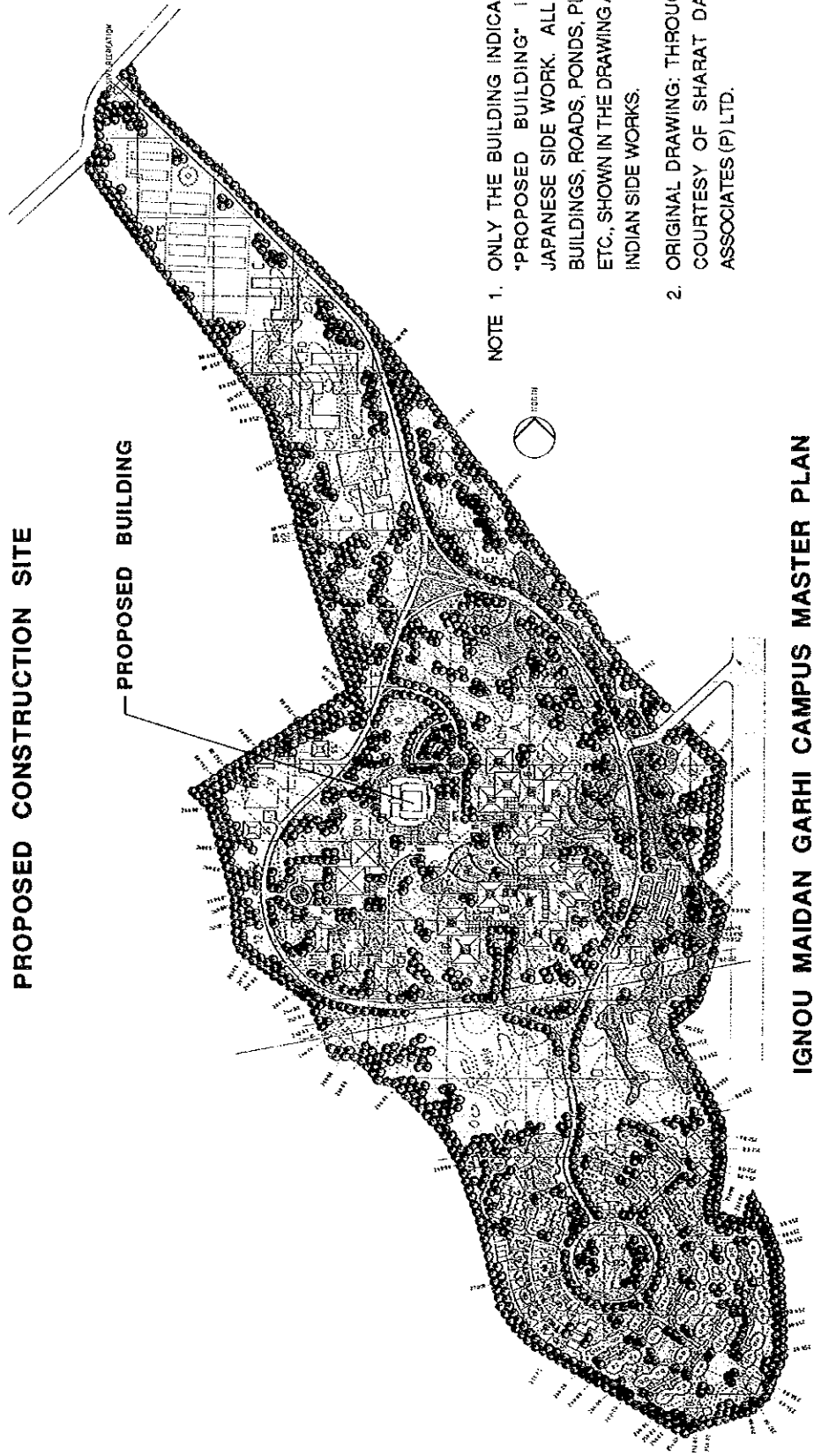
SUMMARY

SUMMARY

In India, approximately 4.25 million students were able to enroll at the institutions of higher education as of 1989. That number, however, accounted for only six percent of the total number of persons in the relevant age group. For this reason, the Government of India examined the feasibility of Distance education as an effective way to educate students with a flexible curricula and low costs. It was then decided to introduce an open university system. In 1985 the Government of India established Indira Gandhi National Open University (IGNOU). IGNOU is an institution of Distance education and at the same time it is responsible for supervising Distance education in the country. To date, approximately 540,000 students have been enrolled in Distance education, of which approximately 220,000 have been registered at IGNOU.

IGNOU has 9 schools of studies and 15 divisions. It offers a total of 241 courses in its 37 programmes. At IGNOU, programmes are divided broadly into a master's degree programme, three-year bachelor's degree programmes, one-year diploma programmes and three to six month certificate programmes. During fiscal 1991/92 a total of 62,375 students was registered at IGNOU. Each programme offers compulsory courses and optional courses, with a certain number of credits being given to each course. At IGNOU, printed teaching materials mailed to students, academic sessions held at the 201 study centres located across the country (in which audio-visual teaching programmes are used), and radio/TV programmes are used as teaching measures.

As of the end of March 1992, IGNOU held courses equivalent to a total of 882 credits available to students and was planning to open courses of an additional 222 credits. IGNOU has a plan to use audio-visual (A/V)

teaching programmes at the rate of one video teaching programme and two audio teaching programme per credit. However, IGNOU has only 325 video teaching programmes and 425 audio teaching programmes. Therefore, it is urgent necessity for IGNOU to increase A/V teaching programmes. Since it is responsible for supervising Distance education in the country, IGNOU also desires to conduct training programmes for those who are engaged in production of A/V teaching programmes at other institutions. The fact is, however, that the dispersed facilities have insufficient equipment and the temporarily renovated studio make it difficult for IGNOU to produce A/V teaching programmes sufficiently.

IGNOU is now in the process of constructing a new campus in Maidan Garhi in a suburb of the city of New Delhi. Construction of part of the facilities has already been started in the new campus. Due to budgetary limitations and in the light of the high quality of the A/V equipment provided under a Japanese grant aid programme in 1988, the Government of India requested the Government of Japan to provide grant aid for the improvement of the facilities and equipment necessary for the production of A/V teaching programmes .

In response to the request, the Government of Japan decided to conduct a preliminary study of the project, and in April 1992 the Japan International Cooperation Agency dispatched a preliminary study team to India to discuss and confirm the background and contents of the request with representatives of the Government of India. As a result of the preliminary study, the Japan International Cooperation Agency reached the conclusion that it was necessary to conduct a basic design study to determine the appropriateness of providing grant aid for the project. In August 1992, the Japan International Cooperation Agency dispatched a basic design study team to India. The team discussed details of the project

with the Indian side, investigated the proposed construction site and collected relevant data and information on the basis of the results of the preliminary study, and then prepared this basic design study report after the explanation to the Indian side in March 1993.

As a result of the basic design study, it was concluded that the IGNOU's existing production facilities were not sufficiently provided with required functions nor equipment to improve and increase its A/V teaching programmes. In this project facilities and equipment are planned to be able to cope with the increase of A/V teaching programmes required from the number of IGNOU's academic courses.

Indira Gandhi National Open University is the organization responsible for the implementation of this project, and its communication division is to take charge of the operation and management of the facilities and equipment which will be provided under the project. The communication division consists of four units, namely, Administration, Research, Engineering and Production. This project is basically aimed at providing facilities and equipment for the Engineering and Production units but it also envisages spaces where the Indian side can extend the facilities for the Administration and Research units in the future. The approved number of permanent staff members of IGNOU for fiscal 1992/93 is 1,739 and the communication division holds 143 numbers of it. Present communication division has a competent organization to produce A/V teaching programmes and it has achieved certain results. However, it will be necessary for the division to double its staff members in order to produce necessary numbers of A/V teaching programmes required from numbers of academic courses. Necessary numbers of producers and engineers are to be recruited among qualified graduates from colleges and polytechnics across the country.

The total amount of personnel expenses, and costs for the maintenance and operation of the facilities and equipment is estimated at about Rs. 169 Lahks (at 1992 prices) when the project is completed, which accounts for only 7.46 percent of the IGNOU's annual budget for fiscal 1991/92. For this reason, there will be no problem with budgetary appropriations for the maintenance and operation of the facilities and equipment after the completion of this project.

In the basic design of the facilities local construction materials are utilized as much as possible, and in order to economize running costs of the facilities, natural ventilation and lighting are utilized. Also, criteria for the selection of items of equipment include whether or not it is possible to secure equipment maintenance services locally. Thus, there will be no problem with the management of the division, budgetary appropriations and the maintenance and operation of the facilities and equipment after the completion of this project.

The outline of facilities and equipment which are necessary to attain the above objective of this project are as listed below.

- Proposed construction site : Maidan Garhi, New Delhi
- Area   : 4,779 m^2 (floor area)
- Structure/storey   : Reinforced concrete, 2 storeys
- Main facilities and equipment

Unit		Main Facility	Main Equipment
Production Unit	Studios	Video studio 1 and 2 (including control room, etc.)	Video camera system, video switching system, lighting equipment, picture monitor, video cassette recorder
		Audio studio 1 and 2 (including control room, etc.)	Microphone, monitor speaker, audio mixer, DAT recorder, sound effecter
	Art graphic rooms	Scenery store and workshop, property room	Power tools for wood working
		Graphic workshop	Video cassette recorder, picture monitor
	Performers' rooms	Make-up room, waiting room, rehearsal room, dressing room	
	Staff rooms	Jt. Director's room (Production), Dy. Director's room, Producers' office, presentation unit	
Engineering Unit	Rooms for editing and duplication	Single-step editing room, A/B roll editing room, post-production room (including telecine room)	Video cassette recorder, DAT recorder
		Audio editing room	Audio mixer, DAT recorder, CD player, Sound effecter
		Duplication room	Video cassette recorder, picture monitor, A/V signal selector
	Rooms for equipment	Central apparatus room	Synchronizing signal generator, TV signal generator, A/V signal distributor
		Maintenance room	Oscilloscope, Vector/Waveform monitor, Sweep generator, Color master monitor, Test chart set
		EFP (Electronic field production) room	Portable video cassette recorder, portable DAT recorder, portable switcher
		Tape/spare parts store	Spare parts (Circuit board, magnet head, etc.)
	Staff rooms	Jt. Director's room (Engineering), Engineer-in-charge's room, Asst. engineers' room, technical assistants' room	
Administration Unit	Rooms for Information	Tape library, viewing room (small)	Video cassette recorder, picture monitor
	Rooms for administration	Director's room, secretariat room, meeting room, viewing room (large), reception office	Video cassette recorder, picture monitor, public address system (for viewing room)

If this project is to be implemented under Japanese grant aid, it will be appropriate to implement this project in two phases. Phase 1 includes construction of facilities and procurement of equipment necessary for the production of video teaching programmes (term of work: 12 months) and Phase 2 includes construction of facilities and procurement of equipment necessary for the production of audio teaching programmes (term of work: 8 months).

When this project is completed, the IGNOU's facilities and equipment for the production of A/V teaching programmes will be improved and it will become possible to produce rational and modern teaching programmes. The result will be a diversity of the contents of teaching programmes, improved quality of sounds and images of programmes and an increase in the annual production number of A/V teaching programmes at IGNOU. If a necessary number of A/V teaching programmes are produced at IGNOU and if full use of them are enhanced at the study centres, the combined use with printed teaching materials will further facilitate students' learning, which in turn will enhance the quality of Distance education in the country. This is particularly important in view of the fact that so many young people in provincial areas and adults are studying under the Distance education system. If staff members from other institutions of Distance education are trained at the proposed facilities in production techniques of A/V teaching programmes, it will promote the spread of modern techniques of A/V teaching programmes around the country.

As is clear from the above descriptions, great effects can be expected of this project, and it is of great significance to implement this project under Japanese grant aid.

It is necessary, on the other hand, for the Government of India to make efforts to establish a system for efficient production of IGNOU's curricula-based A/V teaching programmes through proper staffing, budgetary appropriations for the maintenance and operation of the facilities and equipment, though certain figures, planning schedule and budgeting may be subject to change as necessitated. Such efforts will maximize the effects of this project.

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   O Minutes of Discussions (Explanation of Draft Final Report)

CHAPTER 1   INTRODUCTION

CHAPTER 1   INTRODUCTION

In India, approximately 4.25 million students were able to enroll at institutions of higher education as of 1989.   That number, however, accounted for only six percent of the total number of persons in the relevant age group.   In other words, the present condition of higher education and continuing education in India cannot provide for everyone desiring further education.   Indira Gandhi National Open University (IGNOU) was founded in September 1985 as an institution of Distance education promoting the spread of higher education and continuing education in the country, which simply cannot be achieved solely by the conventional institutions of higher education.   In order to attain its objective, it is imperative for IGNOU to improve the quality of its audio-visual (A/V) teaching programmes.   In addition to its own Distance education programmes, IGNOU is responsible for supervising Distance education in the country.   For this role, IGNOU desires to reinforce its training functions in A/V teaching programme production for personnel who are engaged in Distance education in other institutions.   The fact is, however, that the dispersed facilities have insufficient equipment, and the temporarily renovated studio make it difficult for IGNOU to implement the above tasks.   With this background, the Government of India made a request to the Government of Japan for grant aid assistance for this project.

In response to the request, the Government of Japan decided to send a preliminary study team to India for the project, and the Japan International Cooperation Agency (JICA) dispatched a preliminary study team headed by Mr. Mikio Nakamura, Assistant Director, Grant Aid Division,

Economic Cooperation Bureau, Ministry of Foreign Affairs, to India to make field surveys from April 5 to 18, 1992.

Appropriateness and necessity of the project was confirmed through the preliminary study. Then the Japan International Cooperation Agency sent a basic design study team headed by Dr. Hidetoshi Kato, Director General, National Institute of Multimedia Education, Ministry of Education, Science and Culture, to India to investigate the following matters from August 17 to September 13, 1992.

① Positioning of the project within the framework of India's national development plan and educational policy of India

② Present state and problems (including latent needs for higher education) of India's educational system as well as positioning of Distance education and this project

③ Outline of IGNOU (its positioning within the nation's administrative structure, trends of foreign aid to it, its implementation system of the project, its curricula and statistics of enrolled students etc.)

④ IGNOU's production system of A/V teaching programmes and the present state of its facilities and equipment

⑤ IGNOU's studio utilization plan (including its existing facilities and equipment) and the maintenance and operation plan of the facilities and equipment to be procured under this project (including procurement of expendable supplies)

⑥ IGNOU's utilization plan and production plan of A/V teaching programmes (including relationships with local broadcasting stations and the utilization plan of A/V teaching programmes at study centres)

⑦　IGNOU's new campus master plan

⑧　Appropriateness of the proposed construction site

⑨　Present state of the Indian construction industry (work force, procurement of materials and equipment, applicable laws and regulations, common construction methods, etc.)

⑩　Necessity of technical cooperation

After returning to Japan, the basic design study team analyzed the results of its field studies and prepared a draft final report of the basic design study.　In March 1993, the contents of the draft final report was explained to the Indian side.　As a result, both sides have reached agreement on the details of the draft final report.　However, the necessary procedures within the Ministry of Human Resource Development for signing the Minutes of Discussions were not completed while the Basic Design Study Team was staying in India.　Therefore, the Minutes of Discussions is not attached to this Basic Design Study Report.

This report has been prepared to present the results of the above-mentioned studies.

CHAPTER 2 BACKGROUND OF THE PROJECT

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2 – 1   Outline of India's Educational Sector

2-1-1   Present State and Problems of the Educational Sector in India

India has a nationally integrated educational system. The country's elementary education, which is compulsory, is divided into the first five-year stage (primary school) and the second three-year stage (upper primary school). The secondary education is divided into the first two-year stage (secondary school, the ninth grade and the tenth grade) and the second two-year stage (higher secondary school, the eleventh grade and the twelfth grade). University education is normally conducted through 3-year courses, but in the case of engineering, architecture, and pharmacy 4-5 year courses are adopted. Fig. 2-1 gives an outline of India's educational system.

Research →

Teacher Training
Course (Secondary)

Post
Graduate
Degree

Open University &
Distance Education

21		17
20	University	16
19		15
18	First Degree Professional Degree	14
		13

Teacher
Training Course
(Primary)

First
University
Degree

Diploma

Certifi-
cate

Higher
Education

| 17 | Higher Secondary School | 12 |
| 16 | Academic Stream   Vocational Stream | 11 |

Vocational
& Techni-
cal Train-
ing School

Polytechnic

Open
School

Preparatory
Course
(4 Months)

Secondary
Education

| 15 | Secondary School | 10 |
| 14 | | 9 |

Open
School

Industrial
Training
Institute

13		8
12	Upper	7
11	Primary School	6

Non-Formal
Education
Sector

Elementary
Education
(Compulsory
Education)

10		5
9		4
8	Primary School	3
7		2
6		1

Non-Formal
Education
Sector

School year

Pre-school
Education

5	Kindergarten,
4	Nursery School
3	

Age

Fig. 2-1   Education System of India

Major problems which India's educational sector faces can be summarized as follows:

① High dropout rate at the level of elementary education.

At the level of the first stage in elementary education, the school entry rate is 101.03 percent (which includes the percentage of those whose age are above the relevant school age), and the dropout rate was 46.97 percent during 1987/88.   At the level of the second stage in

elementary education, the school entry rate is 60.4 percent, and the dropout rate for the entire eight-year period of elementary education is 62.29 percent. The dropout rate is especially high among girls and children from poor families.

