No.

BASIC DESIGN STUDY REPORT
ON
THE PROJECT
FOR
IMPROVEMENT OF THE TRAINING EQUIPMENT
FOR
MULTI MEDIA TRAINING CENTRE
IN
THE REPUBLIC OF INDONESIA

March, 2002

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

YACHIYO ENGINEERING CO., LTD.

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PREFACE

In response to a request from the Government of the Republic of Indonesia, the Government of Japan decided to conduct a basic design study on the Project for Improvement of the Training Equipment for Multi Media Training Center in the Republic of Indonesia and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Indonesia a study team from November 4 to December 3, 2001.

The team held discussions with the officials concerned of the Government of Indonesia, 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 Indonesia in order to discuss a draft basic design, and as this result, the present report was finalized.

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

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

March 2002

Takao Kawakami
President
Japan International Cooperation Agency

March 2002

LETTER OF TRANSMITTAL

We are pleased to submit to you the basic design study report on the Project for Improvement of Training Equipment for Multi Media Training Center in the Republic of Indonesia.

This study was conducted by Yachiyo Engineering Co., Ltd., under a contract to JICA, during the period from November 4, to December 3, 2001. In conducting the study, we have examined the feasibility and rationale of the project with due consideration to the present situation of Indonesia and formulated the most appropriate basic design for the project under Japan's grant aid scheme.

Finally, we hope that this report will contribute to further promotion of the project.

Very truly yours,

Masaaki Ueda
Chief Consultant
Basic Design Study Team
on the Project for Inprovemetn of Training Equipment
for Multi Media Training Center
in the Republic of Indonesia
Yachiyo Engineering Co., Ltd.

LIST OF FIGURES AND TABLES

CHAPER 2

ABBREVIATIONS

ＡＥＳ／ＥＢＵ	Audio Engineering Society/ European Broadcast Union
ＡＩＢＤ	Asia-Pacific Institute for Broadcasting Development
ＣＤ	Compact Disk
ＣＣＤ	Charge-coupled Devices
ＤＡＴ	Digital Audio Tape
ＤＡＷ	Digital Audio Work Station
Ｅ／Ｎ	Exchange of Notes
ＧＤＰ	Gross Domestic Product
ＩＥＣ	International Electrotechnical Commission
ＩＴＵ	International Telecommunication Union
ＩＳＯ	International Organization for Standards
ＪＣＳ	Japanese Electrical Wire and Cable Maker's Association Standards
ＪＥＡＣ	Japan Electric Association Code
ＪＥＣ	Japanese Electrotechnical Committee
ＪＥＭ	Standards of Japan Electrical Manufacturer's Association
ＪＩＣＡ	Japan International Cooperation Agency
ＪＩＳ	Japanese Industrial Standards
ＬＩＮ	National Office of Information, Republic of Indonesia
ＭＭＴＣ	Multi Media Training Center
Ｏ＆Ｍ	Operation and Maintenance
ＯＪＴ	On the Job Training
ＲＲＩ	Radio Republik Indonesia
ＲＴＣ	Radio Training Center
ＴＶＲＩ	Televisi Republik Indonesia
ＴＶＴＣ	Television Training Center

SUMMARY

SUMMARY

The Republic of Indonesia (hereinafter referred to as “Indonesia”) is a country consisting of some 15,000 islands with a total population of approximately 200 million. It has diverse social and cultural backgrounds, typified by some 300 ethnic groups and some 250 local languages.

The most important issue for socioeconomic development in this multi-ethnic and multi-cultural Indonesia is to maintain the unity of its people by means of smooth communication among the people and the facilitation of ethnic reconciliation while respecting the social and cultural backgrounds and uniqueness of each ethnic group.

“The sharing of information” is a crucial element in attempts to achieve ethnic reconciliation and national unity and, in this context, such mass media as television and radio are essential because of their ability to immediately transmit a large quantity of information. These mass media are especially effective in Indonesia where a large population is scattered throughout its vast national territory.

Based on such understanding, the Government of Indonesia which aims at unifying its people with diverse backgrounds and creating a democratic socioeconomic system had adopted the sound development of mass media as one of its national targets. In its current National Development Plan (PROPENAS 2000 – 2004), the Government of Indonesia compiles guidelines for the development of the environment for information and communication media and is actively promoting policies to secure the freedom of the press, to establish press ethics and to create equal opportunities for access to information, etc.

These policies are having a profound impact on mass media in Indonesia which is undergoing major changes. In the past, Televisi Republik Indoneia (TVRI) and Radio Republik Indonesia (RRI), both of which were state-owned broadcasting companies, were the mainstay of Indonesian mass media. The government decision to deregulate the sector, however, has prompted the establishment of many private sector broadcasters, invigorating the mass media sector, and both TVRI and RRI have been reorganized as public corporations in their pursuit of independence from the government and efficient management with the growing networks of private sector broadcasters, particularly in large cities.

Moreover, the role of the mass media as demanded by the public is changing and broadcasters are required to extensively use ever progressing technologies and know-how to make programmes which are widely accepted by the public and to quickly and accurately convey diverse information on today's ever changing world to the public in Indonesia.

Amidst the major transformation of the entire mass media in Indonesia, the training of highly professional people with in-depth knowledge of media theories and the precise skills required to handle complicated broadcasting equipment and systems is essential. At the front line of broadcasting, broadcasters mainly focus on human resources training through OJT and it is difficult for trainees to develop broader theoretical as well as practical knowledge and skills. Multi Media Training Centre (MMTC) is the only training body in Indonesia which covers a wide spectrum of subjects, ranging from basic theories to applied skills for broadcasting.

MMTC was established in 1985 with grant aid provided by the Government of Japan to enhance the knowledge and skills of people working in the broadcasting industry, particularly those working for TVRI and RRI. MMTC has since been playing a central role in the training of broadcasting personnel and more than 2,700 people have so far completed various training courses. In more recent years, it has introduced a course for people working at broadcasting stations and a general course for upper secondary school leavers while reviewing its activities to incorporate the needs of the broadcasting industry.

In the meantime, much of the equipment currently used for training purposes at MMTC is failing to maintain its original performance level because of aging far beyond its intended life, a shortage of spare parts and other reasons. It has been pointed out that restoration of the original function and performance is practically impossible for the range of equipment procured with Japanese grant aid in 1985 because of its severe deterioration due to continuous use for more than 15 years. The declining performance of the broadcasting training equipment has severely affected the training provided by MMTC, constituting a major bottleneck to the achievement of its target, i.e. the training of human resources equipped with advanced knowledge of broadcasting. Moreover, given the ongoing rapid progress of the digitalisation of broadcasting equipment used by the broadcasting industry in Indonesia, there is no denying the technological backwardness of the analogue equipment owned by MMTC.

Restoration of the functions of MMTC, which is the sole general training body in Indonesia, is very important for the training of personnel who will be the driving force for the country's next generation of mass media. Recognising that this target is unattainable with the current analogue equipment, the Government of Indonesia requested the Government of Japan's provision of grant aid required for the renewal of the existing training equipment.

In response to this request, the Government of Japan decided to conduct the Basic Design Study and the Japan International Cooperation Agency (JICA) sent the Basic Design Study Team to Indonesia for the period from November 4 to December 3, 2001. This Study Team discussed the contents of the request with Indonesian government officials and other related people, conducted a project site survey and gathered relevant information.

Based on the contents of the request, the Study Team examined the optimal range, size and quantity of equipment from various viewpoints, including the equipment operation and maintenance capability of MMTC and the optimal deployment of equipment, and prepared the Outline of the Basic Design. The JICA then sent a Study Team to Indonesia for the period from February 19 to 28, 2002 to explain the Outline of the Basic Design to the Indonesian side. The subject facilities of MMTC for equipment renewal under the finally proposed Basic Design are listed below.

- TV Master Control Room
- TV Production Studio I
- TV News Continuity Studio
- Video Editing Room
- TV OB Van
- Radio Master Control Room
- Radio News Continuity Studio
- Radio Production Studio I
- Maintenance Room
- Classrooms

In the case of the implementation of the Project with grant aid provided by the Government of Japan, the cost to be borne by the Indonesian side is approximately Rp.43.4 million (¥0.59 million). The total length of the Project will be approximately 15 months.

With the implementation of the Project, the old-fashioned and aged analogue equipment at MMTC will be replaced by advanced digital equipment, substantially improving the contents of the training provided by MMTC. As a result, a large number of people who are highly conversant with the theories and handling of digital equipment will be trained to improve the level of the entire broadcasting industry in Indonesia. The Project will also contribute to the achievement of the target of the PROPENAS, i.e. “the accurate and fair conveyance” of information to all people.

No technical problems are anticipated in regard to the maintenance of the new equipment as MMTC has been properly maintaining the analogue equipment procured in the past. In addition, there is every indication that the maintenance budget will be continuously secured.