② Low school attendance rate at the level of elementary education:

The school attendance rate of the relevant age group at the level of the first stage in elementary education is estimated at about 70 percent. The Government of India is aiming at 100 percent school attendance rate for the entire eight-year period of elementary education by the year of 2000. During 1991/92, the number of enrolled children at the elementary level increased by 2.53 crores against the target increase of 5 crores.

③ Poor elementary educational facilities in rural areas:

In India approximately three-quarters of the total population live in rural areas. Residents in these areas are given far fewer opportunities to receive their education than those in urban areas. And many schools in rural areas are inconveniently located and are not provided with basic amenities. For these reasons, the 8th five-year plan includes a policy that elementary education facilities including non-formal organizations would be provided to every child within a walking distance of one kilometer.

④ Eradication of adult illiteracy:

Census results of 1991 reveal a literacy rate of over 52 percent with a higher rate of growth for female literacy. The Government of India is making strenuous efforts to achieve its goal of eradicating illiteracy among the 15 to 35 age group. As of the end of 1992, however, as many as 10.05 crores in that age group were still illiterate.

⑤ Shortage of school teachers and enhancement of their abilities:

In primary education 260,000 teachers are untrained and 115,000 in secondary and higher-secondary education are already teaching in the classrooms, but are untrained. In order to achieve the goal of a 100 percent school attendance rate in the compulsory education, increasing the number of trained school teachers is necessary.

⑥ Curricula's inconsistency with what the society expects of education:

Vocational training is one of the main policy measures in the area of higher secondary education. By the end of 1991-92, about 8.7 percent (5.85 lakhs) of the higher secondary students would have been diverted to vocational stream. It is noted, however, that curricula at schools including higher education level are not consistent with what society expects of education, and there is a shortage of human resources equipped with skills and techniques required by society.

⑦ Low college entry rate:

India has around 176 higher education institutions, 6,942 colleges and over 4.25 million students as of 1989-90. However, only six percent of the relevant age group is in the colleges and universities. This figure is low even from the viewpoint of a developing country. For this reason, it is planned to increase the total number of college students by 1,000,000 under the 8th five-year plan. In this connection, particular emphasis is placed on expanding the scope of Distance education which is beneficial to women and people living in remote and rural areas who are disadvantaged in terms of educational opportunity. Under the 8th five-year plan, it is planned to accept 500,000 students into Distance education. As a result, it is expected that as many as 1,000,000 students will be enrolled under the Distance

education system, of which about 500,000 are estimated to be older than the 17 to 23 age group.

As is clear from the above, it is urgent to remedy the present shortage of school teachers and enhance their abilities, as well as to improve educational facilities of elementary education, in order to reduce the dropout rates and realize 100 percent school attendance and literacy rates. On the other hand, the number of existing higher education institutions in which many school teachers are trained is limited, and it will take much time to improve the curriculum for the training of college students in teaching. Under such circumstances, Distance education system has been examined as an effective teaching method which can be offered at low cost and in a flexible way, and an open university system has been introduced.

2-1-2   Present State of Distance Education in India

Distance education in India dates back to 1962 when the University of Delhi introduced correspondence courses for the first time in the country. In the 1960s four institutions of distance education, including the University of Delhi, were established, and in the 1970s a total of 19 universities introduced correspondence courses. In 1982 India's first open university was established by the state government of Andhra Pradesh, and in September 1985 the Government of India decided to establish Indira Gandhi National Open University (IGNOU) for the purposes of providing greater opportunities to utilize higher education institutions and introducing a low cost effective, flexible and innovative educational system.

IGNOU is responsible for promoting the spread of Distance education in the country, setting standards on teaching methods and evaluation and research on education, and supervising other state open universities. Following the founding of IGNOU, three state open universities, namely Kota Open University, Nalanda Open University and Yashwantrao Chavan Maharashtra Open University, were established in rapid succession. There are now 46 Distance education institutes in India, and the total number of students enrolled in the Distance education system accounts for 540,000, of which approximately 220,000 are enrolled in IGNOU.

Main characteristics of Distance education in India can be summarized as follows:

● Distance education is different from conventional education in that teachers and students are far away from each other.

● Distance education is different from self-education in that institutions of education are directly concerned with the process of students' learning.

● Distance education promotes the relationship between teachers and students through the use of technically produced teaching materials, such as A/V teaching programmes, which supplement teaching texts for students.

● Distance education utilizes types of media to enable two-way communication between teachers and students.

● Distance education provides opportunities for students to get together for learning purposes.

Improvement of the quality of teaching, introduction of more efficient evaluation method of students' academic achievement, maintenance of academic ability level of students, reduction in the dropout rate and increase in the ratio of students finishing their respective courses are raised as the major issues of the Distance education system.

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2-1-3   Outline of Indira Gandhi National Open University (IGNOU)

(1) Objectives and characteristics

IGNOU is an autonomous organization belonging to the Department of Education of the Ministry of Human Resource Development. It is India's only national open university intended to develop school curricula and provide open access to higher education on the basis of the philosophical concept of Distance education.

Its main objectives are:

● to advance and disseminate knowledge by a diversity of means including communication technology;

● to provide opportunities for higher education to a larger segment of the population;

● to promote the educational well-being of the community in general;

● to encourage the Open University and Distance Education systems in the educational pattern of the country; and

● to coordinate and determine the standards in such systems.

Its main characteristics include:

● Relaxed entry rules;

● Provision for individualised study;

● Flexibility in choosing the place of study;

● Flexibility in course combinations;

● Use of modern communication technology.

(2) Organization of IGNOU and its courses offered

IGNOU has nine schools of studies and 15 divisions to take charge of its academic and operational programmes. It offers 37 programmes and 241 courses in 1992/93. Fig. 2-2 shows the organization of IGNOU, which is operated with a staff of 1,739 (permanent staff for 1991/92).

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                          ┌──────────────┐
                          │   Visitor    │
                          └──────────────┘
                          ┌────────────────────┐
                          │ Board of Management │
                          └────────────────────┘
  ┌──────────────┐  ┌──────────────────┐  ┌──────────────┐  ┌────────────────────┐
  │Planning Board│  │ Academic Council │  │   Finance    │  │ Distance Education │
  └──────────────┘  └──────────────────┘  │Committee (228)│  │  Council   (12)    │
                    ┌──────────────┐       └──────────────┘  └────────────────────┘
                    │Vice Chancellor│
                    │     (16)     │
                    └──────────────┘
  ┌──────────────────┐
  │Pro-Vice-Chancellors│
  │       (9)        │
  └──────────────────┘
  ┌──────────────────────┐   ┌──────────────────┐
  │ School of Studies (284)│   │ Divisions (1,190) │
  └──────────────────────┘   └──────────────────┘
```

School of Studies (284)		Divisions (1,190)	
Humanities	(39)	Administration	(221)
Social Sciences	(58)	Computer	(75)
Sciences	(58)	Distance Education	(24)
Education	(30)	Evaluation	(66)
Continuing Education	(23)	Lib. & Documentation	(24)
Eng. & Technology	(16)	Material Distribution	(35)
Management Studies	(33)	Printing & Publication	(61)
Health Sciences	(11)	Teachers Affairs	(19)
Computer & Info. Sc.	(11)		
Translation Unit	(5)		

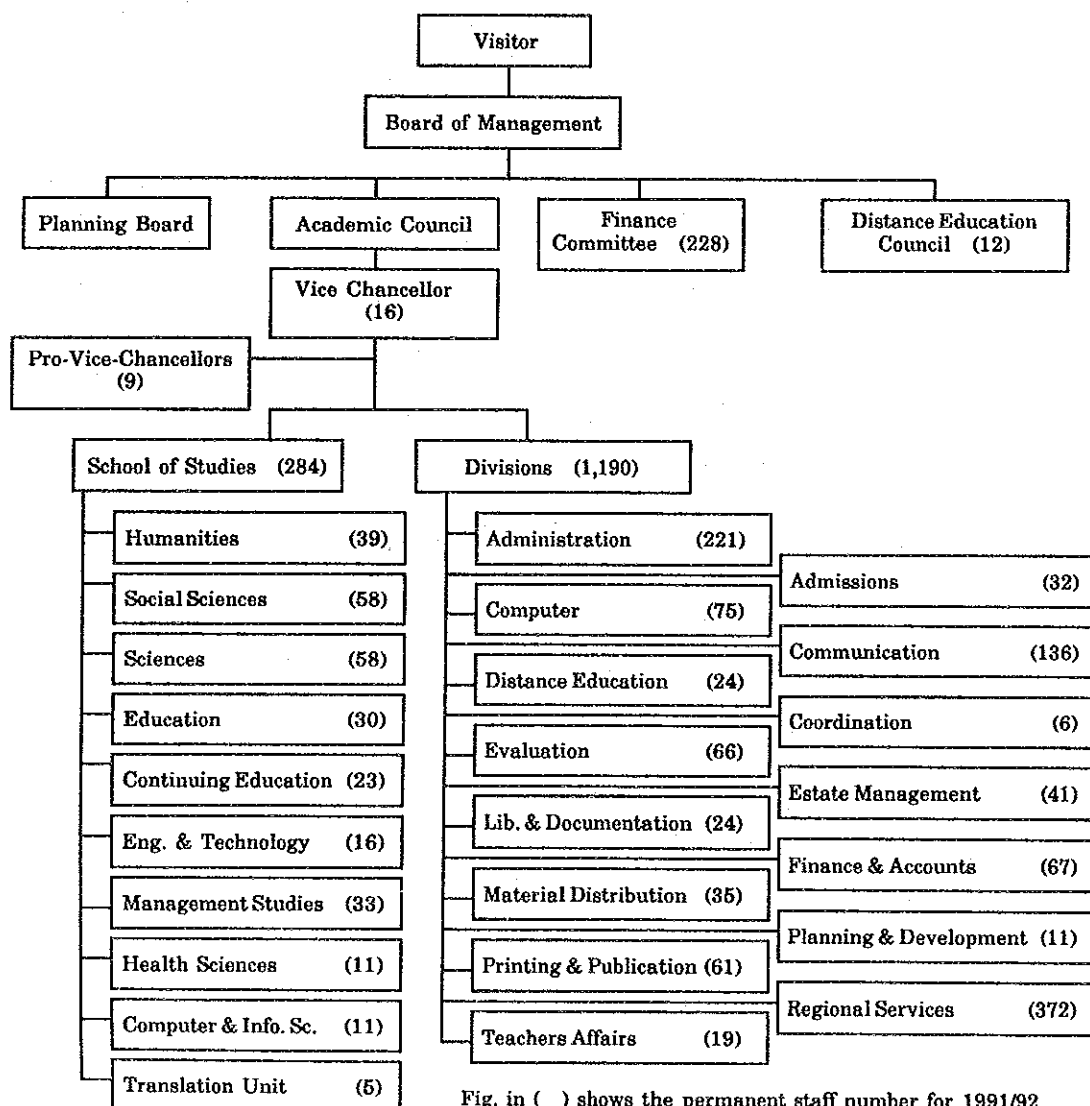| Administration Sub-divisions	
Admissions	(32)
Communication	(136)
Coordination	(6)
Estate Management	(41)
Finance & Accounts	(67)
Planning & Development	(11)
Regional Services	(372)

Fig. in ( ) shows the permanent staff number for 1991/92

Fig. 2-2 Organization of IGNOU

Table 2-1 gives an outline of the major programmes offered by IGNOU. They are divided broadly into a four year master's degree programme, three-year bachelor's degree programmes, one-year diploma programmes and three to six-month certificate programmes.

Table 2-1 Outline of the Major Programmes offered by IGNOU in 1992/93

No.	Name of the Programme (Code)	Objectives	Educational Requirement	Mini. Age (yrs.)	Admission Criteria	Duration Min. (yrs.)	Duration Max. (yrs.)	Commencement	Fee (Rs.)	Medium of Instruction	No. of Students 1991/92 Accumulated No. (No. of Qualified)	Humanities	Social Sciences	Computer & Information Sciences	Engineering	Conti. Educ.	Manage. Studies	Sciences	Education
1.	**Bachelor's Degree** Bachelor of Arts/Bachelor of commerce (non 10+2 stream)	• To provide opportunities for higher education mainly to working persons, people living in rural and remote areas and backward sections of society.	No formal qualification	20	Entrance test	3.5	8.5	Jan. (1988)	Rs. 120/- (once) + Rs. 650/- o.a.	English & Hindi	32,225 / 136,216 (0)	O (168)	O (184)			O (24)	O (56)	O (56)	
	Bachelor of Arts/Bachelor of commerce		10+2 yrs. or its equivalent	—	On merit	3	8	Oct. (1988)	Rs. 650/-p.a.	English & Hindi									
	Bachelor of Science (B. Sc) (10+2 stream)	• To provide higher education in science to people from different sections of society such as the in-service personnel, housewives, people living in remote and rural areas, etc. • To make significant impact on students by creating scientific attitude to life.	10+2 yrs. or its equivalent with science subjects	—	On merit	3	8	Oct. (1991)	Rs. 900/-p.a.	English & Hindi								O (72)	
2.	Bachelor of Library & Information Science	• To provide opportunities for professional development to those employed in libraries but are not qualified professionally and are as a result underemployed. • To professional standards in teaching practice-oriented technical subjects through distance education methodology.	Graduate+2yrs. experience in a recognised library	—	On merit	1	4	Jan. (1989)	Rs. 1500/-	English	1,461 / 4,860 (310)		O (32)						
3.	**Management Programmme** Master of Business Admnistration (MBA)	• To develop skills in total management at corporate and/or sectoral level	Graduate+3yrs. Supervisory/ Managerial experience (or) non-graduate+6yrs. Supervisory/ Managerial experience	25	Entrance test	1 Programme (6 credits)/ 4 semester Programmes / semester	1 Programme/ 4 semester	Jan. (1987)	Rs. 250/- per course	English	17,601 / 59,037 (143)						O—		
	Diploma in Management (DIM)	• To introduce participants to well-known methods, concepts, theories and practices of managing men, machines, money and material at firm level.						(1987)			(5,607)						O		
	Advanced Diploma in Management (ADIM)	• To provide wider exposure to theories and practices of managing men, machines, material and money at firm level.						(1988)			(1,230)						O		
4.	Specialization diplomas in Functional Areas		Graduate with 3yrs. Managerial/ Supervisory/ Professional experience or Professional degree in Engg./ Tech., Medicine ARchitecture, Law or Professional qualification in Accountancy, Cost & Works Accountancy, Company Secretaryship, etc. or a Master's Degree	—	Entrance test (if needed)			Jan. (1990)	Rs. 1250/- per diploma	English							—(156)		
	Diploma in Human Resource Mng.(DHRM)	• To develop skills in human resource management in business/service organizations						(1990)			(126)						O		
	Diploma in Financial Management (DFM)	• To develop skills in financial management in business/service organizations						(1990)			(136)						O		
	Diploma in Operations Management (DOM)	• To develop skills in operations management in business/service organizations						(1992)									O		
	Diploma in Marketing Management (DMM)	• To develop skills in marketing management in business/service organizations						(1990)			(163)						O—		
5.	Diploma in Distance Education (DDE)	• to promote awareness of the concept and utility of distance education in the country • to develop human resources for the distance education institutions	Master's degree or a Professional degree in any subject	—	On merit	1	4	Jan. (1987)	Rs. 650/-	English	484 / 45,731 (628)								O (24)
6.	Diploma in Higher Education (DDE)	• To acquire a perspective regarding the system of higher education, its context, its functions and its linkage with other systems. • To develop professional competencies that a university/college teacher ought to have • To develop readiness to undertake reforms and innovations in the practice teaching profession.	ditto	—	On merit	1	4	Jan. (1992)	Rs. 1000/-	English	862 / 862 (0)								O (24)
7.	Diploma in Creative Writing in English (DCE)	• To provide understanding, skill and professional knowledge about the art of writing. • To help to develop the creative ability of those are interested in taking up careers and professional or freelance writer.	No formal qualification	21	Self Assessment	1	4	Jan. (1988)	Rs. 900/-	English	468 / 2,483 (87)	O							
8.	Diploma in Computers in Office Management (DCO)	• To develop expertise in computer applications. • To train personnel in the use of modern technological tools in order to improve productivity and efficiency.	Graduate with 3yrs. Professional experience or non-graduate with 6yrs. Professional experience	25	Entrance test	1	4	Jan. (1990)	Rs. 2000/-	English	621 / 1,105 (0)			O (30)					
9.	Certificate in Food & Nurtion (CFN)	• To acquaint the learner with role of food in ensuring healthy living for the individual, family and community.	No formal qualification	20	—	6 months	2	Jan. (1988)	Rs. 160/-	English, HIndi, Assamese & Gujarati	5,655 / 13,256 (1,324)					O (16)			
10.	Certificate in Rural Development (CRD)	• To create an understanding of rural development as integrated concept. • To bring qualitative improvement in the functioning of block development officers.	Inservice training of BDO	—	—	3 months		Dates as given by the State Govts. (1988)	No fee (candidates sponsored by State Govts.)	English	No offered / 285 (130)					O			
11.	Diploma in Rural Development (DRD)	• To give an integrated view of rural development covering socio-economic aspects, physical resources, environment, social services and human resource development with a balanced mix of knowledge understanding and skills.	Bachelor's degree or 5 yrs. Professional experience in Rural Development	—	—	1	4	Oct. (1992)	Rs. 750/-	English & HIndi	2,998 / 2,998 (0)					O (24)			
	Total										62,375 / 226,833 (9,884)	168	216	30		64	212	128	64

Total 882

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Table 2-2 gives an outline of the programmes offered by IGNOU, which are listed in Table 2-1.

Table 2-2 Contents of the Programmes Offered by IGNOU in 1992/93

No.	Name of the Programmes (Code)	Type of Courses	Course Fig. in ( ) shows the number of credit ● Compulsory course ○Optional course	Remarks
1	Bachelor's Degree (Bachelor of Arts/ Bachelor of Commercial Science (BA/BCOM)	Preparatory Courses (Duration: 6 months for non 10+2 stream) (BPP)	●Mathematics ○Commerce ○Social Sciences	A student selects 1 course out of 2 courses with ○. (Non-credit)
		Foundation Courses (Taken in the first year)	●Humanities & Social Sciences(8) ●Science & Technology (8) ●English·Hindi (8)	
		Elective Courses (Principally taken in the 2nd and 3rd year)	○Hindi (56) ○English (56) ○Political Science (32) ○History (40) ○Economics (40) ○Public Administration(32) ○Sociology (32) ○Mathematics (40) ○Commerce (56) ○Rural Development (8)	A student selects courses of 56~64 credits.
		Application Courses (Principally taken in the 3rd year)	○Feature Writing (8) ○Translation (8) ○Organising Child Care Services (8) ○Nutrition for the Community (8) ○Human Environment (8) ○Marketing·Export Procedures and Documentation (8)	A student selects courses of 8~16 credits.
	Bachelor of Science (B. Sc)	Foundation Courses	●Science & Technology(8) ●Humanities & Social Sciences (8) ●English-1(4) ○Hindi (One Language) (4) ○English-2(4)	A student selects 1 course out of 2 courses with ○.
		Elective Courses	○Physics (24) ○Chemistry (24) ○Life Sciences (30) ○Mathematics(40)	A student selects 2 courses.
		Application Courses	○Human Environment (8) ○Gardening (8) ○Radio/TV repairs (8) ○Environmental Chemistry (8) ○Practice	A student selects courses of 8 credits.
2	Bachelor of Library & Information Science (BLS)		●Library and Society (4) ●Library Management (4) ●Library Classification Theory (4) ●Library Classification Practice (2) ●Library Cataloguing Theory (4) ●Library Cataloguing Practice (2) ●Biolography and Reference Sources (4) ●Information Services(4) ●Computer Basics and Applications (4)	A student takes courses equivalent to 32 credits.

Table 2-2 Contents of the Programmes Offered by IGNOU in 1992/93 (Continued)

No.	Name of the Programmes (Code)	Type of Courses	Course Fig. in ( ) shows the number of credit ● Compulsory course ○Optional course	Remarks
3	Management Programme		MS-1 Management Functions & Behaviour (6) MS-2 Managing Men(6) MS-3 Economic & Social Environment (6) MS-4 Accounting & Finance for Managers (6) MS-5 Management of Machines and Materials (6) MS-6 Marketing for Managers(6) MS-7 Information Management and Computers (6) MS-8 Quantitative Analysis for Managerial Applications (6) MS-9 Managerial Economics (6) MS-10 Organisational Design, Development & Change (6) MS-11 Corporate Policies and Practices (6) MS-21 Social Processes & Behavioural Issues (6) MS-22 Human Resource Development (6) MS-23 Human Resource Planning (6) MS-24 Relationship with Union MS-25 Organisation Management MS-41 Working Capital Management (6) MS-42 Capital Investment & Financing Decisions (6) MS-43 Management Control System (6) MS-44 Analysis and Control of Stock MS-45 International Financial Management MS-51 Operations Research (6) MS-52 Plan Management MS-54 Information System Management MS-55 Logistic Management (9) MS-61 Consumer Behaviour and Marketing Research (6) MS-62 Sales and Distribution Research (6) MS-63 Product and Advertising Management (6) MS-64 International Marketing (6) MS-65 Market Activities MS-69 Marketing Policy MS-91 Strategic Management (6) MS-92 Management of Public Enterprises (6) MS-93 Management of New & Small Enterprises (6) MS-94 Science Technology in Management (6) MS-95 Research Methodology for Management Decision MS-100 Project Course (12)	A student takes courses equivalent to 32 credits.
	Master of Business Administration (MBA)		A student selects 1 of the 4 Specialisation Diploma Courses, MS-91, MS-95, MS-100 and either MS-92 and MS-93 after completing ADIM course.	
	Diploma in Management (DIM)		A student must take MS-1~MS-3, and selects 2 subjects out of MS-4~MS-7.	
	Advanced Diploma in Management (ADIM)		A student must take MS-1~MS-11.	
4	Specialisation Diplomas in Functional Areas			
	Diploma in Human Resource Management (DHRM)	Foundation Courses	●MS-2 ●MS-10	
		Specialisation Courses	●MS-21~23	

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No.	Name of the Programmes (Code)	Type of Courses	Course Fig. in ( ) shows the number of credit ● Compulsory course ○Optional course	Remarks
	Diploma in Financial Management (DFM)	Foundation Courses Specialisation Courses	●MS-4 and ○MS-8 or MS-9 ●MS-41~43	
	Diploma in Operation Management (DOM)	Foundation Courses Specialisation Courses	●MS-5 and ○MS-8 or ○MS-9 or ○MS-94 ●MS-51 ●MS-54 ●MS-55	
	Diploma in Marketing Management (DMM)	Foundation Courses Specialisation Courses	●MS-6 and ○MS-8 or MS-9 3 subjects out of ○MS-61~64	
5	Diploma in Distance Education (DDE)		●Growth and Philosophy of Distance Education (6) ●Distance Teaching 1~3(6 each) ●Practice (6)	
6	Diploma in Higher Education (DHE)		●Higher Education (Its Context and Linkages) (6) ●Higher Education (The Social-phycological Field) (6) ●Instruction in Higher Education (6) ●Planning and Management of Higher Education (6) ●Practice(6)	
7	Diploma in Creative Writing in English (DCE)	Compulsory Courses Elective Courses	●General Principles of Writing (4) ●Practice (4) ○Feature Writing (4) ○Short Story (4) ○Writing for Radio and Television(4) ○Writing Poetry (4)	A student selects 3 courses out of 4 optional courses.
8	Diploma in Computers in Office Management (DCO)		●Office Environment and Data Processing (6) ●Information Processing in Office (6) ●Office Productivity Tools (6) ●Computer Applications in Office (6) ●Modern Office (6)	
9	Certificate in Food & Nutrition (CFN)		●You and Your Food (6) ●Your Food and Its Utilization (6) ●Economics of Food (4) ●Practice (with handouts)	
10	Certificate in Rural Development (CRD)		●Rural Development (Indian Conditions) (6) ●Principles of Rural Development (6) ●Rural Development (Planning and Administration) (6)	
11	Diploma in Rural Development (DRD)		●Rural Development (Indian Conditions) (6) ●Principles of Rural Development (6) ●Rural Development (Planning and Administration) (6) ●Development of Rural Community (6) ●Study and Practice (6)	
Total of Programmes: 37			Total of Courses: 241	

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Academic staff of the nine schools of studies are responsible for programmes and courses. Planning and operation of academic affairs as well as setting up of new courses are also conducted by them. As of August 1992, IGNOU had an academic staff of 20 professors, 32 readers and 87 lecturers.

IGNOU's budget for fiscal 1990/91 was approximately Rs.22 crores on a revised estimation basis. That amount was about 7.5 times as large as Rs. 2.93 crores for fiscal 1985/86. Table 2-3 and 2-4 give an outline of the IGNOU's budgets for the past three years.

Table 2-3 IGNOU's Budgets (revenues)

(Rs. in lakhs)

Year	1990/91		1991/92		1992/93	
Category of Budget	Actual		Revised Estimates		Estimates	
Classification	P	NP	P	NP	P	NP
1. Grant and Donations						
a) Grants from Dept. of Education, MHRD	501.00	900.00	1,000.00	717.00	1,000.00	700.00
b) Balance carried over from previous year	309.15			12.51		
2. Grants from other organisations						
3. Grants from State Govts.		3.70		10.00		10.00
4. Fee from students		275.00		411.00		430.00
5. Receipts from publications and other instructional materials		12.29		10.00		20.00
6. Income from buildings, land and other properties		1.40		5.00		5.00
7. Interest on bank deposits		28.43		20.00		25.00
8. Miscellaneous receipts		7.59		10.00		10.00
Total	810.15	1,228.41	1,000.00	1,195.51	1,000.00	1,200.00
Grand Total	2,038.56		2,195.51		2,200.00	

Note: P: Budget under the five-year plan   (Source: Finance & Account Div, IGNOU)
       NP: Other budgets

Table 2-4 IGNOU's Budgets (expenditures)
(Rs. in lakhs)

Year	1990/91		1991/92		1992/93	
Category of Budget	Actual		Revised Estimates		Estimates	
Classification	P	NP	P	NP	P	NP
A. Recurring Expenditure						
1. Administration		58.94		70.0	3.25	75.30
2. Common Services and General Charges	22.03	256.70	42.50	322.50	48.80	318.60
3. Academic Programmes	44.53	271.42	89.40	367.30	155.05	377.00
I) Schools	(26.51)	(85.51)	(38.65)	(105.55)	(66.40)	(117.15)
II) Distance Education Div.		(5.79)	(0.85)	(8.80)	(1.35)	(9.30)
III) Regional Services Div.	(13.79)	(150.98)	(42.00)	(199.60)	(68.80)	(191.90)
IV) Communication Div.	(1.14)	(27.68)	(4.90)	(50.85)	(13.50)	(50.85)
V) Other Academic Activities	(3.09)	(1.46)	(3.00)	(2.50)	(5.00)	(7.80)
Total A	136.08	1,045.07	366.40	1,264.51	372.15	1,200.00
B. Capital Expenditure						
1. Development of Campus						
I) Construction of University Campus	56.90		425.00		430.00	
II) Acquisition of Flats	3.75					
III) Addition to Flats	0.65		17.00		0.85	
2. Other Capital Expenditure	275.58		191.60		197.00	
Total B	336.88		633.60		627.85	
Total A+B	472.96	1,045.07	1,000.00	1,264.51	1,000.00	1,200.00
Grand Total	1,518.03		2,264.51		2,200.00	

Note: P: Budget under five-year plan   (Source: Finance & Account Div, IGNOU)
       NP: Other budgets

The cumulative total number of students enrolled in IGNOU is 226,548, of which 62,375 were enrolled during 1991/92. IGNOU was established with the aim of providing an opportunity for disadvantaged students living in remote and rural areas and female students to receive higher education. The number of such students enrolled in IGNOU is on the increase, but its ratio to the total number of enrolled students is still low, as shown in Fig. 2-3. As is clear from Fig. 2-4, on the other hand, the age distribution of the IGNOU's students is characterized by a large percentage of students who are in relatively high age groups, which implies that the goal of increasing the percentage of adults receiving higher education is steadily being achieved.
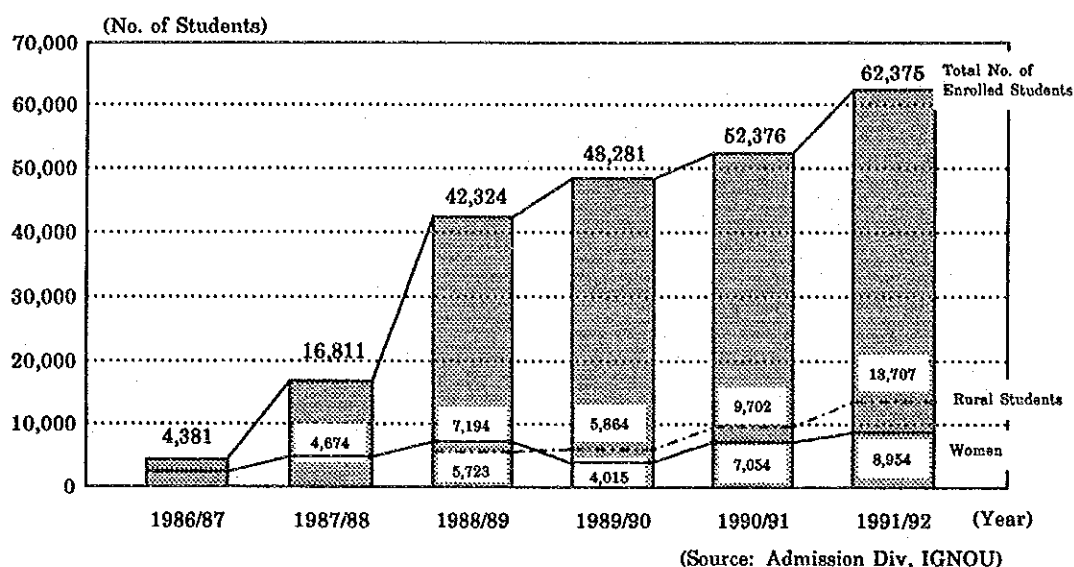
(No. of Students)

Fig. 2-3 Yearly Enrollment of Students

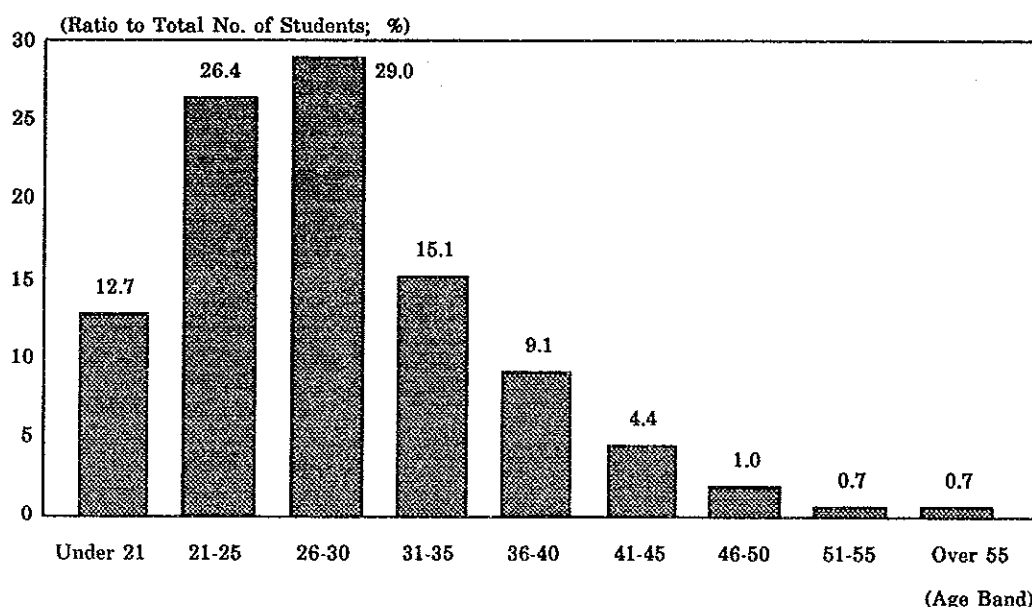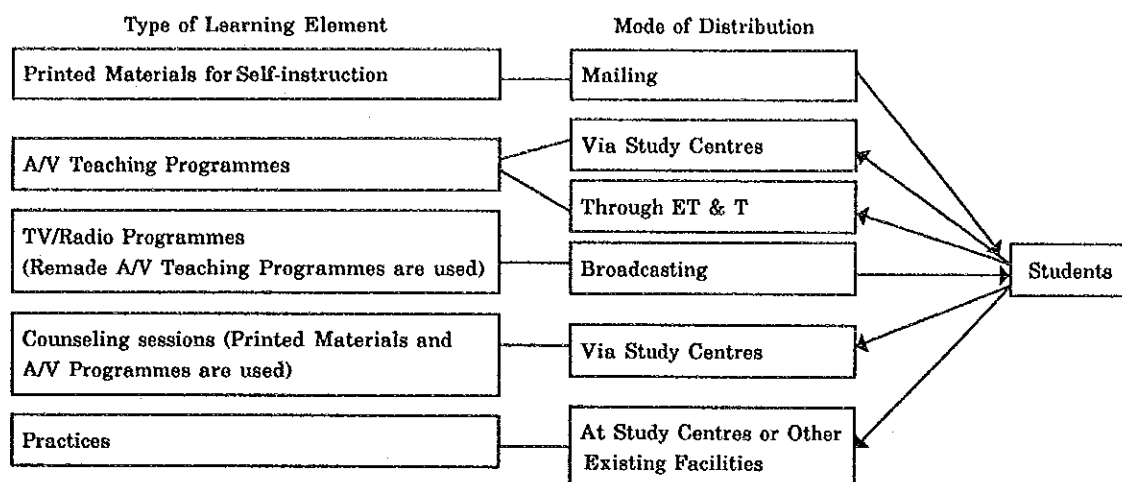Fig. 2-4 Age Distribution of Students Admitted (All the Programmes)

(Source: Admission Div, IGNOU)

(3) IGNOU's teaching system

IGNOU adopts multi-media teaching method by means of printed teaching materials, A/V teaching programmes, academic sessions and practical trainings. Printed teaching material is the main measure for self-study and, supplimenting it, A/V teaching programmes are also broadcast on the

TV as well as the radio. The following chart gives an outline of IGNOU's teaching system.

Type of Learning Element   Mode of Distribution