As a result of the comprehensive examination of the expected project effects, the organizational strength of the MMTC and other relevant issues, the Project’s implementation with grant aid provided by the Government of Japan is judged to be highly significant.

C O N T E N T S

Cost Estimation borne by the Recipient Country

Unit : Rp

Item	Quantity	Unit	Unit Price	Amount
Removal of the Existing Equipment	660	Man-Day	65,700	43,362,000
Reinstallation of the Existing Equipment	700	Man-Day	65,700	45,990,000
Adjustment	80	Man-Day	65,700	5,256,000
Total				**94,608,000**

Chapter 1

Background of the Project

CHAPTER 1 BACKGROUND OF THE PROJECT

1.1 Outline of the Request

The following is the list of the new equipment the government of Indonesia requested.

No.	Equipment	Quantity
1	TV master control room	1 set
2	TV production studio	1 set
3	TV news continuity studio	1 set
4	TV OB-van	1 set
5	Editing equipment	1 set
6	Radio master control room	1 set
7	Radio continuity studio	1 set
8	Radio studio I	1 set
9	Training kits	1 set
10	Measuring equipment	1 set
11	Spare parts	1 set
12	Installation works	1 set

Chapter 2

Concept of the Project

CHAPTER 2 CONCEPT OF THE PROJECT

2-1 Basic Objective of the project

2-1-1 Objective of the project

(1) Objective with priority

The National Development Plan (PROPENAS: 2000-2004) mentioned earlier places its first priorities on unifying the country and maintaining the unity of the people and establishing a democratic political system. In order to achieve these goals, the Government of Indonesia promotes various policies to reinforce the roles of information and telecommunications and the mass media, based on the recognition that it is important to spread information evenly among the people regardless of their locations or classes,.

Basic objectives of the broadcast declared in the "Development Program of Information, Telecommunications and Mass Media" are as follows:

① To support the efforts to disseminate information equally to all classes of Indonesian people.

② To promote the development of good private broadcasting companies and the public press.

③ To guarantee the freedom of press and establish the ethics.

④ To create an organization that will conduct research on, provide services for, and supervise the telecommunications and mass media.

Influenced by reforms, demands for human resources for the broadcasting have begun to increase in Indonesia. However, the supply lags behind both in quality or quantity, and it is now urgent to train technicians with skills and knowledge of broadcasting technologies in order to implement various policies.

The goal of this Project is to contribute to the growth of the information, telecommunications, and the mass media in Indonesia by producing many technical experts through the improvement of training in the broadcast.

(2) Objective of the project

MMTC was established in 1985 with grant aid provided by the Government of Japan to

enhance the knowledge and skills of people working in the broadcasting industry, particularly those working for TVRI and RRI. MMTC has since been playing a central role in the training of broadcasting personnel and more than 2,700 people have so far completed various training courses. In more recent years, it has introduced a course for people working at broadcasting stations and a general course for upper secondary school leavers while reviewing its activities to incorporate the needs of the broadcasting industry.

In the meantime, much of the equipment currently used for training purposes at MMTC is failing to maintain its original performance level because of aging far beyond its intended life, a shortage of spare parts and other reasons. It has been pointed out that restoration of the original function and performance is practically impossible for the range of equipment procured with Japanese grant aid in 1985 because of its severe deterioration due to continuous use for more than 15 years. The declining performance of the broadcasting training equipment has severely affected the training provided by MMTC, constituting a major bottleneck to the achievement of its target, i.e. the training of human resources equipped with advanced knowledge of broadcasting. Moreover, given the ongoing rapid progress of the digitalization of broadcasting equipment used by the broadcasting industry in Indonesia, there is no denying the technological backwardness of the analogue equipment owned by MMTC.

Restoration of the functions of MMTC, which is the sole general training body in Indonesia, is very important for the training of personnel who will be the driving force for the country's next generation of mass media. Recognizing that this target is unattainable with the current analogue equipment.

Under these circumstances, the objective of the project is to replace the currently existing equipment at the training center that is responsible to train human resources for broadcasting in Indonesia with digitalized one so it will be able to train human resources who have a thorough knowledge of digital equipment and technology sought by the broadcasters.

2-1-2 Outline of the project

Recently, it has become possible to record high quality sounds and images and edit them with easy operation due to rapid digitalization of audiovisual equipment. Indonesian broadcasters have begun to use so many digital equipments although Indonesia is relatively less developed than other high-income countries.

Because of digitalization of broadcasting equipment, program production methods and technology have greatly changed and products of higher grade are called for. Thus, there is a higher demand for human resources who can use various digital equipments than those who use analog equipments.

The project is to upgrade the current analog system to build a digital system to achieve the objective. It is expected that the replacement will enable to train more effectively and efficiently human resources who will lead future broadcasting. What the Requested Japanese Assistance is to procure educational equipment of the main facility of MMTC.

2-2 Basic Design of the Requested Japanese Assistance

2-2-1 Design Policy

(1) Basic concept

Based on the role and function of MMTC, the equipment is to be most suitable for the objectives and contents of the training. Thus, the basic concept is as follows.

① In order to generate the maximum effects, the best combination of the equipment should be considered as a total system combined with the existing analog and new digital equipment.

② Equipment should be selected with consideration given to the objective and level of the training at MMTC and the performance and costs of equipment and a rational system should be constructed.

③ Equipment should be selected with consideration given to connection with existing analog equipment. Easiness of use and maintenance of equipment should be also considered.

④ Specifications of the equipment should be in accordance with ITU as a principle and it should be designed with full consideration given to durability and safety.

(2) Natural conditions

1) Temperature and humidity

The project site of Yogyakarta has a mild climate with an average annual temperature of about 26.2 centigrade (2000). Humidity is high from 31 to 97% (2000). Thus, humidity should be given consideration to in choosing equipment used outdoors.

2) Rainfall

The project site has relatively much rain. During the rainy season, especially from December to April, there is a rainfall of about 400mm. However, there is no need to consider possible influence of the rainfall on the implementation of the project.

(3) Social and economic conditions

1) Status of MMTC and scope of assistance

MMTC had been an institution that provided training mainly for the staff of TVRI and RRI as a public broadcasting training center. However, a diploma IV course in broadcasting (non-regular course fourth year students: course for general public) started this fiscal year under an order issued by the director of the higher education bureau of the national education ministry dated December 22, 2000 (No.5149/D/T/2000). With the completion of the course, a student can obtain a qualification equivalent to a university diploma. Although there are ideas of making MMTC into an IT university and opening a movie research program at MMTC, TV and radio broadcast is the scope of assistance under the project.

2) Broadcasting industry and MMTC

Because TVRI and RRI shifted to public corporations (Perjan = Perusahaan Jawatan) that became independent from the state-run broadcasting stations, they are obliged to provide services for the people of Indonesia. At the same time, they are obliged to make profits. In addition to a responsibility as public broadcasters, they have to operate huge facility efficiently and train experts necessary for yielding profits.

Meanwhile, after the beginning of 1990s, private broadcasting companies were established one after another. Four private broadcasting companies were established last year alone, and there are nine such companies. There are five other private broadcasters applying for an opening, and competition in the industry is intensifying. Against the backdrop, there is a high demand for engineers, operators and program producers who are well versed in digital equipment. Private broadcasting companies have become increasingly dependent on MMTC in training human resources.

Because the dependence on MMTC in training human resources in broadcasting is expected to become even higher, MMTC needs to provide training and have equipment suitable for digitalization of broadcasting equipment.

(4) Procurement

Main equipments to be procured under the project are not manufactured in Indonesia, and thus they are all to be procured in Japan.

(5) Use of local construction and electric engineering companies

There are construction companies and electric engineering companies in Yogyakarta. They are engaged in construction works in the city. Thus, it is relatively easy to secure workers, vehicles for transportation and installation equipments necessary for the project and it is possible to place an order for installation works of the equipment with such local companies.

However, unique installation works and adjustment and tests after installation of broadcasting and air-conditioning equipments require a high level of skills, engineers need to be dispatched from Japan to be engaged in quality control, technical instruction and schedule control.

(6) Operation, maintenance and management of the institution that carries out the project

1) Budget

Because MMTC has been an institution that provides training mainly for staff of TVRI and RRI as a public broadcasting training center, its operation had been financed with the national budget until recently. However, ① a course for general public and ② a short-term course to train staff of private broadcasting companies opened as non-regular programs in 2001.

Thus it became possible for MMTC to allocate part of the income from the non-regular programs for operation costs. However, the income is mere 15 percent of costs necessary for the maintenance of equipment, and it still needs to depend on the national coffer for the rest of the costs. Budget allocation of the central government to MMTC should be considered in deciding the scale of the project.