| Printed Materials for Self-instruction | ——— | Mailing |

| A/V Teaching Programmes |
| TV/Radio Programmes (Remade A/V Teaching Programmes are used) |
| Via Study Centres |
| Through ET & T |
Broadcasting	——→	Students
Counseling sessions (Printed Materials and A/V Programmes are used)	———	Via Study Centres
Practices	———	At Study Centres or Other Existing Facilities

Note: ET & T = Electronics Trade and Technology Development Corporation LTD.

Fig. 2-5 IGNOU's Teaching System

As shown in Table 2-1, students are enrolled either by passing entrance examinations or through self-appraisal, depending on the type of the programmes they choose. Printed materials are sent to the students, and A/V teaching programmes which are designed as supplement materials are sent to the study centres to be used in academic sessions or are broadcast on radio and television programmes intended for the students. Since May 1991 video teaching programmes produced in-house by IGNOU have been broadcast for 30 minutes (6:30 a.m. to 7:00 a.m.) on Mondays, Wednesdays and Fridays by the national broadcasting station (Doordarshan). Doordarshan has 523 relay stations across the country and covers 78 percent of the country's population and 57% of the country's land. The rate of adoption of television sets in the country, which stood at 2.782 crores as of the end of 1990, is increasing at an annual rate of 20 to 30 percent.

No. of sets (in lakhs)

(Source: Television India, 1991)
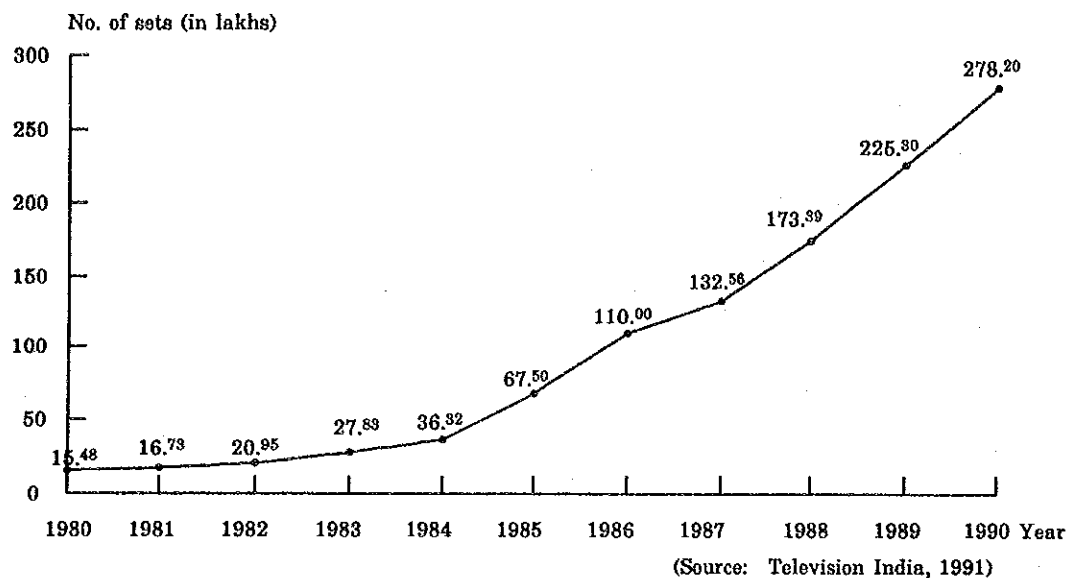
Fig. 2-6   Rate of Adoption of TV sets

Audio teaching programmes are broadcast for 30 minutes three times every week by All India Radio (AIR) at Bombay and Hyderabad, a national broadcasting station.

A/V teaching programmes are modified for broadcasting by the IGNOU's communication division and then supplied to broadcasting stations.

A/V teaching programmes produced by IGNOU are sold through 6 branches and 48 distributors of Electronics Trade and Technology Development Corporation Ltd. (ET & T), which was founded in 1974 by the Department of Electronics under the Ministry of Science and Technology.   Video programmes are duplicated on 1/2" VHS tapes by ET & T for sale.   Selling prices for video cassettes and audio cassettes are Rs.125 and Rs.35 respectively.   In 1991 about 1,000 videocassettes were sold.

As shown in Table 2-2, courses that comprise each programme are categorized into compulsory courses and optional courses, and number of credits for each course is fixed.   The following table shows the total number of credits required to complete each programme.

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Table 2-5 Programmes and Credits

Level of Programme	No. of Required Credits	Min. Duration	Max. Duration
Master's degree programme	128	4 years	
Bachelor's degree programme	96	3~3.5 years	8~8.5 years
Diploma programme	32	1 year	4 years
Certificate programme	16	3~6 months	2 years

One credit comprises 30 hours of learning. Students can take up to 32 credits a year.

(4) Functions of the study centres

It is planned to establish at least one study centre in each district, totaling 500 study centres across the country. As of the end of March 1992, there were 201 study centres in the country under the 16 regional centres. Fig. 2-7 shows locations of study centres in the country.
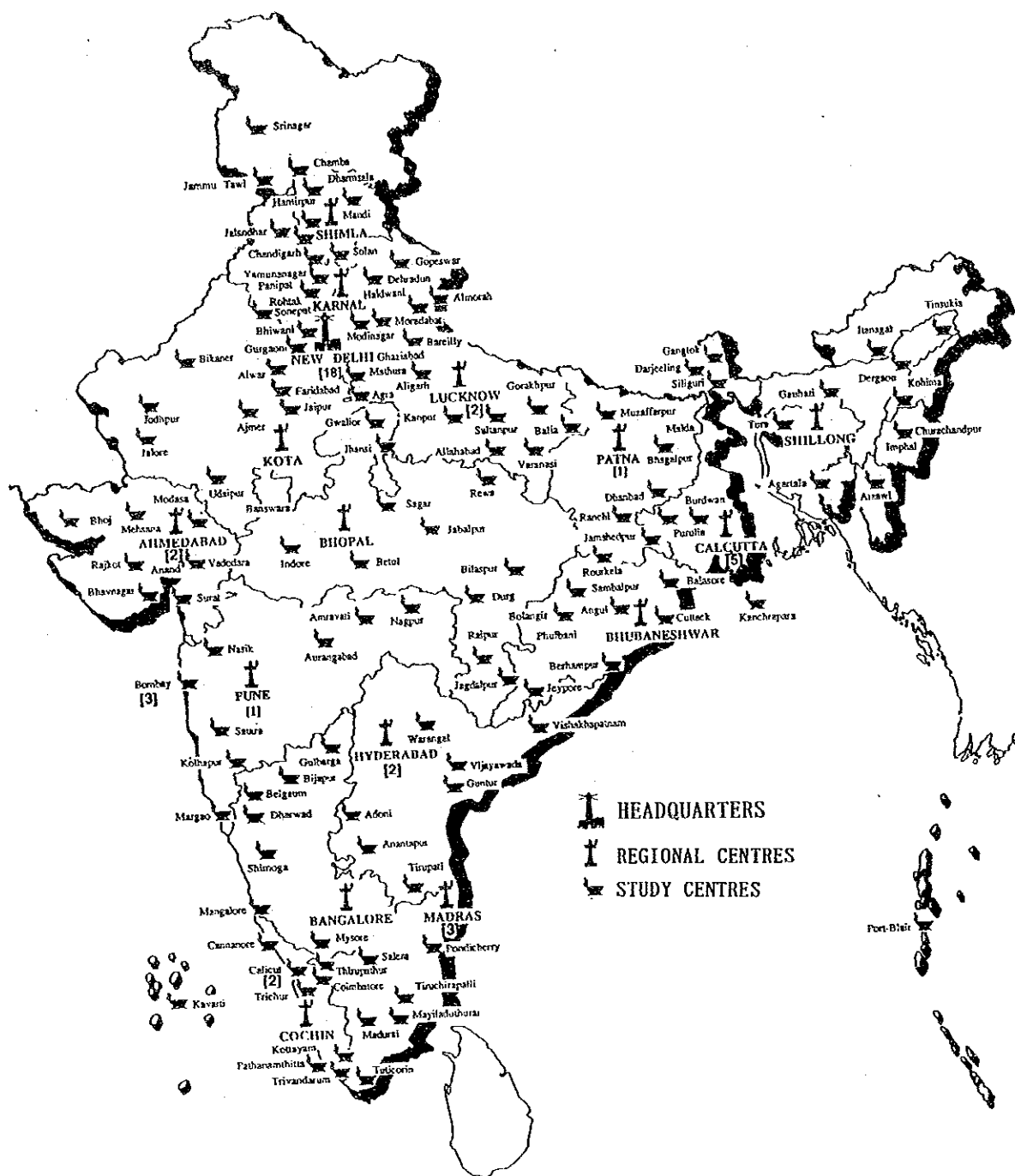
Fig. 2-7 Location of Study Centres and Related Facilities (Source: IGNOU, 1990)

Students enrolled in IGNOU are assigned to one of these study centres. Main functions of the study centres are as itemized below.

- Guidance of entrance formalities and execution of entrance examinations

- Evaluation of assignments and execution of final examinations

- Implementation of academic sessions

- Execution of counseling sessions and individual guidance etc.

Each study centre consists of a library, lecture rooms etc. and is equipped with television sets, videocassette recorders, audio cassette recorders etc.

Instruction method employed by IGNOU is basically self-study using printed teaching materials which are directly mailed to students. Academic sessions are conducted at study centres to supplement students' self-study. These academic sessions are conducted by academic counselors registered at each study centre. At present, there is a total of 8,750 academic counselors registered at study centres. Academic sessions are not compulsory and students' attendance rate ranges from 10 to 60 percent depending on the course. A/V teaching programmes sent from the IGNOU headquarters are utilized in academic sessions. In the case of an eight credit course, a 2.5-hour academic session is held 10 times a year. In other words, a 3.125-hour academic session is held for each credit. IGNOU has a plan to use A/V teaching programmes for about one-third of this 3.125-hour. But this plan has not yet been implemented due to a shortage of A/V teaching programmes.

(5) Numbers of A/V teaching programmes produced by IGNOU

As of the end of March 1992, IGNOU had a collection of 325 video teaching programmes (30 minutes duration on average) and 425 audio teaching programmes (15 minutes duration on average). Table 2-6 shows a breakdown of A/V teaching programmes owned by each school of studies.

Table 2-6   Number of Credits of the Programmes Offered by IGNOU and A/V Teaching Programmes (as of March, 1992)

School of Studies	* Total No. of Credits	No. of Audio Teaching Programmes	No. of Video Teaching Programmes
Humanities	168	123	29
Social Sciences	216	120	68
Sciences	128	16	19
Continuing Education	64	41	49
Computer & Information Sciences	30	0	8
Education	64	18	19
Management Sciences	212	99	111
Others		8	22
Total	882	425	325

* Total No. of credits assigned to offered course   (Source: IGNOU)

Number of A/V teaching programmes produced in each year is shown below. In 1991/92 63 video programmes and 79 audio programmes were produced.

Table 2-7   Result of A/V Teaching Programme Production

Fiscal Year	Total No. of 1989	1989/90	1990/91	1991/92 (as of March, 1992)	Total
Audio Programme	200	92	54	79	425
Video Programme	148	64	50	63	325

(6) Evaluation of students' performance

An evaluation of the students' academic achievements reviews the combination of assignments marked at each study centre and final examinations marked by the headquarters. The Diploma Conferring Council held three meetings, in February 1989, April 1991 and April 1992. At the meetings, and as a result, 9,884 students were judged to have completed their respective programmes. The number is considered rather small compared to the cumulative total number of enrolled students, but this is because students are allowed to be on the register for long periods of time which enables them to study at a slow pace.

(7) Present state of the IGNOU's facilities

IGNOU acquired a site with an area of 60ha for the new campus in Maidan
Garhi, New Delhi. Construction of new facilities is now underway under
the new campus master plan. At present, main headquarter functions of
IGNOU are placed in temporary buildings constructed on the site. But
these temporary buildings are too small to accommodate all the functions
of the headquarters. The Post-production centre of the communication
division is located in the Maidan Garhi campus, whereas its A/V production
facilities are located in the temporarily renovated building in
Tughlakabad which is 5.5km away from the Maidan Garhi campus. The A/V
production facilities consist of a video studio with a net floor area of
approx. 70m^2, a audio studio with a net floor area of approx. 20m^2 and
editing rooms etc. The video studio was constructed by erecting a
temporary roof in between two buildings, and therefore, acoustic
performance is poor. Furthermore, shortages of equipment make programme
production difficult.

(8) Issues to be tackled by IGNOU

● IGNOU's main objective is to equalize educational opportunities, but
the number of students from remote and rural areas and female students
enrolled is still too small. To eliminate the geographical inequality
in educational opportunity is one of the major issues for IGNOU.

● In order to improve the continuity of students' learning, increasing
the number of study centres, improving their facilities and promoting
both qualitative and quantitative improvements of counseling sessions
are the major challenges facing the study centre system.

● IGNOU's printed teaching materials are valued as highly as textbooks
in conventional universities. However, for Distance education,
supplementing A/V teaching programme is as important as printed

materials in helping students to understand. It is imperative, therefore, to make further improvements in the quality of A/V teaching programmes.

As is clear from the above, it is hoped that IGNOU makes even greater contributions to the equalization of educational opportunities by improving the quality of teaching materials and educational facilities such as study centres, and at the same time promoting the spread of Distance education in rural areas which is inhabited by a major percentage of the country's population. Therefore, it is desired that IGNOU's headquarters facilities be completed swiftly to accomplish the above goals.

(9) Present state and problems of the production of A/V teaching programmes.

The A/V teaching programme is an important means of teaching to suppliment printed teaching materials in the area of Distance education. IGNOU had produced 325 video programmes and 425 audio programmes by the end of Mach 1992, but these numbers are not yet enough to cover all of the academic programmes. In addition, the number of A/V teaching programmes that can be broadcast is limited. The shortage of A/V teaching programmes is attributable to the inadequacies of the existing facilities such as lack of space, poor acoustic performance, insufficient equipment and scattered facility condition. The shortage of facilities also adversely affects the quality of these programmes. IGNOU is responsible for implementing training programmes for personnel engaged in the production of A/V teaching programmes at other Distance education institutions, but, due to the above-mentioned conditions, IGNOU is not able to perform its full responsibility.

2 - 2 Outline of the National Development Plan

2-2-1 Outline of the National Development Plan

(1) Outline of the 8th five-year plan

The revised 8th five-year plan (April 1992 to March 1997) envisages 5.6% average annual growth rate of GDP, a 23.2 percent ratio of gross investment to GDP, a 1.6 percent ratio of capital inflow to GDP, a 10.5 percent ratio of public investment to GDP and gross investment in the amount of Rs. 798,000 crores. The following table shows main target macro-economic indicators under the 8th five-year plan.

Table 2-8 Macro Aggregates for the 8th Five-Year Plan

	7th five-year plan (1985~90)	(1985~92)	8th five-year plan
1. GDP Growth Rate (% per year)	5.8	5.3	5.6
2. Average Rate of Domestic Savings (% of GDP at Market Price)	20.3	20.7	21.6
3. Average Rate of Investment (% of GDP at Market Price)	22.7	23.1	23.2
4. Current Account Deficit (% of GDP at Market Price)	2.4	2.4	1.6
5. Incremental Capital Output Ratio (%)	3.9	4.3	4.1
6. Export Growth Rate (% per year)	8.1	8.5	13.6
7. Import Growth Rate (% per year)	10.0	7.5	8.4

(Source: 8TH 5 YEAR PLAN)

Main goals of the revised 8th five-year plan are as follows.

① Generation of adequate employment to achieve near full employment level by the turn of the century;

② Containment of population growth through active people's cooperation and an effective scheme of incentives and disincentives;

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③ Universalization of elementary education and complete eradication of illiteracy among the people in the age group of 15 to 35 years;

④ Provision of safe drinking water and primary health care facilities, including immunisation, accessible to all villages and the entire population, and complete elimination of scavenging;

⑤ Growth and diversification of agriculture to achieve self-sufficiency in food and generate surpluses for exports;

⑥ Strengthening the infrastructure (energy, transport, communication, irrigation) in order to support the growth process on a sustainable basis;

In the light of the trends outlined above, the approach to the Eighth Plan will have the following fourfold focus;

① Clear prioritisation of sectors/projects for investment in order to facilitate operationalisation and implementation of the policy initiatives taken in the areas of fiscal, trade and industrial sectors and human development;

② Making resources for these priority sectors available and ensuring their effective utilisation; and completion of projects on schedule avoiding cost and time overruns;

③ Creation of a social security net through employment generation, improved health care and provision of extensive education facilities throughout the country;

④ Creation of appropriate organisations and delivery systems to ensure that the benefits of investment in the social sectors reach the intended beneficiaries.

As is clear from the above, human development and the universalisation of education occupy important positions in the national development plan.

(2) Educational policy of the 8th five-year plan

The plan says, "Expansion and utilisation of employment opportunities and increase in productivity are strongly influenced by education" and it concludes "In the process of development, education is an investment". In the area of general education, emphasis is placed on eliminating illiteracy from about 100 million people in the 15 to 35 age group and promoting the spread of elementary education among women and people living in rural areas. And it is planned to expand the scope of higher education by means of adopting Distance education which is equitable and cost-effective.

And the plan also says, "Technical education including Management education is one of the most potent means for creating skilled manpower required for development tasks" and "The quality of technical and management education needs to be improved not only through modernisation and upgradation of infrastructures but also by adopting futuristic approaches and strengthening industry-institutional and R & D Laboratories inter-action." The country's present higher education system is faced with such problems as an increase in the number of low-level educational organizations, incomplete implementation of school curricula, outdated school curricula, unevenness in the quality of education and a lack of sufficient support to research. In an attempt to resolve such problems, it is planned to accomplish the following objectives:

   ①   Integrated approach to higher education

   ②   Excellence in higher education

   ③   Expansion of education in an equitable and cost-effective manner

④ Making higher education relevant in the context of a changing socio-economic scenario

⑤ Promotion of value education

⑥ Strengthening of management system in the universities

The strategies for achieving the above objectives are as follows:

① Cooperation among general, technical, medical and agricultural streams for development of manpower

② Establishment of new inter-university centres to provide facilities in the emerging areas like Biotechnology, Atmospheric Science, Oceanography, Electronics and Computer Sciences.

③ The additional enrollment in higher education during the Eighth Plan is estimated to be around 10 Lakhs of which 9 lakhs will be at the undergraduate level. Large-scale expansion of Distance education system and providing opportunities to larger segments of population, particularly the disadvantaged groups like woman and people living in backward and hilly areas. Distance education should absorb at least 50 percent of the additional enrollment during the Eighth Plan and their cumulative enrollment should reach 15 lakhs, including 5 lakhs adult learners beyond the normal age-group 17-23. Open universities should also start innovative programmes of a vocational nature for meeting the learning needs of rural areas.

④ Promotion of tremendous potential of 44.25 lakhs students enrolled in higher education to be utilized by actively involving them in the programmes of adult literacy, continuing education, population education and other constructive activities.

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⑤ Stressing the significance of Value Education and selecting Core Group on value orientation in education

⑥ Stressing modernization and restructuring of the management of university system. Expansion of the schemes of redesigning and restructuring of courses to meet the developmental needs of the country, examination reforms and teachers' training.

As stated above, in the 8th five-year plan great emphasis is placed on the improvement of the Distance education system, in higher education for the purpose of absorbing half of the increasing university students.

2-3 Details and Contents of the Request

2-3-1 Details of the Request

IGNOU has been growing rapidly since it was established. In 1986 number of students enrolled in IGNOU was approximately 4,400. The cumulative total number of students who have enrolled in IGNOU now exceeds 220,000 and more than 60,000 students were enrolled during 1991~92. It is estimated that the cumulative total number of students enrolled in IGNOU will reach 300,000 by the time of the completion of the 8th five-year plan. At present, IGNOU has nine schools of studies and opens 37 programmes. It is expected that the number of programmes offered at IGNOU will continue to increase. Presently printed materials and A/V teaching programmes are used as teaching measures. A/V teaching programmes are now used at 201 study centres across the country. IGNOU began telecasting of video programmes in May 1991 and radio broadcasting of audio programmes in January 1992. By the end of Mach 1992, number of video programmes and audio programmes IGNOU produced accounted for 325 and 425 respectively. However, the number of those programmes is not yet sufficient to cover all courses included in its curriculum. For this reason, IGNOU is planning to produce 600 new video teaching programmes and 1,200 new audio teaching programmes by 1996/97 in order to enhance the quality of its distance education.

It is very difficult for IGNOU, however, to implement the above-mentioned plan. Because the existing production facilities, which are temporarily renovated and dispersed, do not function as required for A/V studios and make production efficiency low. Furthermore, insufficient production equipment makes it more difficult to achieve the goal. IGNOU values the equipment which was procured under a Japanese grant aid assistance in 1988, and is therefore desirous to complete the consistent production

system of A/V teaching programmes with the assistance of the Government of Japan.

With the above background, the Government of India made a request to the Government of Japan for grant aid assistance for the construction of facilities as well as procurement and installation of equipment necessary for production of A/V teaching programmes.

In response to the request, the Government of Japan decided to dispatch a preliminary study team to India, and the Japan International Cooperation Agency sent a preliminary study team headed by Mr. Mikio Nakamura, Assistant Director, Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs to India to conduct field surveys from April 5 to 18, 1992.

Since the background and contents of the project and the implementation system of the Indian side were confirmed by the preliminary study, the Japan International Cooperation Agency sent a basic design study team headed by Dr. Hidetoshi Kato, Director General, National Institute of Multimedia Education, the Ministry of Education, Science and Culture to India to study the feasibility of grant aid for the project.

IGNOU is now in the process of establishing the new campus to concentrate its dispersed present facilities. This project will be implemented as a part of the new campus construction plan.

As an organization responsible for supervising Distance education in the country, IGNOU is playing a key role in promoting the spread of Distance education by providing other Distance education institutions with teaching materials and cooperating with them in training personnel engaged in the A/V teaching programme production.

2-3-2   Contents of the Request

Following is an outline of the contents of the request for the project made by the Government of India for Japanese grant aid which was confirmed through the basic design study.

(1) Objective

Objective of the project is to improve and enhance the activities of the communication division, which is responsible for the production of A/V teaching programmes of IGNOU, by constructing production facilities of A/V teaching programmes and procuring necessary A/V production equipment, as an extension of "The Project for the Improvement of Educational Technology Equipment of the Indira Gandhi National Open University" which was implemented during 1988~89.

(2) Project implementing organization

The Ministry of Human Resource Development of India is the supervising authority for the project, and Indira Gandhi National Open University (IGNOU) is the organization responsible for the implementation of the project.

(3) Proposed project site

IGNOU campus, Maidan Garhi, New Delhi

(4) Facilities

Two video studios, two audio studios, a post-production room, a central apparatus room, video editing rooms, viewing rooms, a computer graphic room, an art room, staff rooms and other spaces directly related to the production of A/V teaching programmes.

(5) Equipment

Main items of equipment to be procured under the project and order of priority for each item of equipment are as shown below.

Priority

1) Equipment for video studio   A

     Video camera system, Video production switcher, Video cassette recorder, Audio mixer, DAT recorder, Picture monitor, Teleprompter system, Monitor speaker, Lighting equipment, Intercom equipment, Camera crane, etc.

2) Equipment for audio studio   A

     Audio mixer, CD player, DAT recorder, Multi-track tape recorder, Video cassette recorder, Microphones, Sound effecter, etc.

3) Equipment for central apparatus room   A

     Synchronizing signal generator, TV signal generator, A/V signal distributor, Time signal generator, Personal computer system (15 terminals), etc.

4) Equipment for video editing room   A

     Video cassette recorder, Controller, Picture monitor, Audio mixer, Video production switcher, etc.

5) Equipment for post-production room   A

     Video cassette recorder, Video production switcher, Parts/components to be connected with existing equipment

6) Equipment for duplication   A

     Video cassette recorder (VHS), etc.

7) Equipment for EFP (Electronic Field Production)   B

     Outdoor broadcasting van, Portable video camera, Portable video cassette recorder, Portable DAT recorder, Wireless microphones, Lighting equipment, etc.

8) Equipment for audio editing room   A

     DAT recorder, Graphic equalizer, Audio mixer, Monitor speaker, etc.

9) Equipment for audio post-production   B

     DAT recorder, MIDI (Musical Instrument Digital
     Interface), CD player, Open-reel tape recorder, Audio
     mixer, Video cassette recorder, etc.

10) Equipment for computer graphics   A

     Input adapter, Video cassette recorder, etc.

11) Measuring equipment and instrument   A

     Oscilloscope, Vectorscope, TV signal generator,
     Illumination meter, Color meter, Test tapes, Head
     adjustment jig, Sweep generator, etc.

12) Parts for maintenance   A

Note: Unless otherwise specified, all video cassette recorders are of
       Beta cam SP format.

CHAPTER 3 CONTENTS OF THE PROJECT

CHAPTER 3 CONTENTS OF THE PROJECT

3 - 1   Objectives

The Government of India is planning to expand the scope of higher education by promoting the spread of Distance education. In this connection, it is imperative to improve the facilities of Indira Gandhi National Open University (IGNOU), which is responsible for supervising Distance education in the country. However, IGNOU's production facilities for audio-visual (A/V) teaching programmes, which occupies an important position in Distance education, are temporary and dispersed. In addition to the poor facility condition, insufficient equipment make the production of A/V teaching programmes difficult. This project is aimed at promoting the activities of the communication division of IGNOU and improving the quality of A/V teaching programmes by means of constructing facilities in the IGNOU's new campus and providing necessary equipment, and thereby contributing to the improvement and expansion of higher education in the country.

3 - 2   Examination of the Contents of the Request

3-2-1   Examination of the Appropriateness and Necessity of the Project

It is expected that the construction of the A/V programme production facilities and provision of necessary equipment will lead to an improvement in the functions of the communication division, which is responsible for the production of A/V teaching programmes at IGNOU. It is also expected that A/V teaching programmes produced at the facilities will greatly contribute to learning across the country to be used in academic sessions at the study centres, to be broadcast by national TV and radio

stations and to be sold.   As an institution which will also supervise
Distance education of the country, IGNOU is planning to promote the spread
of Distance education by means of conducting training sessions for
personnel engaged in A/V programme production at other institutions.   For
this reason, it is expected that the production method of A/V teaching
programmes employed at IGNOU will spread widely in the country, and
therefore it is judged that implementing the project is of high necessity.

(1) Need of Distance education in higher education

India has a population of 844 million which has been increasing at an
average annual rate of 2.11 percent during the 10-year period up to 1991.
In other words, the country's population has been increasing by about 15
million annually, which is nearly equal to Australia's total population.
In addition, the number of people moving to big cities seeking jobs is
increasing in keeping with the increase in the country's population.
However, there is a shortage of people who have acquired skills required
by society.   While the school entry rate is increasing at the level of
elementary education, the dropout rate is still high for students at the
elementary and secondary levels.   The ratio of college and university
students in the relevant age group is only six percent, which is lower
than other developing countries (the ratio is 20 percent in Egypt, 20
percent in Thailand, 10 percent in Turkey, and 16 percent in Mexico).
It is imperative, therefore, to provide opportunities of higher education
for those 94 percent of people in the relevant age group and also adults
who are unable to take higher education due to social or financial
reasons.   On the other hand, the ability of the conventional university
education system to cover large areas and numbers of people is limited,
and requires considerable cost and manpower.   For this reason, Distance
education system is considered effective in India to cover a large number

of people dispersed in the vast land area of the country, with limited manpower and funds.

In addition to dual mode type Distance education institutions, a number of state open universities, which are characterized by relaxed entry qualification and flexible studying system, have been established since 1982.   In 1985, Indira Gandhi National Open University (IGNOU) was established as an institution which has jurisdiction over the Distance higher education of the country.   Thus far, the number of students enrolled in IGNOU has reached approximately 500,000. And it is planned to increase enrollment by another 500,000 students when the 8th five-year plan is completed.   Indira Gandhi National Open University, which forms the core of Distance education in the country, is considered indispensable to the future growth of the country.

(2) Necessity of audio-visual (A/V) teaching programmes in Distance education.

Unlike the conventional education system, the Distance education system needs to make use of A/V teaching programmes in addition to printed teaching materials for students to learn properly.   It is also necessary to utilize mass media for the transmission of information.   The educational merits of A/V teaching programmes include the following:

① Provision of visual information on events, experiments, historical figures and historical structures.

② Student's awareness of being taught directly by skilled instructors.

③ Employment of dramas and other interesting forms of presenting information.

④ Presentation of concrete examples of activities and experiments.

⑤ High educational effect through the parallel use of A/V teaching programmes and printed teaching materials.

⑥ Ease of explanation about scientific principles and their applications.

⑦ Convenient presentation of changes in movement by use of slow-motion and quick-motion pictures.

⑧ Presentation of dramas as performed on the stage.

⑨ Presentation of various types of information in abridged or comprehensive form.

⑩ Ease of explanation about uses of tools, instruments and machines.

⑪ Presentation of musical performances.

⑫ Short time required for students to familiarize themselves with teaching materials.

⑬ Learning opportunity for those who want to study a certain subject as a hobby.

⑭ Learning opportunity for those who have difficulty in reading and writing.

⑮ Availability to people who live in remote areas.

⑯ Flexibility in terms of time scheduling.

As is clear from the above descriptions, A/V teaching programmes play an important role in Distance education.

(3) Necessity of improving A/V teaching programme production facilities.

If the project were not implemented, the existing facilities would need to be further utilized for production of A/V teaching programmes. As mentioned in 2-1-3 (7) "Present state of the IGNOU's facilities", existing production facilities are small, acoustic performance is poor, and equipment is insufficient. The maximum annual production capacity of the existing facilities is estimated to be 90 video programmes and 180 audio programmes even when production efficiency is improved. Therefore, if this project is not implemented, it will be impossible to produce annually 200 video programmes and 425 audio programmes including drama programmes which is planned as the target by the Indian side. This condition will

cause serious hindrance to the plan for increasing academic programmes as well as to strengthening the quality of existing academic programmes.

It is therefore concluded that improving A/V teaching programme production facilities is highly needed.

(4) Appropriateness of the IGNOU's A/V teaching programme utilization plan

At IGNOU A/V teaching programmes are utilized in the following manner:

① Utilization of A/V teaching programmes at the study centres.

At each study centre, academic sessions are held at a rate of 3.125 hours per credit. IGNOU is planning to use A/V teaching programme in about one-third, or about an hour, of the 3.125 hours. In other words, it is planned to use one video teaching programme (30 minute duration) and two audio teaching programmes (15 minute duration each) per credit. Although the appropriateness of use and necessary numbers of A/V teaching programmes vary according to each subject, the IGNOU's production target is considered appropriate.

At present, IGNOU supplies only one copy of an A/V teaching programme to each study centre. But it is planned to supply more copies for the rental service to students.

② Broadcasts by national TV and radio stations.

Since May 1991, video teaching programmes produced by IGNOU have been broadcast three days a week, for 30 minutes a day, through national TV stations.

Audio teaching programmes are broadcast all over the country three days a week, for 30 minutes a day, through national radio stations in Bombay and Hyderabad.

Modification of each audio or video teaching programme is done at the IGNOU's communication division so that it is ready for broadcasting when they are brought to TV or radio stations. Radio and TV programmes are aimed mainly at students enrolled in IGNOU. The educational effect of these programmes is already high, and it is expected to become higher since the number of radio and TV sets in the country is increasing rapidly. It is expected that the number of these broadcast programmes will be further increased, as shown in Table 3-1, in keeping with the increase in the number of A/V teaching programmes produced by IGNOU. According to IGNOU, a basic agreement has already been reached with radio/TV stations on the plan shown below.

Table 3-1 Result and Future Plan of
Broadcasting IGNOU's Programmes

Year	1991	1992	1993
Radio		30 min. 3 days/week	30 min. Everyday
TV	30 min. 3 days/week	30 min. 3 days/week	30 min. 3 days/week

(Source: IGNOU)

③ Selling of duplicated tapes.

Utilization of radio and TV broadcasting of A/V teaching programmes is limited due to a fixed timetable. On the other hand, video teaching programmes can be seen repeatedly. Under the present condition of the Indian economy, the number of students who can utilize video cassette recorder is limited. But duplicated tapes are expected to come into widespread use in the future as important tools of Distance education.

④ Supply of A/V teaching programmes to other Distance education institutions.

Being responsible for supervising Distance education across the country, IGNOU has a plan to supply A/V teaching programmes and to extend technical cooperation to other Distance education institutions with the aim of promoting the spread of Distance education in the country.

Thus, it is concluded that A/V teaching programmes produced by IGNOU, which will be utilized in the above-mentioned manner, will greatly contribute to the growth of Distance education in the country.

(5) Appropriateness of the IGNOU's A/V teaching programme production plan

The IGNOU's communication division is planning to produce 600 video teaching programmes (30 minute duration each) and 1,200 audio teaching programmes (15 minute duration each) by the end of 1996/97. Appropriateness of the plan is examined below in terms of necessary numbers of programmes for each course, and timing the revisions of these teaching programmes.

① Examination in terms of numbers required for credits.

As of the end of March 1992, IGNOU had a collection of 325 video teaching programmes and 425 audio teaching programmes. The following table shows the total number of credits required for each course currently offered at IGNOU and the number of teaching programmes used in each school of studies.

Table 3-2 The number of Credits of the Programmes Offered by IGNOU and A/V
Teaching Programmes (as of March, 1992)

School of Studies	*Total No. of Credits	No. of Developed Audio Programmes	No. of Developed Video Programmes
Humanities	168	123	29
Social Sciences	216	120	68
Sciences	128	16	19
Continuing Education	64	41	49
Computer & Information Sciences	30	0	8
Education	64	18	19
Management Sciences	212	99	111
Others		8	22
Total	882	425	325

* Total No. of credits assigned to offered course   (Source: IGNOU)

The following table shows a list of new programmes to be offered in the future at IGNOU.

Table 3-3 Programmes Planned to be Offered by IGNOU (as of March, 1992)

School of Studies	Title of Programmes	Code	Planned Starting Year and Credit		
			1992	1993	1994
Humanities	Diploma Course in Writing in Hindi	DCH		(20)	
Social Sciences	Master Course in Library and Information	MLS			(32)
Engineering	Advanced Diploma Course in Water Resources	ADWR			(32)
	Advanced Diploma Course in Construction Management	ADCM	(32)		
Continuing Education	Diploma Course in Nutrition and Health	DNHE		(30)	
	Diploma Course in Child Care and Education	DECD			(30)
Education	Master Course in Distance Education	MDE		(30)	
	Certificate Course in Guidance	CIG		(16)	
Total			(32)	(96)	(94)
			(222)		

The total number of credits required for the new courses which IGNOU is planning to open in the future is 222. If this number is added to the total number of credits required for the existing courses, the

total number of credits becomes 1,104. IGNOU sets up a standard to prepare one video teaching programme and two audio teaching programmes for each credit. In light of this standard, video teaching programmes are short by 679, and audio teaching programmes by 1,883 at present. IGNOU's plan to produce 600 additional video teaching programmes and 1,200 audio teaching programmes by the end of 1996/97 is considered appropriate in light of the above-mentioned shortages.

② Examination in terms of the necessary numbers for broadcasting

As stated in 3-2-1 (4) ②, IGNOU needs to supply 156 (52 weeks × 3 programmes/week) to 364(52 weeks × 7 programmes/week) video teaching programmes to TV stations each year for three to seven days broadcasting a week. On the other hand, for radio broadcasting, IGNOU must supply 312 (52 weeks × 2 × 3 programmes/week) to 728 (52 weeks × 2 × 7 programmes/ week) audio teaching programmes to radio stations each year. The total number of 200 video teaching programmes and the total number of 425 audio teaching programmes that IGNOU is planning to produce each year are between the lower and upper limits. In addition, it is expected that some of the programmes will be used repeatedly. Thus, IGNOU's A/V teaching programme production plan is considered appropriate in terms of necessary numbers for broadcasting.

③ Examination in terms of timing the revision of A/V teaching programmes