2) Technical aspect

Many staff and instructors of MMTC have been trained in Japan or other foreign countries, and they have a certain level of operation and maintenance skills of broadcasting equipment. Thus, currently existing equipment is kept in a good condition in general. Although staff and instructors of MMTC are used to operating and maintaining the currently existing equipment, they are not used to the latest equipment. It is necessary to consider dispatch Japanese engineers to provide

instruction on operation and maintenance of the new equipment at the time of the in installation of the equipment.

(7) Grade of facility and equipment

The following is the base of the scope and technical level of equipment procurement under the project.

1) Grade of equipment

AV equipments are generally divided into those for the public welfare, business and broadcasting. Those for broadcasting are of highest grade and most expensive. However, some broadcasting stations are using equipment for business use and equipment procured under the project is to be chosen from those for broadcasting and business use. Equipment for the project is not necessary that for broadcasting, because the equipment is for training. Because specifications of equipment for public welfare differ from those for broadcasting and business use and its reliability is lower, it is not an option for main equipment of the project.

2) Composition of the system

① TV-related equipment

Digital equipment for sound and image should be chosen for the TV-related system and quality of image and sound should not differ. Exchange of signals between systems should be done digitally and quality of sound and image should not differ.

② Radio-related equipment

Although radio-related equipment is digital as a principle, part of equipment of the main control room will be analog. Because of this, the system should allow both analog and digital input to an audio mixer. Such a system can secure sound quality necessary for radio broadcasting.

3) Selection of recording equipment

Majority of materials for recording used at MMTC is cassette tapes partly because of the market in Indonesia. Thus, both analog and digital materials for recording are to be used.

4) Selection of equipment

Broadcasting equipment can be used effectively, compact in size and economical if it has a consistent system from recording, editing and storing to outputting.

Because majority of trainings provided at MMTC are for staff at TVRI and other private broadcasting companies, it is necessary to choose general-purpose equipment, with a consideration given to the composition and grade of equipment used by broadcasting stations in Indonesia.

(8) Method of procurement and work schedule

The project site is in an inland area and equipment will be landed at Jakarta port or Surabaya port. Inland transportation routes (rail or road), costs, duration, various procedures at customs and tariff will be compared in deciding the transportation of equipment and work schedule.

2-2-2 Basic Plan (Equipment Plan)

(1) General plan

Existing equipment of MMTC is unattainable to train personnel who are demanded by the broadcasting industry in Indonesia. It is expected that the replacement will enable to train human resources who will comply with the needs of broadcasting industry. However, minimum scale of equipment for training activity will be procured under the project. It means that equipment of main facilities necessary for training (Main control room, Studio 1, Continuity studio, Film editing room) will be replaced and Studio 2 that complement training and telecine equipment whose importance has been decreasing in today's broadcasting industry are not included in the project. A series of digital broadcasting equipment related to ① reporting, shooting and recording equipment necessary for collecting materials for programs (in studios and outdoors) and ② program editing and effect necessary for processing the materials, which are main facilities of MMTC training is to be procured (Refer to Table 2-2-2).

Because digital equipment to be procured is to be installed at places where currently existing equipment is sitting after it is removed. Training rooms new equipment will be installed are shown in Table 2-2-1.

Table 2-2-1 Training Rooms Targeted by the Project

	Existing training room	New equipment to be installed under the Project
1	TV main control room	●
2	TV production studio I	●
3	TV production studio II	
4	TV continuity studio	●
6	Telecine equipment	
5	Video editing room	●
7	TV OB-Van	●
8	Radio main control room	●
9	Radio continuity studio	●
10	Radio studio I	●
11	Radio studio II	
12	Radio OB-Van	
13	Radio control training room	
14	Maintenance room	●
15	Training room	●

Note) ●: Newly procured equipment

MMTC training program to be used by AV equipment under the Project is shown in Table 2-3-3. It is obviously demonstrated that the most of new digital equipment will be used for TV staff training program.

Table 2-2-2 Installation Time of Existing Equipment and Equipment to be Installed under the Project

Equipment	Existing equipment			Equipment to be installed under the project
	1st stage of grant aid (1984)	2nd stage of grant aid (1992)	Provided through technical support (1985/86)	
I. TV studio equipment				
A. Production Studio 1	●			●
B. Production Studio 2		●		
C. Studio sub control facility	●	●	●	●
D. Continuity studio facility	●			●
E. TV main control facility	●			●
F. VTR equipment	●			
G. Telecine/FSS equipment	●			
H. Sync signal equipment	●			
I. ENG equipment	●			
J. Cameras			●	
K. Film editing equipment/ 16mm movie camera	●			
L. Film development facility	●			
M. Post production equipment		●	●	●
N. TV OB-Van and relay equipment			●	●
O. Other equipment	●	●	●	
II. Radio studio				
A. Studio 1	●			●
B. Studio 2		●		
C. Studio sub control facility	●	●		●
D. Continuity studio facility	●			●
E. Tape editing equipment	●			
F. Radio main control facility	●			
G. Radio OB-Van, relay equipment	●		●	
III. Transmitter				
A. Mid-wave broadcasting VHF TV broadcasting	●		●	
IV. Measuring equipment	●		●	●
V. Power sources	●			
VI. Technical communication equipment and indoor clock				
A. Technical communication equipment	●			
B. Indoor clock	●			
VII. Observation and meeting rooms				
A. Equipment for observation rooms	●			
B. Equipment for meeting rooms	●			
VIII. Air-conditioning	●			
IX. Others				
A. Training equipment			●	●
B. Communal office equipment, classroom equipment			●	

Table 2-2-3 MMTC Training Program Used by AV Equipment

TV Program/Course		A. AV Equipment for TV Training										
		TV Main Control Facility	Continuity Studio Facility	Production Studio 1	Production Studio 2	Film Editing Equipment	Film Development Facility	Telecine/FSS Equipment	TV OB-Van	ENG Equipment	Post Production Equipment	Transmitter
DI	Program comilation Planning	●	●	●	○	●	●	○	●○	○	●	○
	Program Lines Production	●	●	●	○	●	●	○	●○	○	●	○
	News and Current Affairs Reportinng	●	●	●	○	●	●	○	●○	○	●	○
	Studio and Master Control Technique Operation	●	●	●	○	●	●	○	●○	○	●	○
	Transmission Operation	●							●○		●	○
DII	Program comilation Planning											
	Program Package Production			●	○	●	●	○	●○			
	Broadcast Journalism		●	●	○	●	●		●○	○		
	Studio Production Technique	●	●	●	○	●	●	○	●○	○	●	
	Transmission Technique	●							●○		●	○
DIII	Program Cultural and Entertainement Production											
	Program News and Information Productions			●	○	●	●	○	●○			
	Open Studio and Mobile Production Engineering		●	●	○	●	●		●○	○		
	Broadcast Production Planning and Monitoring	●	●	●	○	●	●	○	●○	○	●	
	Satellite and Terrestrial Transmission Engineering	●									●	○
DIV	Management of News Journalism Production		●			●	●	○	●○	○		
	Management of Broadcast Production			●	○	●	●	○	●○	○		
	Management of Studio Production Technique	●	●	●	○	●	●	○	●○	○	●	○
Radio Program/Course		B. AV Equipment for Radio Training										
		Main Control Facility	Continuity Studio	Studio 1	Studio 2	Tape Editing Equipment	Radio OB-Van	Transmitter				
DI	Program comilation Planning	●	●	●	○	○	○	○				
	Program Lines Production	●	●	●	○	●	○	○				
	News and Current Affairs Reportinng	●	●	●	○	●	○	○				
	Studio and Master Control Technique Operation	●	●	●	○	●	○	○				
	Transmission Operation	●					○	○				
DII	Program comilation Planning											
	Program Package Production	●		●	○	○						
	Broadcast Journalism	●	●	●	○	○						
	Studio Production Technique	●	●	●	○	●						
	Transmission Technique						○	○				
DIII	Program Cultural and Entertainement Production							○				
	Program News and Information Productions			●	○	●	○					
	Open Studio and Mobile Production Engineering		●	●	○	●	○					
	Broadcast Production Planning and Monitoring	●	●	●	○	●	○					
	Satellite and Terrestrial Transmission Engineering							○				
DIV	Management of News Journalism Production		●	●	○	●	○					
	Management of Broadcast Production			●	○	●	○					
	Management of Studio Production Technique	●	●	●	○	●	○	○				

●: To be used by new equipment
○: Used by exit. Equipment

(2) Equipment project

1) Purpose of using equipment and concept of the system

Table 2-2-4 shows the purpose of using main equipment included in the project and the concept of the system.

2) Changes of the to be procured equipment from the request

Equipment included in the project is decided as follows considering the request and based on the current situation and future activities of broadcasting stations.