IGNOU has a plan to partially revise each teaching programme every year and to drastically revise every three to five years. The University of the Air in Japan drastically revise each programme every four years. In view of the rapid advancement of science and technology and the term of booking contracts with professors, such revising programme is considered necessary. Since IGNOU is planning

to produce one video teaching programme and two audio teaching programmes for each credit, a total of 1,104 video teaching programmes and 2,208 audio teaching programmes need to be revised. The following table shows the total numbers of video teaching programmes and audio teaching programmes to be produced annually, which were calculated on the basis of the length of use.

Table 3-4 No. of Developing Programmes and Length of Use

Length of Use	3 years	4 years	5 years	6 years
Video Programme	368	276	220	184
Audio Programme	736	552	441	367

If IGNOU can produce a total of 200 video teaching programmes and a total of 425 audio teaching programmes each year after 1996/97, it will be possible to revise them about every five years, and thus IGNOU's A/V teaching programme production plan is considered appropriate in terms of timing of revision of these teaching programmes.

3-2-2   Examination of the Project Implementation Plan

(1) Examination of the personnel plan

At IGNOU, the communication division is responsible for the production of A/V teaching programmes. By the end of March 1992 the division had produced 325 video teaching programmes and 425 audio teaching programmes. As of the end of 1991/92, the prescribed total number of permanent staff members was 143, while the actual number of permanent staff was 74. According to IGNOU, the low occupancy ratio (52%) of actual staff number to the prescribed number is attributable mainly to the university's cautious stance toward the employment of permanent staff members, who are

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employed for life in principle. Under such circumstances, the division is carrying out its operations by recruiting a necessary number of part-time staff according to its workload. The division's production plan for 1996/97 envisages 200 video teaching programmes and 425 audio teaching programmes. The planned workload is about three times as large as the one for 1992/93. To meet such workload, it will be necessary to recruit an additional 119 permanent staff members for a total of 262. Organizationally, the division consists of four units, namely, Administration, Research, Engineering and Production. The division's organization will remain basically unchanged even if it is expanded after the completion of the project. The division will supplement its activities with temporary staff members recruited as occasion demands. The following table shows comparisons of the prescribed permanent staff numbers after the completion of the project and the present one.

Table 3-5 Staffing Plan of Communication Division

Section			1992/93 Prescribed Staff	1992/93 Actual Staff	1995/96 Prescribed Staff	Increase Number against 1992~93 Permanent Staff
Direc- tor	Pro- duction	Radio/TV	38	22	57	● Producer and Production Assistant : 19
		Planning	17	6	23	● Editor, Cameraman and Make-up Artist: 6
		Graphics	12	3	20	● Graphic Artist: 2 ● Carpenter and Painter: 6
		Capsule Making	5	1	8	● Editor and Technical Asst.: 3
		Tape Storing	3	2	5	● Assistant Librarian: 2
	Engineer- ing	Engineering	38	23	97	● Equipment Operator: 40
		Maintenance	3	0		● Technician and Attendant: 16
	Research		10	6	14	● Dy. Director and Research Assistant, etc.: 4
	Administration		8	4	28	● Administrative Staff: 3 ● Typist, Receptionist, Driver, Attendant, etc.: 17
Total			143 *1	74 *2	262 *3	Increase of 119

*1 Including Director, Jt. Directors (Production and Engineering) and their staff members: 9
*2 ditto: 7
*3 ditto: 10

(Source: IGNOU)

IGNOU is planning to drastically expand its staff after completing its procedure to increase the actual total number of permanent staff members to the prescribed number by the end of 1994/95. An increase of 119 permanent staff members in the communication division represents only 6.8 percent of the IGNOU's 1,739 total numbers of permanent staff members, and is therefore considered feasible.

With respect to the recruitment plan for engineers to engage directly in the production of A/V teaching programmes, it will be necessary to recruit about 40 engineers, mainly equipment operators, since the workload for the production of A/V teaching programme is expected to increase by about three times. This can be done by recruiting graduates from electrical engineering/electronics courses of polytechnics or universities. Annually as many as 800 students with such majors graduate from universities. It will also be necessary to recruit an additional 20 producers and assistant producers. These producers and assistant producers will be available from the film and television industries which is thriving in the country. Jamia Millia Islamia University, National school of Drama and Film & TV Institutes located in Pune and Madras have training courses particularly suitable for programme producers. Approximately 130 students graduate from those institutions every year.

During past recruitments the recorded number of applicants for engineers and producers of the communication division was approximately twenty times greater than the number of positions available. It is expected that this trend will continue for the future recruitment of staff members of the communication division.

The following table shows a comparison between the number of producers, who are playing a pivotal role in the production of A/V teaching programmes, and the planned annual production numbers of A/V teaching

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programmes. While there is no significant difference between the present annual production numbers of video teaching programmes per producer and the planned one, it is expected that the planned annual production numbers of audio teaching programme per producer will be about twice as large as the present one. This problem will be resolved by increasing the number of temporary staff members.

Table 3-6 No. of Producers and Teaching Programmes

Year		1992/93	1993/94	1994/95	1995/96	1996/97
No. of Producers		10	10	16	25	25
Video Programme	Planned Annual Production	65	80	90	165	200
	Production / Producer	6~7	8	5~6	6~7	8
Audio Programme	Planned Annual Production	79	146	175	375	425
	Production / Producer	7~8	14~15	10~11	15	17

For planning of A/V teaching programmes IGNOU is planning to reinforce academic staff by increasing its temporary staff.

(2) Operating budget plan

The communication division's budget for 1991/92 is Rs. 55.75 Lakhs on a revised estimation basis. That amount makes up only about 2.5 percent of the total amount (Rs. 22.645 crores) of the IGNOU's budget for the same fiscal year. The division's budget for 1996/97, when the division's operations will have been considerably expanded, is estimated at Rs 169 Lakhs without including price escalation, which is an increase of Rs. 113.25 Lahks over that for 1991/92. Even the budget estimated for 1996/97 accounts for only 7.46 percent of the total amount of the IGNOU's present budget. The total amount of the IGNOU's budget for 1991/92 is expanded about eight times as large as that for six years ago, which somewhat reflects the price escalation over the past six years. As discussed

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above, the growth rate of the IGNOU's total budget is very high and the communication division's budget occupies small ratio of the IGNOU's total budget. Therefore, this project is judged to be highly feasible in terms of operational budget.

As shown in the following table, a comparison of the communication division's present budget and that for 1996/97, which is estimated based on the workload in 1996/97, the production cost per programme for 1996/97 is lower by about 10 percent than that for 1991/92. Though there might be some increase in the production cost due to some unforeseen factors, it is also expected that production efficiency will be enhanced as a result of improvements in the facilities and equipment. Overall, the communication division's budget estimated for 1996/97 is considered appropriate.

Table 3-7   Budget of Communication Division and Production Cost of Teaching Programme

Year	1991/92 (Revised)	1996/97 (Estimate)	Remarks
Budget of Communication Division (A)	Rs. 55.75 lakhs	Rs. 169 lakhs	Rs. 113.25 lakhs increase
Annual Production Number of A/V Programmes (B) *1	70.9 programmes	242.5 programmes	
(A)/(B)	Rs. 0.786 lakhs	Rs. 0.696 lakhs	

Note: *1 ● Number of audio programmes is calculated assuming that production cost per programme is 1/10 of video programmes
      ● Price escalation is not included for 1996/97 estimate

Table 3-8 Budget of Communication Division (Expenditure)   (Rs. in thousands)

Year	1990/91		1991/92		1992/93	
Category of Budget	Actual		Revised Estimates		Estimates	
Classification	P	NP	P	NP	P	NP
(a)~(e) Personal Expenditure		2,544	30	3,835	170	4,185
(a) Presentation Unit		(62)	(30)	(75)	(170)	(85)
(b) Production		(1,581)		(2,260)		(2,410)
(c) Engineering		(711)		(1,080)		(1,160)
(d) Research and Evaluation		(116)		(240)		(330)
(e) Administration		(74)		(180)		(200)
(f) Others	114	224	460	1,250	1,180	900
1. Material(Cables, connectors, etc.)		(22)	(50)	(150)	(50)	(150)
2. Consumables (Tapes, bulbs, etc.)		(202)	(10)	(1,000)	(30)	(650)
3. Software				(100)	(100)	(100)
4. Programme Production	(114)		(400)		(1,000)	
Total	114	2,768	490	5,085	1,350	5,085
Grand Total	2,882		5,575		6,435	

Note: P : Budget under the five-year plan   NP: Other budgets   (Source: IGNOU)

3-2-3   Relation with Other Similar Projects

(1) The relation with similar projects in the country

The University Grants Commission (UGC) is the apex institution for developing higher education in India. It was established in 1956 as an autonomous statutory body by the central government to discharge its responsibility envisaged in the constitution of India for "coordination, promotion and development of higher education in the country. One of the UGC's main activities is the "Mass Communication Programme" to broadcast educational programmes through national TV stations. The outline of the UGC's "Mass Communication Programme" is as described below.

① Countrywide classroom

Since 1984, the UGC has been broadcasting educational programmes six days a week, for two hours daily, to remote, rural and backward areas through national TV stations (Doordarshan). These programmes are produced in seven Educational Media Research Centres (EMRCs) and eight

Audio Visual Research Centres (AVRCs) which established in colleges and universities. The UGC is providing financial assistance to these institutions. The government of Japan also extended a grant aid for providing equipment to one of the EMRCs under a programme titled "Programme for improving the Equipment of Jamia Millia Islamia University's Educational Media Research Centre."

② Video-lectures

Video-lectures for graduate students are being produced for individual/group viewing. At present 15 subjects have been taken up and materials in 8 subjects are available. For each subject, 250 to 300 volumes of videos (30 minute duration each) are to be produced for use at university libraries as well as for sale across the country.

The UGC's educational TV programmes and A/V teaching programmes are aimed at improving educational standards or the knowledge level of adults including university students. On the other hand, IGNOU's A/V teaching programmes are aimed at supplementing the use of printed teaching materials under its Distance education programme. Thus, there is no overlap between the IGNOU's A/V teaching programmes and UGC's programmes.

(2) The relation with other foreign grant aid assistances

Followings are the similar assistance projects offered by foreign countries to IGNOU.

Assisting Country	Outline of Projects	Period
Britain	● Provision of equipment for use in video tape recording, editing and reproduction	January 1986 to March 1993
	● Consulting on script production, video production, lighting, recording and editing	
	● Inspection tour of the Open University and the BBC Production Centre in Britain	
Japan	● Provision of post-production equipment	1988 to 1989

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Items of equipment which were provided under the above-mentioned assistance projects and are still usable will be shifted for use to the proposed facilities of the project.

3-2-4 Examination of the Details of the Requested Facilities and Equipment

(1) Facilities

The requested facilities are to be used by the IGNOU's communication division, which is responsible for the production of A/V teaching programmes. The communication division consists of four units, namely, Administration, Research, Engineering and Production. The criteria for determining is to include only facilities which are closely related to production of A/V teaching programmes. The administration and research units are indirectly concerned with the production of A/V teaching programmes, and therefore, shall not be included in this project. According to the IGNOU's new campus plan, however, it was planned to construct one building to accommodate facilities for all the functions of the communication division. If the Indian side constructs another building to accommodate remaining facilities not included in this project, the function of the division will be separated into two buildings, and smooth operation of the division will be interrupted. Further, the difference in size between the two buildings would not be compatible with IGNOU's master plan. For these reasons, the proposed building shall be planned to include some open space where the Indian side can extend the facility in the future. Necessary facilities and equipment for A/V teaching programme production are examined in Fig. 3-1 and Fig. 3-2 according to the flow of programme production. Based on the examination, whether or not the facilities and equipment is to be included in the

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project is examined in Table 3-9. Further, Table 3-10 shows the differences in details of the necessary facilities between the Indian side's request and this basic design study.

Stage	Actual Works	Necessary Facilities
Planning	Planning Meeting	Meeting Room
	Arrangement	Viewing Room
Script Making	Preparation of Illustration, Animation, etc.	Graphic Workshop
	Preparation of Scenery, etc.	Scenery Store and Workshop
	Preparation of Properties	Property Store
	Location Hunting	
	Technical Meeting	
	Preparation of Equipment	
	Selection of Music	
Shooting	Outdoor Shooting	EFP Store
	Rush Viewing	
	Studio Shooting	Video Studio
	Rehearsal	Rehearsal Room
	Make-up	Make-up room
	Dressing	Dressing Room
	Waiting	Waiting Room
Editing	Tentative Editing	Single-step Editing Room
	Final Editing	A/B Roll Editing Room
	Final Editing	Post-Production Room
	Completion of Narration	
Audio Recording	Selection of Music and Effects	Audio Editing Room
	Audio Recording / Dubbing	Audio Studio (Dubbing Studio)
	Final Viewing	Viewing Room
Duplicating	Completion of Tapes for Distribution	Duplication Room
	Storing Master Tapes	Tape Library

Fig. 3-1 Flow of Video Programme Production and Necessary Facilities

Stage | Actual Works | Necessary Facilities

Stage	Actual Works	Necessary Facilities
Plan-ning	Planning Meeting	Meeting Room
	Arrangement	Audio Editing Room
Script Making	Location Hunting	
	Preparation of Equipment	
Record-ing	Outdoor Recording	EFP Store
	Rush listening	
	Selection of Music and Effects	
	Studio Recording	Audio Studio
	Rehearsal	Rehearsal Room
	Waiting	Waiting Room
Editing	Final Editing	Audio Editing Room
	Final Listening	Viewing Room
Dupli-cation	Completion of Tapes for Distribution	Duplication Room
	Storing Master Tapes	Tape Library

Fig. 3-2 Flow of Audio Programme Production and Necessary Facilities

Table 3-9 Objectives and Functions of Necessary Facilities and Decision of Adoption

Facility (Room)	Main Facility/ Equipment	Objectives/Functions	Adoption for the Project
Video Studio	The facility comprises a Studio, Technical Store, Dimmer Room and a Control Room Equipment for video shooting, audio recording, lighting and controlling	In the Studio, the images and voices of the performers are shot by video cameras and microphones. The signals are transferred to the Control Room through cables. The studio required certain space for performance, and to place scenery and stage settings. The Control Room, which is used for directing the shooting process as a whole, has equipment for selecting and switching video/audio signals, recording, etc.	2 rooms are adopted. Existing equipment is planned to be shifted to one of those Studios.

Table 3-9 Objectives and Functions of Necessary Facilities and Decision of Adoption (Continued)

Facility (Room)	Main Facility / Equipment	Objectives / Functions	Adoption for the Project
Audio Studio	The facility comprises a Studio and a Control Room. Equipment for sound recording, etc.	In the Studio, the audio programmes are recorded. The Studio is sound-proofed and equipped with microphones and a table for announcers. The Control Room is used for directing the recording process as a whole, has equipment for recording, etc.	1 room is adopted.
Audio Studio (for dubbing)	The facility comprises a Studio and a Control Room. Audio and control equipment, VCR, dubbing equipment for video sources.	In the Studio, the audio programmes are recorded while the video sources are added with a narration, dialogue, and sound effects, etc. The Control Room, which is used for directing all these processes as a whole, has equipment for selection of audio sources, processing, mixing as well as dubbing into VCR, etc. Programmes that have been produced are dubbed into other languages, while those imported tapes etc. are dubbed in.	1 room is adopted.
Single-Step Editing Room	Equipment for one-to-one video editing.	The room is used for temporally editing of a programme containing various shots, for, such as, a documentary-style programme of an outdoor recording, and a darma-style one.	5 rooms are adopted. Existing equipment is planned to be shifted.
A/B Roll Editing Room	Equipment for editing video sources including control devices for VTRs and audio players.	The room is used for a relatively simple editing operation, such as the selection and arrangement in sequence of individual scenes of a video production, in accordance with the script. Here, the title is superimposed and a background music added to complete the programme. A broadcast capsule package is also made in the room.	4 rooms are adopted. Existing equipment except VCRs are planned to be shifted.
Post-production Room	The facility comprises a Editing Room, Announce Booth and Telecine Room	The room is used for the relatively complicated editing operation, sound mixing and finishing, which is taken place after a period of shooting. To perform a complicated editing, special effects, such devices as a video switcher, special effects system, and sound mixer are provided in the room. The room is also equipped with a recording booth for brief narration and dubbing in, and a telecine apparatus for producing video sources from picture films.	1 room is adopted. Main existing equipment except VCRs are planned to be shifted.