No.	Main requested equipment	Change after the request	
		Removed	Added
1	TV master control room	•Automatic program control system •Intercom	•DAT (1 unit)
2	TV studio 1		•DAT (1 unit) •Tripod and dolly for TV camera (3 sets)
3	TV continuity studio		•DAT (1 unit)
4	TV OB-van		•Intercom (1 set)
5	Editing equipment		•Nonlinear editing system (1 lot)
6	Radio master control room		•DAT (1 unit)
7	Radio continuity studio		•DAT (1 unit) •AWS (1 unit)
8	Radio studio 1		•DAT (1 unit)
9	Training kits		
10	Measuring equipment		
	Outdoor shooting equipment		•DAT (1 unit)

3) Changes in specifications of main equipment

Reasons for the changes of equipment are explained below.

① Automatic program control system (removed)

The master switcher of equipment for the TV main control room is controlled manually changed from an automatic program control system.

Table 2-2-4 (1/3) Purpose of Using Equipment and Concept of the System

Facility	Contents of training	Purpose of using equipment	Concept of the system	Main equipment	Notes
TV main control room	1) Understanding the control system 2) Operating and maintenance methods of the transmission equipment 3) Monitoring technique of the transmission signals 4) Maintenance methods of the grade of the transmission signals 6) Maintenance skills of video and audio equipments 7) Techniques to use in emergencies	Training to acquire operation and maintenance skills of TV program control equipment	① The master switcher is not controlled automatically but is controlled manually because it is the equipment for training. All the input terminals should accept the digital signals without any compressions, = SMPTE259M (SDI). The master has more than 10 inputs, which is the minimum function, because it is for training use. It also has signal processing functions such as down stream keyers, audio fader functions and frame memory functions. ② In order to keep the compatibility with the currently owned huge volume of videotapes, the digital VTR should be 1/2-inch cassette type.	1) Digital master switcher 2) Video equipment 3) Audio equipment 4) Monitoring equipment 5) Sync signal generator	• Details of the equipment are shown in Table 2-2-5 • The block diagram of the system is shown in Fig. IM-B-01~03.
TV studio	1) Actual practice of lighting, shooting and recording of broadcasting programs at TV studio 2) Operation methods of TV studio equipment 3) Maintenance methods of equipment 4) Techniques to use in emergencies	Training to acquire skills necessary for TV program production and using equipment at TV studios	The system is aiming to digitalize the current analog-based system of the studio. However, the current lighting equipment and electric power distribution board are to be utilized. The system adopts three units of studio cameras and its signal interface format between the equipment is to be the uncompressed digital signal, SMPTE-259M. The VTR should be the 1/2-inch format that has been used so that the past analog videotapes can be utilized. The audio is also digital and should be AES/EBU format. The sampling rate of the audio signal is 48KHz as a principle, and if the different sampling rate signal comes from other source, the sampling rate converter should unify those signals into 48KHz.	1) Studio cameras 2) Video equipment 3) Audio equipment 4) Monitoring equipment 5) Sync signal generator	• Details of the equipment are shown in Table 2-2-5. • The block diagram of the system is shown in Fig. IM-B-04~08.
TV continuity studio	1) Actual practice of lighting, shooting and recording of TV news programs 2) Operation methods of studio program production equipment 3) Maintenance methods of equipment 4) Techniques to use in emergencies	Training to acquire techniques to produce TV news programs and use equipment	The system is aiming to digitalize the current analog-based TV continuity studio. However, the current lighting equipment and electric power distribution board are to be utilized. The system adopts one unit of studio camera and its signal interface format between the equipments is to be the uncompressed digital signal, SMPTE-259M. The VTR should be the 1/2-inch format that has been used so that the past analog videotapes can be utilized. The audio is also digital and should be AES/EBU format. The sampling rate of the audio signal is 48KHz as a principle, and if the different sampling rate signal comes from other source, the sampling rate converter should unify those signals into 48KHz. Although the camera consists of one unit, the system has basically same specifications as those of TV studio equipment. Because the purpose of using the studio is limited to news programs, the mixer should be small and a prompter should be installed for announcers to read news scripts.	1) Studio camera 2) Video equipment 3) Audio equipment 4) Monitoring equipment 5) Sync signal generator	• Details of the equipment are shown in Table 2-2-5. • The block diagram of the system is shown in Fig. IM-B-09~13.

Note) AES/EBU: Audio Engineering Society/ European Broadcast Union

Table 2-2-4 (2/3) Purpose of Using Equipment and Concept of the System

Facility	Contents of training	Purpose of using equipment	Concept of the system	Main equipment	Notes
TV OB Van	1) Methods of operating and handling vehicles and production equipment 2) Maintenance techniques of electric power source (power generators) 3) Shooting methods from a TV OB Van 4) Techniques to send out materials 5) Techniques to measure transmitting equipment 6) Maintenance methods of equipment	Training to acquire outdoor shooting and operating a TV OB Van and its maintenance	The vehicle is middle size with the length of about 5 to 6 meters. The system adopts three units of studio cameras and its signal interface format between the equipments is to be the uncompressed digital signal, SMPTE-259M. The VTR should be the 1/2-inch format that has been used so that the past analog videotapes can be utilized. The audio is also digital and should be AES/EBU format. The sampling rate of the audio signal is basically 48KHz, and if the different sampling rate signal comes from other source, the sampling rate converter should unify those signals into 48KHz	1) Portable camera system 2) Video equipment 3) Audio equipment 4) Monitoring equipment 5) Sync signal generator 6) EPU 7) VHF communication system	• Details of the equipment are shown in Table 2-2-5. • The block diagram of the system is shown in Fig. IM-B-14~18.
Editing room	1) Tape editing techniques 2) Electronic techniques of editing equipment 3) Operating methods of measuring equipment	Training to acquire tape editing techniques	① Nonlinear editing equipment This system should have such functions as video effecter and character generator so that a wide variety of video effects can be produced. This system is a nonlinear editing system that satisfies the current situation of broadcasting that requires high video quality and that can be utilized in future. ② 1 to 1 editing equipment This system is the simple cut editing system which consists of one player VTR and one recorder VTR and the system is controlled by the editing controller.	1) Nonlinear editing equipment 2) 1 to 1 editing equipment	• Details of the equipment are shown in Table 2-2-5. • The block diagram of the system is shown in Fig. IM-B-19~21.
Radio master control room	1) Understanding of radio broadcasting control system 2) Operation and maintenance methods of audio transmission equipment 3) Maintenance methods of the grade of audio transmission signals 4) Maintenance skills of equipment 5) Techniques to use in emergencies	Training to acquire operation and maintenance techniques of radio control equipment	This system is not controlled automatically but controlled manually because it is for training. The main input/output signal of the system is digital, and the transmission format inside the system is AES/EBU. The sampling frequency is supported by 44.1KHz and 48KHz because the CD sampling rate used in radio broadcasting is 44.1KHz.	1) 12-CH stereo digital master switcher 2) Audio equipment 3) Monitoring equipment 4) Audio sync signal generator	• Details of the equipment are shown in Table 2-2-5. • The block diagram of the system is shown in Fig. IM-B-22~23.
Radio continuity studio	1) Actual practice of recording news programs 2) Operation methods of studio program production equipment 3) Maintenance methods of equipment 4) Techniques to use a studio in emergencies	Training to acquire skills to operate and maintain audio and recording equipment necessary for radio news program production.	This system is a small scale of the radio studio to be used for radio news broadcasting, which mainly consists of the audio mixer and other digital equipment. In the studio floor, there are four lines of microphone inputs, monitor speakers and a cough box. In the sub-control room, there will be various audio source equipments, such as CD and DAT. In addition, the telephone pick up unit is to be connected to the audio mixer so that the voice from telephone could be broadcasted directly. The digital format is AES/EBU, and the sampling frequency is supported by 44.1KHz and 48KHz same as the radio master control room.	1) 16-CH stereo digital master switcher 2) Audio equipment 3) Monitoring equipment	• Details of the equipment are shown in Table 2-2-5. • The block diagram of the system is shown in Fig. IM-B-24~25.

Table 2-2-4 (3/3) Purpose of Using Equipment and Concept of the System

Facility	Contents of training	Purpose of using equipment	Concept of the system	Main equipment	Notes
Radio studio	1) Actual practice of recording radio program production in a radio studio 2) Operation methods of radio studio equipment 3) Maintenance methods of equipment 4) Techniques to use a studio in emergencies	Training for operation and maintenance of audio and recording equipment necessary for producing programs at a radio studio	This system is for a studio used to produce radio programs, mainly consisting of the audio mixer and other digital equipment. In the studio floor, there are four lines of microphone inputs, monitor speakers and a cough box. Necessary sound source equipment, such as CD players and cassette tape recorders are also to be installed in the sub-control room. In addition, the telephone pick up unit is to be connected to the audio mixer so that the voice from telephone could be broadcasted directly. The digital format is AES/EBU, and the sampling rate is supported by 44.1KHz and 48KHz.	1) 16-CH stereo digital master switcher 2) Audio equipment 3) Monitoring equipment	• Details of the equipment are shown in Table2-2-5. • The block diagram of the system is shown in Fig. IM-B-26.
Training room	1) Acquisition of computer skills 2) Basic electronic skills of digital equipment 3) Applied electronic skills of digital equipment 4) Maintenance methods of digital equipment	Training of switching signals with A/D, D/A converters	Both analog and digital equipments are used for production of TV and radio programs. A/D (analog to digital) and D/A (digital to analog) converters to switch analog video and audio signals into digital signals and switch digital signals to analog signals will be installed.	1) Audio digital to analog converter kit 2) Audio analog to digital converter kit 3) Video digital to analog converter kit 4) Video analog to digital converter kit 5) Microprocessor training kit	• Details of the equipment are shown in Table 2-2-5.
(Measuring equipment)	Operation methods of measuring equipment and basic skills to use the equipment	Training of operation check and measuring of analog and digital equipments for TV and radio program production	Both analog and digital equipments are used for production of TV and radio programs. Measuring equipment is a necessary minimum one capable of checking and measuring operating conditions and measuring various signals.	1) Video test signal generator 2) Video audio measurement set	• Details of the equipment are shown in Table 2-2-5.

Software and hardware of the system vary greatly, depending on what kind of equipment a broadcasting company has and how it uses the system. Because this is for training use, the manual control system is suitable than the automatic control system. In addition, because the system is less for general-purpose than other systems, it is removed from the request list.

② Intercom of the TV master control room (removed)

The intercom equipment of the TV master control room included in the original request is excluded from the project.

The intercom is necessary for communication of studio work between the sub master control room and a studio. However, it is excluded from the project because doing so will not hinder training of equipment operation at the master control room of the training center.

③ DAT (digital audio tape recorder) and AWS (digital audio editing equipment) (added)

Although six CTRs (cassette tape recorders) were originally requested as the audio record and playback equipment, DAT (digital audio tape recorder) and AWS (digital audio editing equipment) are added as equipment to be procured under the project.

Because DAT is mainly used at broadcasting stations, DAT training is meaningful. One unit of fixed-type DAT will be installed in each of TV and radio systems, and one unit of portable DAT will be introduced for outdoor production. Because most of audio materials brought in from outside are cassette tapes, CTR cannot be excluded from the project. Because currently existing CTR is an old-type CTR and it is difficult to procure parts of the CTR, new CTR needs to be procured.

AWS will be also introduced to produce and edit programs utilizing audio materials and effect sounds recorded in cassette tapes and digital audio tapes.

④ Nonlinear editing system (added)

A nonlinear editing system will be introduced as equipment for the video editing room.

The editing system has been computerized recently and editing has become efficient and editing materials have become commonly used via network between nonlinear editing equipments. Although linear editing and nonlinear editing systems are both used at broadcasting stations, training of the nonlinear editing system is necessary when the trend of broadcasting-the nonlinear editing system is becoming more widely used-is taken into consideration.

⑤ Tripod and dolly for TV cameras (added)

Tripod and dolly for the TV camera installed in the TV production studio were not originally requested. However, it is included in the project.

Because currently existing pedestal is an old-type one, heavy and large, it will not be well balanced if the latest compact camera to be procured under the project is mounted. And it is not mobile either.

⑥ Intercom for TV OB van (added)

Although the intercom equipment was not included in the original request, it is to be added as equipment to be procured under the project.

The equipment is necessary for communication in fieldwork between a TV OB van and its staff (director, camera crew, etc.). It is essential for training for program production using a TV OB van. Thus, the equipment will be introduced under the project. However, the scope of addition is limited to the main station (main control equipment) and camera interface (equipment that connects intercom main control equipment and camera control equipment) to be installed in the TV OB van, and the belt pack (sub separate intercom unit) and headset are excluded as the equipments used at the TV studio will be also used here.

4) List of equipment

Equipment selected after considering the above conditions is listed in Table 2-2-5(1)-(4).

Table2-2-5(1) Equipment List Ranking

No.	Equipment	Priority	Q'ty	History of Modification		
				Original Request by Indonesian Side	Site Survey	Study in Japan
1.	**TV Master Control Room**					
(1)	Digital Master Switcher	A	1 lot	※		
1)	16-inputs Digital Master Switcher	A	1 set	※		
2)	Automatic Program Control System	C	1 set	※	- (Deletion)	
(2)	Video Equipment	A	1 lot	※		
1)	Digital Time Generator	A	1 set	※		
2)	Digital Logo Generator	A	1 set	※		
3)	Character Generator	A	1 set	※		
4)	1/2-inch Digital VTR: Record and Playback	A	1 set	※		
5)	1/2-inch Digital VTR: Playback	A	1 set	※		
6)	Frame Synchronizer	A	3 sets	※		
7)	Digital Video Distribution Amplifier	A	1 lot	※		
(3)	Console and Rack	A	1 lot	※		
1)	System Rack with Video/Audio Jack Panel	A	1 lot	※		
2)	Operation Console	A	1 set	※		
(4)	Audio Equipment	A	1 lot	※		
1)	Cassette Tape Recorder	A	1 set	※		
2)	Compact Disc player	A	1 set	※		
3)	Digital Audio Tape Recorder	A	1 set			+ (Addition)
4)	Audio A/D, D/A Converter	A	1 lot	※		
5)	Digital Audio Distribution Amplifier	A	1 lot	※		
(5)	Monitoring Equipment	A	1 lot	※		
1)	VE Color Monitor: 14-inch	A	1 set	※		
2)	Digital Waveform Monitor	A	1 set	※		
3)	Pre-view Digital Color Monitor	A	17 sets	※		
4)	Color Monitor: 21-inch	A	1 set	※		
5)	Audio Speaker with Amplifier	A	2 sets	※		
6)	Monitor Shelf	B	existing	※		
(6)	Sync Signal Generator	A	1 set	※		
(7)	Clock System	B	existing	※		
(8)	Power Distribution Board	B	existing	※		
(9)	Studio Intercom System	C	1 set	※	-	
	Intercom Matrix	C	1 set	※	-	
	Terminal (Belt Pack)	C	1 lot	※	-	
2.	**TV Production Studio**					
(1)	Digital Color Camera Chain	A	1 lot	※		
1)	CCD Color Camera	A	3 sets	※		
2)	Zoom Lens: 15 times	A	3 sets	※		
3)	View Finder	A	3 sets	※		
4)	Tripod and Dolly	A	3 sets	※		
5)	Camera Control Unit	A	3 sets	※		
6)	Triaxial Camera Cable	A	3 sets	※		
(2)	Video Equipment	A	1 lot	※		
1)	Digital Production Switcher	A	1 set	※		
2)	Digital Video Effect	A	1 set	※		
3)	1/2-inch Digital VTR: Record and Playback	A	1 set	※		
4)	1/2-inch Digital VTR: Playback	A	1 set	※		
5)	Character Generator	A	1 set	※		
6)	Digital Video Distribution Amplifier	A	1 lot	※		
7)	Computer Graphics	A	1 set	※		
(3)	Console and Rack	A	1 lot	※		
1)	System Rack with Video/Audio Jack Panel	A	1 lot	※		
2)	Operation Console	A	1 set	※		
3)	VE Console	A	1 set	※		
(4)	Audio Equipment	A	1 lot	※		
1)	24-CH Digital Audio Mixer	A	1 set	※		
2)	Cassette Tape Recorder	A	1 set	※		
3)	Compact Disc player	A	1 set	※		
4)	Digital Audio Tape Recorder	A	1 set			+
5)	A/D, D/A Converter	A	1 lot	※		
6)	Digital Audio Distribution Amplifier	A	1 lot	※		