Central Apparatus Room	Equipment for generating and distributing control signals, test signals and synchronizing signals.	The room is equipped with the devices to provide control signals and test signals to the equipment such as video cameras and VCRs installed in related rooms.	1 room is adopted.
Duplication Room	Equipment for mas-duplicating video / audio programmes and devices to convert TV format.	The facility is used for duplicating video and audio tapes for distribution to study centres etc., from the mother tape. The audio tape can be duplicated at high speed. By contrast, in case of video tapes, it takes the same time to duplicate as to replay it and thus it needs sufficient equipment and space to mass-duplicate the tape at a time. In addition, to convert the TV format of imported programmes, a conversion system is provided.	1 room is adopted. Some more equipment for duplicating tapes is planned to be add to the existing system.
EFP (Electronic Field Production) Room	Portable equipment for shooting, recording, lighting and measuring.	The room is used for storing an outdoor recording equipment used for shooting sources for documentary-style programmes. Also, preparations for a shooting trip, adjustments after the shooting, and confirmation of recorded tapes are performed in this room	1 room is adopted.
Viewing Room (large)	Equipment for playing back video programmes and audio	The facility is used chiefly for viewing the completed video programmes and for showing them to visitors. A projection equipment with a wide screen and monitor speakers are provided.	1 room is adopted. Projection equipment is planned to be shifted.

Table 3-9 Objectives and Functions of Necessary Facilities and Decision of Adoption (Continued)

Facility (Room)	Main Facility/ Equipment	Objectives/Functions	Adoption for the Project
Viewing Room (small)	Equipment for playing back A/V pro-grammes, public address system	The facility is mainly used for the producers to, for example, examine stored video sources for planning. Also the staff may preview the recorded tapes to check and evaluate.	3 rooms are adopted.
Maintenance Room	Equipment for repair, measurement, etc.	The room is used for the periodical and ad-hoc repair of equipment and fixtures. The room needs a work space for repairs and adjustments in accordance with service manuals and a circuit diagram, as well as space necessary for storing measuring instruments and tools.	1 room is adopted.
Graphic Workshop	Equipment for computer graphics, etc.	The room is used for preparing art elements to be used in video shooting and editing. A graphic artist produces a handwritten-flip from drawings, illustrations, or pictorial representations in the script. The graphic artist also plans and designs a scenery. In addition, a computer graphic machine and a video recording equipment are provided.	1 room is adopted. Computer graphic machines are planned to be shifted.
Scenery Store and Workshop	Power tools for woodworking, etc.	The facility is located next to the Video Studios and used for preparing and storing stage settings, etc.	1 room is adopted.
Property Store		The room stores properties such as an actor's bag, paintings and posters, tables and chairs, etc. used for shootings in the Studio and outdoor.	1 room is adopted.
Rehearsal Room		The room allows joint script reading for actors, and a practice performance, etc. Performers speak the lines and practice the performance of a play.	3 rooms are adopted.
Make-up Room		In the room, performers such as lecturers make up themselves. Separate rooms are required for men and women.	2 rooms are adopted.
Dressing Room		In the room, performers change into a dress for shooting. Separate rooms are required for men and women.	2 rooms are adopted.
Waiting Room		A performer retires in readiness in between shootings.	2 rooms are adopted.
Tape Library		The library stores master tapes (video and audio) of programmes and other related tapes.	1 room is adopted.
Tape/Spare Parts Store		The room for storing raw tapes of various kinds for shooting and duplication, as well as spare parts and circuit boards for maintenance of equipment.	1 room is adopted.
Audio Editing Room	Equipment for audio editing	The room is used to edit sound sources recorded in the Audio Studio and outdoor. It is also used to prepare background music and sound effects to add to the programme, as well as for the audition after the programme is completed.	3 rooms are adopted.
Meeting Room		To make a plan of a programme, the room allows the persons concerned to hold a discussion or meeting. Meetings includes a planning meeting a production meeting to decide on performers and a place of shooting, meetings of technical staff to study the technique used for presentation of the production's intent and shooting's content.	3 rooms are adopted.
Producer's Office		The room allows a producer to make study for video and audio programmes and to write script, etc.	1 room is adopted.
Engineer's Office		In the room, the engineers make specific plans such as shooting, sound recording and lighting in accordance with the script.	2 rooms are adopted.

Table 3-10 Comparisons of Facility Contents between the Request and Basic Design

Name of rooms	Request by the India side	Planned in the basic design study	Remarks
Director's office (Director's room, secretariat, meeting room)	72 m²	68 m²	Though this office is not closely related to programme production, its role is indispensable for the division. Since its facilities are not included in the Indian side master plan, it is concluded necessary to include it in the scope of this project due to its critical role in the division's activities.
Total	72 m²	68 m²	
Production unit, Engineering unit Offices of the production unit (Jt. director's room, secretariat, dy. director's room, office pool, producers' room, presentation unit, staff office)	537 m²	434.5 m²	Minimum office space for the personnel engaged in programme production are included in the scope of the project. Floor areas are determined in accordance with IGNOU's standard.
Offices of the engineering unit (Jt. director's room, secretariat, engineer-in-charge's room, asst. engineers' room, tech. assistants room, office pool, locker room)	194 m²	182.5 m²	
Video studio 1	220 m²	216	Refer to 4-2-(2) 2)
Production/vision control	40 m²	55.5	
Sound control	25 m²	22.5 m²	According to equipment layout.
VTR room	25 m²	18 m²	
Technical storage	25 m²	27 m²	
Video studio 2	170 m²	180 m²	Refer to 4-2-(2) 2)
Production/vision control	40 m²	55.5 m²	Though in the request a VTR room is to be shared by two video studios, it is planned to provide a VTR room to each studio in this project.
Sound control	25 m²	22.5 m²	
VTR room	–	18 m²	
Technical storage	25 m²	27 m²	
Observation area	25 m²	–	Since this room is not indispensable for programme production, it is not included in the scope of the project.
Performers' rooms (Rehearsal room, make-up room, property store, dressing room, waiting room)	250 m²	167 m²	Based on size of studios, number of performers is assumed 4~5 for each of men and women.
Scenery store and workshop	400 m²	324 m²	Refer to 4-2-(2) 7)
A/B roll editing room	4×20 m²	4×18 m²	According to equipment layout.
Single-step editing room	5×15 m²	5×12 m²	ditto
Post-production room	90 m²	93 m²	ditto
Graphic workshop	50 m²	54 m²	ditto
Telecine room	25 m²	18 m²	ditto
Central apparatus room	40 m²	21 m²	ditto
Viewing room	3×15 m²	3×18 m²	ditto

Table 3-10 Comparisons of Facility Contents between the Request and Basic Design (Continued)

Name of rooms	Request by the Indian side	Planned in the basic design study	Remarks
Maintenance room (video equipment)	50 m²	75 m²	According to equipment layout.
Spare parts store	60 m²	85.5 m²	Refer to 4-2 (2) 4)
Tape store	100 m²		
Tape library	150 m²	85.5 m²	Refer to 4-2 (2) 5)
EFP store	60 m²	54 m²	According to equipment layout.
Meeting room	4×20 m²	2×18 m²	Refer to 4-2 (2) 6)
Viewing room (L)	160 m²	72 m²	Necessary area for accommodating 75 people.
Audio studio 1	40 m²	40 m²	Refer to 4-2 (2) 3)
Control room	30 m²	36 m²	According to equipment layout.
Audio studio 2	30 m²	30 m²	Refer to 4-2 (2) 3)
Control room	30 m²	30 m²	According to equipment layout.
Audio editing room	3×20 m²	3×18 m²	ditto
Listening room	20 m²	—	Viewing room (L) to serve
Maintenance room (audio equipment)	30 m²	—	To be combined with the maintenance room (video equipment)
Duplication room	60 m²	72 m²	According to equipment layout.
General workshop and storage area	250 m²	—	Deleted due to unclear usage.
Garage for O. B. van	—	—	O. B. van is not included in the project.
Total	**3,641 m²**	**2,792 m²**	
Research unit (Jt. director's room, secretariat, dy. director's room, lecturers' room, research office)	96 m²	—	Since this unit is not closely related to programme production, it shall not be included in the scope of the project.
Total	**96 m²**	**—**	
Administration unit (Dy. director's room, asst. director's room, section officers' room, office pool)	106 m²	—	ditto
Total	**106 m²**		
Grand total of effective area	**3,915 m²**	**2,860 m²**	
Common space (Entrance hall, toilet, staircase, pantry, corridor, A/C room, electrical room)	—	1,919 m²	
Total	**—**	**1,919 m²**	
Total floor area	**—**	**4,779 m²**	

Necessary number and scale of the video studios and the audio studios are examined as below:

1) Video Studios

The IGNOU's annual production target of video teaching programmes for 1996/97 and after is 200. Necessary number of video studios required to attain the target is calculated as follows:

① The length of studio occupancy was calculated on the basis of the number of videos by type and the studio occupancy multiple.

Table 3-11 Studio Occupancy by Type of Programme

Type of Programme *1	Production Ratio *2	No. of Produced Programmes *3	Studio Occupancy Multiple *4	Length of Studio Occupancy to Produce a 30 min. Programme (min.)	Total Length of Studio Occupancy (min.)
1. Lecture	55%	110	40	30×40=1,200	132,000
2. Drama	10%	20	60	30×60=1,800	36,000
3. Talk	2%	4	24	30×24=720	2,880
4. Documentary	33%	66	24	30×24=720	47,520
Total	100%	200			218,400 min.

(*1~*4 Source: IGNOU)

② The annual total allowable length of studio occupancy is calculated as follows.

Daily occupancy length of a studio:
            510 minutes (9:30 to 18:00)

Annual total number of holidays:
            150 (Saturdays and Sundays: 104, college holiday: 1, national holidays: 10, religious holidays: 9, machine maintenance days: 26)

Annual total occupancy length of a studio:
            109,650 minutes {(510 minutes)×(365 days - 150 days)}

③ The necessary number of studios is calculated based on calculations ① and ②.

$$\text{Necessary number of studios} : \frac{218,400}{109,650} = 1.99 \rightarrow 2 \text{ rooms}$$

④ Examination of the studio occupancy multiple

At IGNOU, conventional video shooting methods, in which VTRs are stopped one cut by one cut, is employed, and therefore the studio occupancy multiple is greater than the case of run-through shooting. It is considered unavoidable to take the method for programme production at IGNOU because, performers are not professionals and therefore are unaccustomed to video shooting. According to the basic design study, in June 1992 the IGNOU's studio was used 17 days, during which period video teaching programmes equivalent to three hours were produced. The studio occupancy multiple in this case was 48, which is equal to the mean value for lectures and dramas as shown Table 3-11.

At the two studios of the national TV station, each has a floor area of 400m², programmes equivalent to 120 hours in total are produced annually. Each of the two studios is used for 14 hours a day. If each of them is used 215 days a year, the total annual length of its use is 180,600 minutes, during which period of time 60 hours (3,600 minutes) of programmes are produced. Thus, the studio occupancy multiple at the national TV station is calculated to be about 50.

As examined above, the studio occupancy multiples shown in Table 3-11 are considered reasonable. Therefore, two studios shall be planned in the project.

2) Audio Studios

The IGNOU's annual production target of audio teaching programmes for
1996/97 and after is 425. The following table shows the details of
this target.

Table 3-12 Occupancy Plan of Audio Studios

Type of Programme / Work	No. of Produced Programmes	Length of Studio Occupancy (min.)	Total Length of Studio Occupancy (min.)
1. Drama	75	15×24=360 *1	27,000
2. Talk	175	15×15=225 *1	39,375
3. Lecture	175	15×12=180 *1	31,500
4. Dubbing in Video Programmes	(200/2) *2	30×15=450	45,000
Total	425		142,875 min.

*1 : Source IGNOU
*2 : Assuming 50 percent of 200 video programmes require dubbing work

The annual total allowable length of studio occupancy is 109,650
minutes as in the case of video studio. Necessary number of studios
is calculated as follows.

$$\text{Necessary number of studios} = \frac{142,875}{109,650} = 1.30 \rightarrow 2 \text{ rooms}$$

Out of two studios, one studio shall be used exclusively for the
production of audio teaching programmes and the other studio shall be
used also for mixing audio.

(2) Equipment

Selection of equipment shall be based on the details of the request
prepared by the Indian side. Many items of equipment provided under the
Japanese and British assistance projects are still in use. And the Indian
side is planning to keep them in use by shifting them to the proposed

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facilities. For these reasons, the following guidelines were worked out for the selection of equipment.

1. To fully survey the existing equipment and incorporate as many of them as possible into the project.

2. To work out an optimum production system taking into consideration the technical level of broadcasting stations and other A/V teaching programme producing organizations in India as well as the recent technical trends of production of audio-visual materials.

In accordance with above guidelines, interchangeability of equipment and economic aspects of the system were examined. Special attention was paid to the following in selecting appropriate items of equipment.

1) Examination of the existing equipment

At present the communication division is producing A/V teaching programmes using the following items of equipment. Since the Indian side plans to shift as much existing equipment as possible to the proposed video studios and post-production room etc., selection of equipment shall be done on the premise that reusable equipment be kept in use under the project.

Listed below are the main existing items of equipment. (In the "remarks" column, ○ indicates reusable equipment to be relocated and ✕ indicates one not to be relocated.)

Table 3-13 Existing Equipment (Principal items)

Equipment	Q'ty	Remarks
1. Equipment for Video Studio		
(1) Video camera (Including camera control, unit, view finder, tripod and cam head)	3 units	O
(2) Microphones (Including stands and booms)	1 set	O
(3) Wireless microphone system	2 sets	O
(4) Video cassette recorder	2 units	O
(5) Roll telopper	1 set	O
(6) Teleprompter system	1 set	O
(7) Video production switcher	1 set	O — Video Studio 2
(8) Intercom equipment	1 set	O
(9) Waveform monitor / vectroscope	1 set	O
(10) Picture monitors (14-inch color, 14-inch B/W, 20-inch color master, etc.)	1 set	O
(11) Monitor speaker with amp.	3 units	
(12) Audio mixer	1 set	O
(13) Open-reel tape recorder (Monoral, full-track)	1 unit	O
(14) Cassette deck	2 units	O Video Studio 2 : 1unit Audio Studio 2 : 1unit
(15) Equipment for playback (CD player, disk player)	1 set	O
(16) Picture monitor	2 units	O — Video Studio 2
(17) Sound effecter	1 set	O Video Studio 2
2. Equipment for Post Production		
(1) Video cassette recorder	3 units	O
(2) Video cassette player	2 units	O
(3) Control unit	1 set	O
(4) Video production switcher	1 set	O — Post Production Room
(5) Digital video effecter	1 set	O
(6) Caption scanner	1 set	O
(7) Telecine converter	2 sets	O

Table 3-13 Existing Equipment (Principal items) (Continued)

Equipment	Q'ty	Remarks
(8) Computer animation system	2 sets	O Graphic Workshop
(9) Recording equipment (Audio mixer, open-reel tape recorder, sound effecter, etc.)	1 set	O
(10) Picture monitors (14-inch color, 12-inch B/W, 20-inch color master, etc.)	1 set	O Post Production room
(11) Waveform monitor/Vectorscope	2 sets	O
3. Equipment for Video Editing		
(1) Equipment for A/B roll editing (Video cassette recorder, control unit, picture monitor, caption scanner, etc.)	5 sets	O Video cassette recorders are for Video Studio 1. Video cassette recorder (1 each) is for Viewing Room and Audio Studio 1. Others are for A/B Roll Editing room
(2) Equipment for single-step editing (Video cassette recorder, control unit, picture monitor, etc.)	6 sets	O Single-step Editing Room
4. Equipment for Central Apparatus Room		
(1) Signal distributor	1 set	×
(2) Syneronizing signal generator	1 set	× In case the A/V equipment is newly installed, the apparatus for this area also must be
(3) Waveform monitor/Vectroscope	1 set	× renewed to fit the system.
(4) Clock	1 set	×
5. Equipment for Duplication		
(1) Video cassette recorder (Feeder)	6 units	O
(2) Video cassette recorder (Recorder, VHS)	20 units	O Duplication Room
(3) Picture monitor	2 units	O
(4) Waveform monitor/Vectorscope	2 sets	O
6. Equipment for EFP		
(1) Portable video camera (Including dolly, cam head)	13 units	O
(2) Portable video cassette recorder	13 units	O
(3) Microphones	1 set	O
(4) Wireless microphone system	7 sets	O

Table 3-13 Existing Equipment (Principal items) (Continued)

Equipment	Q'ty	Remarks
(5) Portable audio mixer	6 units	O ⎤
(6) Portable cassette deck	5 units	O ⎥— EFP Store
(7) Portable picture monitor	14 units	O
(8) Portable lighting kit (Light, battery, etc.)	10 sets	O
(9) Portable waveform monitor / Vectorscope	10 sets	O ⎦
7. Equipment for Viewing Room		
(1) Video cassette recorder (VHS)	6 units	O ⎤
(2) Video projector / Screen	1 set	O ⎥— Viewing Room
(3) *Slide projector*	4 units	O
(4) Picture monitor	2 units	O ⎦
8. Equipment for Repairement and Adjustment		
(1) Illumination meter	1 units	O ⎤— Maintenance Room
(2) Measuring equipment	1 set	O ⎦
9. Others (spare parts, etc.)	1 set	O

Note: Unless otherwise specified, all video cassette recorders are of Betacam SP format.

2) Examination of the video format and the method of treatment of image signals

At the communication division, 3/4-inch U-matic SP (hereinafter referred to as "U-matic") is used as the shooting/editing video format and VHS is used as the format of video teaching programmes distributed to the study centres as well as those for sale. However, it is considered reasonable to employ 1/2-inch betacam SP (hereinafter referred to as "Betacam") as the shooting/editing video format under this project, for the following reasons: (For the format of video teaching programmes distributed to the study centres as well as those for sale, VHS is also considered appropriate for this project.)