Table2-2-5(1) Equipment List Ranking

No.	Equipment	Priority	Q'ty	History of Modification		
				Original Request by Indonesian Side	Site Survey	Study in Japan
7)	Digital Effector	A	1 set	※		
8)	Microphone	A	3 sets	※		
9)	Microphone Stand	B	existing	※		
(5)	Monitoring Equipment	A	1 lot	※		
1)	VE Color Monitor: 14-inch	A	1 set	※		
2)	Waveform Monitor (Analog)	A	1 set	※		
3)	Vector Scope (Analog)	A	1 set	※		
4)	Digital Waveform Monitor	A	1 set	※		
5)	Pre-view Digital Color Monitor	A	14 sets	※		
6)	Color Monitor: 21-inch	A	2 sets	※		
7)	Floor Color Monitor: 21-inch	A	1 set	※		
8)	On Air Tally Logic	A	1 set	※		
9)	Speaker with Amplifier	A	4 sets	※		
10)	Studio Intercom System		1 lot	※		
	Intercom Matrix	A	1 set	※		
	Terminal (Belt Pack)	A	1 lot	※		
11)	Monitor Shelf	B	existing	※		
(6)	Sync Signal Generator	A	1 set	※		
(7)	Lighting System	B	existing	※		
(8)	Power Distribution Board	B	existing	※		
3.	**TV News Continuity Studio**					
(1)	Digital Color Camera Chain	A	1 lot	※		
1)	3CCD Color Camera	A	1 set	※		
2)	Zoom Lens: 15 times	A	1 set	※		
3)	View Finder	A	1 set	※		
4)	Tripod and Dolly	A	1 set	※		
5)	Prompter	A	1 set	※		
6)	Camera Control Unit	A	1 set	※		
7)	Triaxial Camera Cable	A	1 set	※		
(2)	Video Equipment	A	1 lot	※		
1)	Digital Production Switcher	A	1 set	※		
2)	Digital Video Effecter	A	1 set	※		
3)	1/2-inch Digital VTR: Record and Playback	A	1 set	※		
4)	1/2-inch Digital VTR: Playback	A	1 set	※		
5)	Character Generator	A	1 set	※		
6)	A/D, D/A Converter	A	1 lot	※		
7)	Digital Video Distribution Amplifier	A	1 lot	※		
(3)	Console and Rack	A	1 lot	※		
1)	System Rack with Video/Audio Jack Panel	A	1 lot	※		
2)	Operation Console	A	1 set	※		
3)	VE Console	A	1 set	※		
(4)	Audio Equipment	A	1 lot	※		
1)	16CH Digital Audio Mixer	A	1 set	※		
2)	Cassette Tape Recorder	A	1 set	※		
3)	Compact Disc player	A	1 set	※		
4)	Digital Audio Tape Recorder	A	1 set			+
5)	Audio A/D, D/A Converter	A	1 lot	※		
6)	Digital Audio Distribution Amplifier	A	1 lot	※		
7)	Digital Effector	A	1 set	※		
8)	Microphone Stand	A	existing	※		
(5)	Monitoring Equipment	A	1 lot	※		
1)	VE Color Monitor: 14-inch	A	1 set	※		
2)	Waveform Monitor	A	1 set	※		
3)	Vector Scope	A	1 set	※		
4)	Digital Waveform Monitor	A	1 set	※		
5)	Pre-view Digital Color Monitor	A	9 sets	※		
6)	Color Monitor: 21-inch	A	2 sets	※		
7)	Floor Color Monitor: 21-inch	A	1 set	※		
8)	On Air Tally Logic	A	1 set	※		
9)	Speaker with Amplifier	A	4 sets	※		
10)	Studio Intercom System					
	Intercom Matrix	A	1 set	※		

Table2-2-5(1) Equipment List Ranking

No.	Equipment	Priority	Q'ty	History of Modification		
				Original Request by Indonesian Side	Site Survey	Study in Japan
	Terminals (Belt Pack)	A	1 lot	※		
11)	Monitor Shelf	B	existing	※		
(6)	Sync Signal Generator	A	1 set	※		
(7)	Lighting System	B	existing	※		
(8)	Power Distribution Board	B	existing	※		
4.	**TV OB Van**					
(1)	Portable Color Camera Chain	A	1 lot	※		
1)	CCD Color Camera	A	3 sets	※		
2)	Zoom Lens: 20 times	A	3 sets	※		
3)	View Finder	A	1 set	※		
4)	Tripod and Dolly	A	1 set	※		
5)	Camera Control Unit	A	1 set	※		
(2)	Video Equipment		1 lot	※		
1)	Digital Video Production Switcher	A	1 set	※		
2)	Digital Video Distribution Amplifier	A	1 lot	※		
3)	1/2-inch Digital VTR: Playback/Record	A	2 sets	※		
(3)	Audio Mixer		1 lot			
1)	Digital Audio Mixer	A	1 set	※		
2)	Digital Audio Distribution Amplifier	A	1 lot	※		
3)	Compact Disk Player	A	1 set	※		
4)	Microphone and Stand	A	1 lot	※		
(4)	Monitoring Equipment		1 lot			
1)	9 Inch VE Color Monitor	A	3 sets	※		
2)	Digital Waveform Monitor	A	1 set	※		
3)	Pre-view Color Monitor	A	5 sets	※		
4)	14 Inch Color Monitor (PGM,PVW)	A	2 sets	※		
5)	Speaker with Amplifier	A	2 sets	※		
(5)	Sync Signal Generator	A	1 set	※		
(6)	FPU	B	existing	※		
(7)	VHF Communication System	A	1 lot	※		
1)	Transceiver: 10W with Antenna	A	1 set	※		
2)	Walky Talky: 5W	A	3 sets	※		
3)	Charger and Battery	A	1 set	※		
4)	Base Station: 5W with Antenna	A	1 set	※		
(8)	Intercom System		1 lot			
1)	Intercom Matrix	A	1 set	※		
	Note) Terminals (Belt Pack) in the TV Production Studio and News Community Studio will be used commonly:					
(9)	Vehicle		1 lot			
1)	Vehicle	A	1 set	※		
2)	7kVA Engine Generator	A	1 set	※		
3)	Air Conditioner	A	1 set	※		
4)	System Rack	A	1 lot	※		
5)	5kVA AVR	A	1 set	※		
5.	**Editing Equipment**					
(1)	Nonlinear Editing System	A	1 lot		+	
1)	Nonlinear Editing System (Main Frame)	A	1 set		+	
2)	21-inch Color Video Monitor	A	1 set		+	
3)	Audio Speaker with Amplifier	A	2 sets		+	
4)	Audio Video Disk Box	A	1 set		+	
5)	1/2-inch Digital VCR	A	1 set		+	
6)	Sync. Generator	A	1 set		+	
7)	Editing Desk & Rack	A	1 set		+	
(2)	1 to 1 Editing Equipment	A	1 set	※		
1)	1/2-inch Digital VTR: Playback/Record	A	1 set	※		
2)	1/2-inch Digital VTR: Playback	A	1 set	※		
3)	Editor	A	1 set	※		
4)	Color Monitor: 14-inch	A	2 sets	※		

Table2-2-5(1) Equipment List Ranking

No.	Equipment	Priority	Q'ty	History of Modification		
				Original Request by Indonesian Side	Site Survey	Study in Japan
5)	Power Distribution Board	B	existing	※		

Table2-2-5(1) Equipment List Ranking

No.	Equipment	Priority	Q'ty	History of Modification		
				Original Request by Indonesian Side	Site Survey	Study in Japan
6.	**Radio Master Control Room**					
(1)	Stereo Digital Master Switcher	A	1 set	※		
(2)	Audio Equipment		1 lot			
1)	Compact Disk player	A	2 sets	※		
2)	Cassette Tape Recorder	A	1 set	※		
3)	Digital Audio Tape Recorder	A	1 set		+	
4)	Portable Type Digital Audio Tape Recorder	A	1 set			+
5)	Digital Audio Distribution Amplifier	A	1 lot	※		
6)	A/D, D/A Converter	A	1 lot	※		
(3)	Speaker with Amplifier	A	1 set	※		
(4)	48kHz Audio Sync Generator	A	1 set	※		
(5)	Microphone and Stand	B	existing	※		
(6)	Console and Rack		1 lot			
1)	System Rack with Jack Panel	A	1 lot	※		
2)	Operation Console	A	1 set	※		
(7)	Power Distribution Board	B	existing	※		
7.	**Radio Continuity Room**					
(1)	Stereo Digital Audio Mixer	A	1 set	※		
(2)	Audio Equipment					
1)	Digital Audio Work Station	A	1 set			+
2)	Audio Effector	A	1 set	※		
3)	Compact Disk player	A	1 set	※		
4)	Cassette Tape Recorder	A	1 set			+
5)	Digital Audio Tape Recorder	A	1 set	※		
6)	Digital Audio Distribution Amplifier	A	1 lot	※		
(3)	Monitoring Equipment					
1)	Speaker with Amplifier	A	1 set	※		
2)	Talk Back Speaker with Amplifier	A	1 set	※		
(4)	Telephone Hybrid	A	1 set	※		
(5)	Microphone and Stand	B	existing	※		
(6)	Cough Box	A	1 set	※		
(7)	Power Distribution Board	B	existing	※		
8.	**Radio Studio-1**					
(1)	Stereo Digital Master Switcher	A	1 set	※		
(2)	Audio Equipment					
1)	Audio Effector	A	1 set	※		
2)	Compact Disk player	A	1 set	※		
3)	Cassette Tape Recorder	A	1 set			+
4)	Digital Audio Tape Recorder	A	1 set	※		
5)	Digital Audio Distribution Amplifier	A	1 lot	※		
(3)	Monitoring Equipment					
1)	Speaker with Amplifier	A	1 set	※		
2)	Talk Back Speaker with Amplifier	A	1 set	※		
(4)	Telephone Hybrid	A	1 set	※		
(5)	Microphone and Stand	B	existing	※		
(6)	Power Distribution Board	B	existing	※		
9.	**Training Kit**					
(1)	Audio Digital to Analog Converter Kit	A	1 lot	※		
(2)	Audio Analog to Digital Converter Kit	A	1 lot	※		
(3)	Video Digital to Analog Converter Kit	A	1 lot	※		
(4)	Video Analog to Digital Converter Kit	A	1 lot	※		
(5)	Microprocessor Training Kit	A	1 lot	※		
10.	**Measuring Equipment**					
(1)	Video Test Signal Generator	A	1 set	※		
(2)	Video Measurement Set	A	1 set	※		
11.	**Spare Parts**	A	**1 lot**	※		
12.	**Installation Materials and Installation**	A	**1 lot**	※		

Legend A: Indispensable to Complete the Project
B: Possible to use Existing Equipment
C: Not Necessary to Provide

Table 2-2-5 List of equipment (2/4)

Table 2-2-5 List of equipment (3/4)

Table 2-2-5 List of equipment (4/4)

(3) Equipment installation plan

Equipment is as a principle installed at the place where currently used equipment is located after it is removed. However, the training kits and spare parts are carried into a place in the training center designated by MMTC. (No installation works will be conducted). Electronic engineering training rooms or classrooms will be used to store and use the training kits at MMTC.

Equipment will be placed as shown in Table 2-2-6.

Table 2-2-6(1) Equipment Installation Plan

No.		Item	Quantity		Place where the Equipment is tobe installed												
					1	2	3	4	5	6	7	8	9	10	11	12	13
					TV Master Control Room	TV Studio	TV Studio-Sub	TV NEWS STUDIO	TV NEWS STUDIO-SUB	RADIO MASTER	RADIO STUDIO	RADIO STUDIO-SUB	RADIO CONTINUTY STUDIO	RADIO CONTINUTY STUDIO-SUB	EDITING ROOM	ELECTRONICS TRAINING ROOM	OB VAN
1.		**SWITCHER・MIXER**															
	(1)	DIGITAL MASTER SWITCHER	1	SET	1												
	(2)	SWITCHER CONTROL PANEL (MASTER	1	SET	1												
	(3)	DIGITAL VIDEO SWITCHER	3	SET			1		1								1
	(4)	CONTROL PANEL (VIDEO SWITCHER)	1	SET													1
	(5)	DIGITAL AUDIO MIXER	3	SET			1		1								1
	(6)	DIGITAL MASTER MIXER	1	SET						1							
	(7)	DIGITAL MIXING CONSOLE	2	SET								1		1			
2.		**CAMERA**															
	(1)	3 CCD COLOR CAMERA	7	SET		3		1									3
	(2)	16X ZOOM LENS	7	SET		3		1									3
	(3)	5" VIEW FINDER	5	SET		3		1									1
	(4)	CAMERA CONTROL UNIT	5	SET		3			1								1
	(5)	TRIPOD & DOLLY SET	4	SET		3		1									
	(6)							1									
3.		**VIDEO TAPERECORDER**															
	(1)	DIGITAL VIDEO PLAYER	4	SET	1		1		1						1		
	(2)	DIGITAL VIDEO RECORDER	7	SET	1		1		1						2		2
4.		**VIDEO EQUIPMENT**															
	(1)	DIGITAL TIME GENERATOR	1	SET	1												
	(3)	DIGITAL LOGO GENERATOR	1	SET	1												
	(4)	CHARACTER GENERATOR	3	SET	1		1		1								
	(5)	DIGITAL FRAME SYNCHRONIZER	3	SET	3												
	(6)	COMPUTER GRAPHICS	1	SET			1										
	(7)	DIGITAL VIDEO EFFECTORS SYSTEM	2	SET			1		1								
	(8)	MONITOR SELECTOR	1	SET			1										
	(9)	SYNC GENERATOR	5	SET	1		1		1						1		1
	(10)	DUAL CH TELEPHONE HYBRID	2	SET								1		1			
	(11)	AUDIO PARALLEL BOX	2	SET			2										
	(12)	AUDIO MULTI CABLE/REEL	2	SET			2										
	(13)	AUDIO PARALLEL BOX	1	SET			1										
5.		**MONITORING EQUIPMENT**															
	(1)	20 INCH MASTER COLOR MONITOR	5	SET	1		2		2								
	(2)	20INCH FLOOR COLOR MONITOR	2	SET		1			1								
	(3)	14INCH COLOR VIDEO MONITOR for VE	5	SET	1		1		1								2
	(4)	14INCH COLOR VIDEO MONITOR	2	SET			1		1								
	(5)	9INCH COLOR MONITOR for VTR	2	SET	2												
	(6)	9INCH PREVIEW COLOR MONITOR	16	SET	16												
	(7)	9INCH COLOR VIDEO MONITOR	31	SET			14		9								8
	(8)	For 9INCH MONITOR BLANKPANEL	2	SET													2
	(9)	6INCH COLOR MONITOR	2	SET													2
	(10)	15" LCD MONITOR	2	SET					1					1			
	(11)	DIGITAL WAVE FORMER MONITOR	4	SET	1		1		1								1
	(12)	ANALOG WAVE FORME/VECTOR SCOPE for VTR	4	SET	1		1		1								1
	(13)	ANALOG VECTOR SCOPE	3	SET			1		1								1
	(14)	WAVEFORM MONITOR/VECTOR	1	SET													1
	(15)	RACK MOUNT KIT	2	SET													2
	(16)	1/2 BLANK PANEL	1	SET													1
	(17)	DIGITAL AUDIO MONITOR	1	SET	1												
	(18)	AUDIO MONITOR SPEAKER for AUDIO SOURCE	1	SET	1												
	(19)	AUDIO MONITOR SPEAKER for VTR	1	SET	1												
	(20)	AUDIO SPEAKER with AMPLIFIER	4	SET	2		2										
	(21)	RACK MOUNT MONITOR SPEAKER	4	SET					2								2
	(22)	INPUT MONITOR SPEAKER (PAIR)	3	SET						1				2			
	(23)	MASTER OUTPUT MONITOR SPEAKER	2	SET						2							
	(24)	CONTROL ROOM MONITOR SPEAKER	6	SET			2		2			2					
	(25)	STUDIO MONITOR SPEAKER	6	SET			2		1			2		1			
	(26)	AUDIO MONITOR SPEAKER W/AMP	2	SET										2			
	(27)	VU METER PANEL	3	SET						3							
	(28)	VU METER	1	SET	1												
	(29)	TALLY INTERFACE UNIT	3	SET			1		1								1
	(30)	STEREO HEAD PHONE	10	SET	2				1	2		1		1	1		2
	(31)	DIGITAL MONITOR SELECTOR	2	SET	2												
	(32)	MONITOR SELECTOR	2	SET					2								
	(33)	MONITOR SHELF	4	SET			4										
6.		**EDITING SYSTEM**															
	(1)	NONLINEAR EDITING SYSTEM	1	SET											1		
	(2)	1 to 1 EDITING SYSTEM	1	SET											1		
	(3)	DIGITAL AUDIO WORKSTATION	1	SET										1			
7.																	
	(1)	CASSETTE TAPE RECORDER	6	SET	1		1		1	1		1		1			
	(2)	COMPACT DISC RECORDER	9	SET	1		1		1	2		2		1			1
	(3)	DIGITAL AUDIO TAPE RECORDER(DESKTOP TYPE)	6	SET	1		1		1	1		1		1			
	(4)	PORTABLE DAT RECORDER	1	SET						1							
8.		**AUDIO EQUIPMENT**															
	(1)	AUDIO DISTRIBUTION AMP.	2	SET						1		1					
	(2)	TB SPEAKER	2	SET							1		1				
	(3)	BT SPEAKER	1	SET										1			
	(4)	TB/MONITOR CONTROL UNIT	2	SET								1		1			
	(5)	WORD SYNC GENERATOR	3	SET						1		1		1			
	(6)	WORD SYNC GENERATOR	2	SET			1		1								
	(7)	AUDIO A/D D/A CONVERTER	1	SET			1										