- "Betacam" is used as the video format for use in the production of video materials in the mainstream of the world.

- In India, "Betacam" is used at Doordarshan and other similar organizations such as Jamia Millia Islamia University and the Central Institute of Educational Technology. In addition, it is expected that adopting "Betacam" for the video format will contribute to the improvement of the existing system.

- Since the quality of the image is specifically better than "U-matic", it is expected to improve the quality of final products (VHS) to be distributed.

As a result of this arrangement, there will be two different types of video formats "U-matic" and "Betacam", used in shooting and editing. But mixed use of different types will not cause an obstacle for the production of video teaching programmes, rather it will be beneficial by making it possible to reuse past recordings, and thus it will meet the requirement of the Indian side. The following table gives a summary of the video format plan.

Table 3-14 Video Format Plan

Use \ System	Existing System	Requested System	System for the Project
Shooting / Editing	U-matic (Partially Betacam)	U-matic / Betacam	U-matic / Betacam
Programme for Distribution	VHS	VHS	VHS

The Indian side requested that the method of video signal treatment for the post-production and A/B roll editing equipment be the component method. However, it was decided to use the present composite method in consideration of the fact that the existing video equipment is operating under the composite method, as well as technical problems in operation and maintenance which are likely to occur as a result of a change of method. Shown below is a comparison of the two methods.

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Table 3-15 Comparison of Video Signal Methods

Item \ Method	Component	Composit
Outline of the Method	A method to transfer video signals in 3 lines to minimize the deterioration of quality when the image is recorded directly from camera to VCR	A method to transfer video signals in 1 line
Interchangeability with Existing System	Not interchangeable (Related devices must be of component method to realize interchangeability)	Interchangeable
Easiness of Adjustment of Devices	Very complicated	Easy
Building Up a System	Complicated	Comparatively easy
Popularity of the Method (in Japan)	Adopted for simple system such as one-to-one duplication	Generally used for studio shooting, post production system, A/B roll editing system, etc.
Specified Picture Quality	Comparatively better than composite method	Comparatively worse than component method
Price of Equipment	Higher than those of composite method	Lower than those of component method
Conclusive Finding	Not adopted for the Project	Adopted for the Project

3) Examination of the recording format for tape recorder

The Indian side requested the introduction of digital audio tape recorders (hereinafter referred to as "DAT recorders"). DAT recorders are specifically better than conventional analogue open tape recorders (hereinafter referred to as "ATRs") in terms of performance, function (better linkage with the video equipment and common method of operation) and cost of tapes. Also, they require smaller spaces. For these reasons, it was decided to employ DAT recorders. In the case of DAT recorders, existing ATRs can be used as subsystems, and therefore it is possible to use both the digital method and the analogue method.

The following table shows the major differences in details of the main items of equipment between the Indian side's request and this basic design. All the other items of equipment are to be procured nearly in accordance with the Indian side's request.

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● Items of equipment for Video Studio 1.

Table 3-16 Plan for the Project Against the Request on Major Equipment (1)

Equipment	Requested Q'ty	Planned Q'ty for the Project	Review and Reasons for Change
Video camera system	4 sets	3 sets	4 sets of cameras are normally required when a programme, such as a studio relay, is broadcast at real time. Under this Project, however, considering the content and quantity of programmes being produced, 3 sets of camera systems are regarded appropriate.
Camera crane	1 set	0	A camera crane is normally used for mounting a camera when 4 sets of cameras are used together in a Studio. However, under this Project, since 3 sets of cameras are planned to use, there considered to be little necessity.
Wireless microphone system for floor directors	2 sets	0	This system was requested considering the better mobility of floor directors. However, in view the Studio's scale, a Intercom system is regarded as appropriate to deal with the needs.

● Items of equipment for Video Studio 2

Shown below is the outline of the Indian side's request concerning these items of equipment.

● The video camera system, the lighting equipment and the audio system in use at Tughlakabad Studio should be shifted to the projected facilities so that they may be reused as part of the new system.

● Items of equipment for use in the video system of the control room (including a video cassette recorder) and additional lighting equipment should be requested under this project.

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Table 3-16 Plan for the Project Against the Request on Major Equipment (2)

Equipment	Requested Q'ty	Planned Q'ty for the Project	Review and Reasons for Change
Video production switcher	1 set	0	From a viewpoint of utilizing the existing equipment, it is appropriate that the existing equipment used in the Control Room at Tughlakabad Studio should be shifted for reuse. Further, a whole line of existing equipment should be shifted in principle, because replacing only particular items is likely to mismatch other items and thus not recommended. Thus, video cassette recorders and lighting fixtures that are now in shortage should be merely added to form a new system.
Waveform monitor	1 set	0	
Vectorscope	1 set	0	
Picture monitor (for PD/switcher console, VE console, floor, etc.)	14 units	0	
Monitor speaker (for control room, floor, etc.)	2 sets	0	
Wireless microphone system for floor directors	2 sets	0	(Shown in the above table)

- Items of equipment for Audio Studio 1 and 2

Table 3-16 Plan for the Project Against the Request on Major Equipment (3)

Equipment	Requested Q'ty	Planned Q'ty for the Project	Review and Reasons for Change
DAT recorder	2 units	4 units (2 each for Audio Studio 1, 2)	To add a post-production function to the Audio Studio 1, 2 more sets of DAT recorders (4 units total) are needed to be provided.

- Items of equipment for Central Apparatus Room

Table 3-16 Plan for the Project Against the Request on Major Equipment (4)

Equipment	Requested Q'ty	Planned Q'ty for the Project	Review and Reasons for Change
Standard clock	1 unit	0	This Project has no facility of sending out programmes, unlike conventional broadcasting facility. Thus, it doesn't seem to need constant monitoring.
Time signal generator	2 units	0	
Personal computer system (including 1 console, 15 terminals, server and laser printers)	1 set	0	For this item, applications and specific utilization plan is still unclear. Also, considering the maintenance and supporting system, it is considered premature to introduce.
PBX	1 set	0	This item is dealt with under the Electrical Installation Plan.

● Items of equipment for A/B Roll Editing

Table 3-16 Plan for the Project Against the Request on Major Equipment (5)

Equipment	Requested Q'ty	Planned Q'ty for the Project	Review and Reasons for Change
Video production switcher	4 units	0	All the existing equipment is found reusable and thus will be utilized in this Project. A total of 12 video cassette recorders and players, which are separately listed, are planned to be added, in accordance with the request.
Audio mixer	4 units	0	
Controller	4 units	0	
Picture monitor (14-inch)	12 units	0	

● Items of equipment for Post-production

Table 3-16 Plan for the Project Against the Request on Major Equipment (6)

Equipment	Requested Q'ty	Planned Q'ty for the Project	Review and Reasons for Change
Video cassette recorder (1/2-inch Betacam SP)	6 units	3 units	The Indian side planned to shift all items of existing system. Out of those items, 2-4 sets of U-matic video cassette recorders should be utilized. In 3 sets of Betacam SP video cassette recorders, 1 set intended for recording and 2 sets for re-production.
Video production switcher (for component signals)	1 set	0	The existing video production switcher is compatible with the Betacam SP system and thus will be utilized for this Project. The switcher using component signals is not recommended due to the reason noted above.

● Items of equipment for Duplication

Table 3-16 Plan for the Project Against the Request on Major Equipment (7)

Equipment	Requested Q'ty	Planned Q'ty for the Project	Review and Reasons for Change
Video cassette recorder (1/2-inch VHS)	60 units	30 units	The Indian side planned to shift 20 sets of existing video cassette recorders for reuse. The required quantity of VCR for duplication operation as in 1996 is estimated as follows. (assumption) ● Annual production of video programmes (30 min. long): 200 ● Required number of copies for each programme (supposing a 20% increase in the existing number of Study Centre): 265 ● Annual working days: 215 ● Daily duplication hours: 5 ● Time to take for each duplicating process (including preparation and checking): 1 hour (Calculation) $$\text{Required quantity} = \frac{\text{(Total annual duplications)}}{\text{(Annual working days)} \times \text{(Number of duplicating processes done per day)}}$$ $$= \frac{200 \times 265}{215 \times 5} = 49.3 \rightarrow 50 \text{ sets}$$ Thus, 30 sets will be supplemented to supply a deficit.

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Equipment	Requested Q'ty	Planned Q'ty for the Project	Review and Reasons for Change
Video cassette recorder (1/2-inch Betacam SP)	0	2 sets	1 set each is required for a master tape reproduction and for the TV system conversion, respectively.

●   Items of equipment for EFP

Table 3-16   Plan for the Project Against the Request on Major Equipment (8)

Equipment	Requested Q'ty	Planned Q'ty for the Project	Review and Reasons for Change
Vehicle (O.B van)	1 set	0	This is special vehicle in which staff can construct EFP equipment and store it. In this Project, however, in view of the content of programmes to be produced, such type of vehicle is considered to be in very small demand. Rather, once introduced, it seems to be a burden due to its maintenance and support problems. Also, conventional van can serve as a replacement for it. Thus, introducing such vehicle is not recommended.
Portable video camera	2 units	3 units (Dockable type cassette recorder, Betacam SP)	By selecting a dockable type, existing portable video cameras (10 sets) can be utilized as a Betacam SP format. Adding additional 2 sets of portable video cassette recorders of Betacam SP, which are separately listed herein, a total of 5 sets of the recorders will become available. Thus, it is possible to deal with both peak demands and emergency in case of malfunctions etc.
Portable mixer	1 set	0	Existing portable equipment (a total of about 10 items, comprising microphones, picture monitors, sound recording equipment and lighting equipment) should be shifted for successive use. There will be no obstacles in the continued use of such equipment.
Waveform monitor/ Vectorscope	2 sets	0	
Portable lighting equipment	1 set	0	
Picture monitor (B/W)	4 sets	0	
Portable video production switcher	0	1 set	To enable to use 2 sets of cameras together for effective shooting.

●   Items of equipment for Viewing Room

Table 3-16   Plan for the Project Against the Request on Major Equipment (9)

Equipment	Requested Q'ty	Planned Q'ty for the Project	Review and Reasons for Change
Video cassette recorder (1/2-inch Betacam SP)	0	1 unit	A viewing room (large) and 3 viewing rooms (small) are planned to be constructed. Existing equipment, such as video projector, 100-in. screen, 37-in. color television, U-matic video cassette recorders, is planned to be shifted. However, to ensure compatibility with Betacam SP and VHS systems, video cassette recorders of both systems should be added. A set of public address system should also be provided in the Viewing room (large) to give a lecture, etc.
Video cassette recorder (1/2-inch VHS)	0	4 units	
Public address system (microphones, mixing amp., monitor speakers, etc.)	0	1 set	

● Items of equipment for Sound Editing Room 1
  (Note: Corresponding to the equipment for Audio Post-production in the request of Indian side.)

Table 3-16 Plan for the Project Against the Request on Major Equipment (10)

Equipment	Requested Q'ty	Planned Q'ty for the Project	Review and Reasons for Change
MIDI(Musical Instrument Digital Interface)	1 set	0	This interface is intended to electronically process, in various ways, sounds originated by the musical instrument. Its specific applications and the music instrument connecting with it, however, have not been identified. Also, this interface is judged to be of very little use.
Open-reel tape recorder (multi-track type)	1 unit	0	The equipment, which is already listed for Audio Studio 1, should be used if necessary. The Indian side requested for the supply of a wide range of sound-processing equipment (priority B). However, in view of the nature of programme productions, such equipment is judged to be of little use. Also, in case of need, equivalent equipment that is listed for another section may be utilized.
Video cassette recorder (1/2-inch Betacam SP)	1 unit	0	

● Items of equipment for Sound Editing Room 2

Table 3-16 Plan for the Project Against the Request on Major Equipment (11)

Equipment	Requested Q'ty	Planned Q'ty for the Project	Review and Reasons for Change
DAT recorder	6 units	4 units	2 rooms for this function are planned to be constructed. And to avoid functional duplication with Sound Editing Room 1, the equipment used is merely intended for the basic editing operations. Mixing operations, if needed, are planned to be performed in Sound Editing Room 1.
Graphic equalizer	2 units	0	
Audio mixer	2 units	0	

● Others

Table 3-16 Plan for the Project Against the Request on Major Equipment (12)

Equipment	Requested Q'ty	Planned Q'ty for the Project	Review and Reasons for Change
AVR/UPS	0	1 set	Those power supplies are considered to be quite necessary to protect equipment containing rotary mechanism, such as video cassette recorders, from being badly affected by voltage fluctuations. Further, for the equipment containing a memory device, such as a graphic animator, a power supply with a back-up battery of about 10 minutes is planned, which protects the data being corrupted in case of power failures.

3-2-5 Examination of the Necessity of Technical Cooperation

For the implementation of the project, a grant aid assistance is necessary to construct facilities and to procure equipment. However, provision of facilities and equipment is not the final goal. The project will not be judged successful unless the production of A/V teaching programmes is carried out smoothly at IGNOU after the completion of the facilities. In respect of this goal, no specific problems are found judging from present utilization conditions of the equipment procured by Japan's grant aid in 1988/89 as well as IGNOU's technical level and its past performance. The field of equipment which are to be procured under this project is an area where technological advancements are made rapidly, and therefore operators of those equipment will have to master new technologies upon using new equipment. It should also be noted that proper maintenance is critical for those equipment because a slight breakdown of a equipment may badly affect the production schedule. On the other hand, Japan has experience and technology in A/V engineering to cope with those issues. In this context, it is judged very useful that technical cooperation such as inviting trainees from IGNOU be offered in conjunction with the Japanese grant aid for the proper and efficient utilization of the facilities and equipment provided under this grant aid project.

3-2-6 Basic Policy for the Implementation of Technical Cooperation

As examined from different angles, effect and feasibility of the project as well as implementing capability of the Indian side were confirmed. And also effect of the project matches Japan's grant aid cooperation. Consequently, The conclusion has been reached that it is appropriate to implement this project under Japan's grant aid. Therefore, implementation of this project under Japan's grant aid is the premise for examination of

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the outline of the project, and the basic design is conducted.   As

mentioned earlier, however, it is considered reasonable to modify some of

the contents of the Indian side's request.

3 – 3 Outline of the Project

3-3-1 Executing Agency and Management System

(1) Executing agency

Indira Gandhi National Open University (IGNOU) is the executing agency of this project, and the Ministry of Human Resource Development is the government agency which is responsible for all aspects of the project. IGNOU is an autonomous organization operating under the jurisdiction of the Department of Education of the Ministry of Human Resource Development. The ministry consists of three departments, namely, Education, Culture and Art, Youth and Sports. Fig. 3-3 shows the relationship between the IGNOU and the Department of Education. IGNOU is planning to operate and manage this project based on its organizational structure as shown in Fig. 2-2 in the page 11.
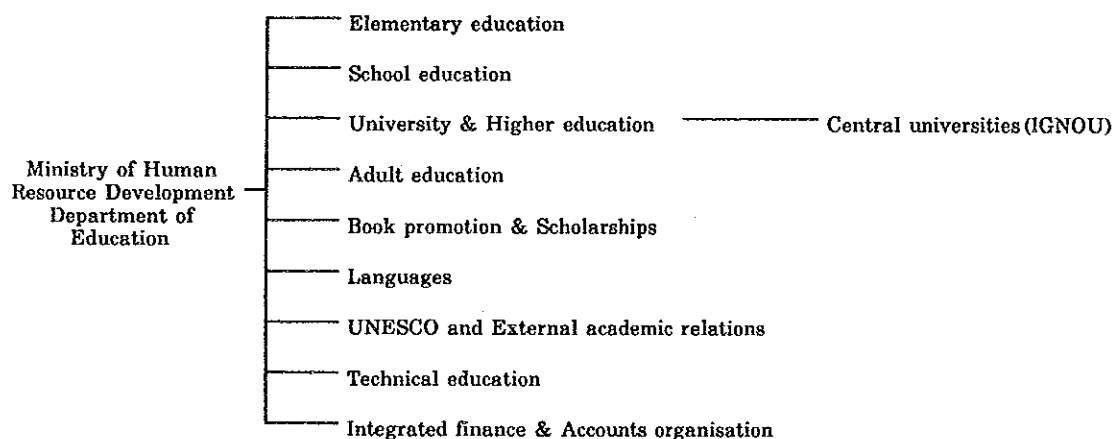
```
                              ┌──── Elementary education
                              │
                              ├──── School education
                              │
                              ├──── University & Higher education ──────── Central universities (IGNOU)
                              │
Ministry of Human            ├──── Adult education
Resource Development ────────┤
 Department of               ├──── Book promotion & Scholarships
  Education                   │
                              ├──── Languages
                              │
                              ├──── UNESCO and External academic relations
                              │
                              ├──── Technical education
                              │
                              └──── Integrated finance & Accounts organisation
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Fig. 3-3 IGNOU in the Department of Education

(2) Management system

The proposed facilities of the project are to be used by the communication division, which is responsible for the production of A/V teaching programmes of IGNOU. The division consists of four units, namely,