Table 2-2-6(1) Equipment Installation Plan

No.		Item	Quantity		Place where the Equipment is tobe installed												
					1	2	3	4	5	6	7	8	9	10	11	12	13
					TV Master Control Room	TV Studio	TV Studio-Sub	TV NEWS STUDIO	TV NEWS STUDIO-SUB	RADIO MASTER	RADIO STUDIO	RADIO STUDIO-SUB	RADIO CONTINUTY STUDIO	RADIO CONTINUTY STUDIO-SUB	EDITING ROOM	ELECTRONICS TRAINING ROOM	OB VAN
	(8)	GRAPHIC EQUALIZER	1	SET										1			
	(9)	WORD SYNC DIVIDING AMP.	2	SET								1		1			
	(10)	MULTIEFFECT PROCESSOR	2	SET								1		1			
	(11)	MULTI SIGNAL PROCESSOR	2	SET			1		1								
	(12)	ANNOUNCE COUGH CONTROLLER	1	SET										1			
9.		**INTERCOM SYSTEM**															
	(1)	INTERCOM MAIN STATION	3	SET			1		1								1
10.		**MICROPHONE**															
	(1)	CONDENSER MICROPHONE	5	SET		4											1
	(2)	DYNAMIC MICROPHONE	8	SET		5											3
	(3)	LAVALIERE MICROPHONE	5	SET		5											
	(4)	HAND GRIP	1	SET													1
	(5)	WIND SCREEN	1	SET													1
	(6)	CARING CASE	1	SET													1
	(7)	MICROPHONE BOOM STAND	3	SET													3
	(8)	MICROPHONE TABLE STAND	2	SET													2
11.		**VEHICLE**															
	(1)	ORIGINAL CHASSIS	1	SET													1
	(2)	MODIFICATION FOR OB VAN	1	SET													1
	(3)	ENGINE GENERATOR SET	1	SET													1
	(4)	AIR CONDITIONER	2	SET													2
	(5)	INSTALLATION MATERIALS for A/V AREA	1	SET													1
12.		**COMMUNICATION SYSTEM･OTHERS**															
	(1)	LAND MOBILE TRANSCEIVER	1	SET													1
	(2)	LAND MOBILE TRANSCEIVER W/ANTENNA	1	SET													1
	(3)	WALKY TALKY	3	SET													3
	(4)	RAPID CHARGER AND Ni-cd BATTERY PACK	0	SET													
	(5)	AVR (5KVA)	1	SET													1
	(6)	PORTABLE LIGHTING KIT	1	SET													1
	(7)	CLOCK	1	SET													1
	(8)	AUDIO EQUIPMENT WAGON	2	SET							1		1				
	(9)	RISING-SUN STICKER(2cm x 3cm)	1000	SET													
	(10)	RISING-SUN STICKER(6cm x 9cm)	1000	SET													
	(11)	RISING-SUN STICKER(14cm x 20cm)	500	SET													
13.		**INTERFACE**															
	(1)	DIGITAL INTERFACE UNIT (A／V MULTIPLEX)	1	SET	1												
	(2)	DIGITAL INTERFACE UNIT(IN/OUT SIGNAL	1	SET	1												
	(3)	DIGITAL INTERFACE UNIT(AUDIO SIGNAL	2	SET			1		1								
	(4)	DIGITAL INTERFACE UNIT(AUDIO SIGNAL	1	SET	1												
	(5)	DIGITAL INTERFACE FRAME	1	SET						1							
	(6)	AUDIO INTERFACE UNIT	2	SET						1				1			
	(7)	ANALOG INTERFACE UNIT	1	SET								1					
	(8)	INTERFACE UNIT	3	SET	1		1		1								
	(9)	DIGITAL INTERFACE FRAME	2	SET			1		1								
	(10)	CAMERA CONNECTING PLATE FOR STUDIO	2	SET		1		1									
	(11)	A/V CONNECTING PLATE FOR STUDIO	1	SET		1											
	(12)	MICROPHONE CONNECTOR PANEL	1	SET				1									
	(13)	I/O CONNECTOR PANEL	1	SET													1
	(14)	I/O CONNECTOR PANEL	10	SET						10							
	(15)	MC-34 CONNECTOR PANEL	1	SET						1							
	(16)	STUDIO SPEAKER CONNECTOR BOX	2	SET				2									
	(17)	ANALOG AUDIO DELAY	3	SET	3												
	(18)	LINE CONVERTER	1	SET	1												
	(19)	110 - 75/75-110 CONVERTER	1	SET													1
	(20)	CONNECTOR BOX	1	SET					1								
	(21)	STUDIO SPEAKER CONNECTOR BOX	3	SET								1		2			
	(22)	4CH MICROPHONE CONNECTOR FOR STUDIO	1	SET									1				
	(23)	8CH MICROPHONE CONNECTOR FOR STUDIO	2	SET								2					
	(24)	A/V SIGNAL I/O BOARD	1	SET													1
	(25)	AUDIO JACK PANEL	1	SET													1
	(26)	VIDEO JACK PANEL and CABLE	2	SET													2
	(27)	ANALOG AUDIO JACK PANEL	3	SET						3							
	(28)	ANALOG AUDIO PATCH PANEL	4	SET								2		2			
	(29)	DIGITAL AUDIO JACK PANEL	3	SET						3							
	(30)	DIGITAL AUDIO PATCH PANEL	2	SET								1		1			
14.		**CABLE**															
	(1)	TRIAX CAMERA CABLE 10M	7	SET		3		1									3
	(2)	TRIAX CAMERA CABLE 30M	1	SET				1									
	(3)	TRIAX CAMERA CABLE 50M	3	SET		3											
	(4)	TRIAX CAMERA CABLE 100M	3	SET													3
	(5)	CABLE REEL FOR CAMERA CABLE	4	SET		3		1									
	(6)	MICROPHONE CABLE	17	SET		10		1									6
	(7)	AUDIO MULTI CABLE w/REEL	1	SET													1
	(8)	CABLE REEL FOR CAMERA CABLE. 100M	3	SET													3
	(9)	AC CABLE W/REEL 100m	1	SET													1
	(10)	AUDIO PLUG/JACK BOX	1	SET													1
	(11)	AUDIO MULTI CABLE	1	SET													1
	(12)	AUDIO MULTI CABLE REEL	1	SET													1
	(13)	AUDIO PATCH CABLE	1	SET						1							
	(14)	ANALOG AUDIO PATCH CABLE	2	SET								1		1			
	(15)	DIGITAL AUDIO PATCH CABLE	2	SET								1		1			
	(16)	A/V PATCHCABLE	1	SET	1												
15.		**TRAINING KIT**															

Table 2-2-6(1) Equipment Installation Plan

No.		Item	Quantity		Place where the Equipment is tobe installed												
					1	2	3	4	5	6	7	8	9	10	11	12	13
					TV Master Control Room	TV Studio	TV Studio-Sub	TV NEWS STUDIO	TV NEWS STUDIO-SUB	RADIO MASTER	RADIO STUDIO	RADIO STUDIO-SUB	RADIO CONTINUTY STUDIO	RADIO CONTINUTY STUDIO-SUB	EDITING ROOM	ELECTRONICS TRAINING ROOM	OB VAN
	(1)	AUDIO D/A CONVERTER BOARD	1	SET												1	
	(2)	AUDIO A/D CONVERTER BOARD	1	SET												1	
	(3)	VIDEO D/A CONVERTER BOARD	1	SET												1	
	(4)	VIDEO A/D CONVERTER BOARD	1	SET												1	
	(5)	INTERFACE UNIT(FOR TRAINING)	1	SET												1	
	(6)	8BIT BOARD MICRO COMPUTER	1	SET												1	
	(7)	PC INPUT BOARD(IBMPC-ATBUS9	1	SET												1	
	(8)	I/O BOARD(FOR KENTAC980)	1	SET												1	
	(9)	PC I/O BOARD(PCI BUS)	1	SET												1	
	(10)	PC I/O BOARD(PC98 BUS)	1	SET												1	
	(12)	DC SERVO TRAINING UNIT	1	SET												1	
	(11)	STEP MOTOR ASSEMBLY	1	SET												1	
	(12)	STEP MOTOR POSITIONING UNIT	1	SET												1	
	(13)	8BIT A/D, D/A TRAINING UNIT	1	SET												1	
	(14)	8BIT A/D, D/A CONVERTER BOARD	1	SET												1	
	(15)	A/D, D/A LOAD UNIT	1	SET												1	
	(16)	OPTICAL MODEM TRAINING SET	1	SET												1	
	(17)	SSR UNIT	1	SET												1	
	(18)	TRAFFIC SIGN UNIT	1	SET												1	
16.		**MEASURING EQUIPMENT**															
	(1)	TEST CHART SET	2	SET		**1**		**1**									
	(2)	TEST CHART STAND	2	SET		**1**		**1**									
	(3)	TEST CHART	1	SET													**1**
	(4)	SYNC GENERATOR	1	SET													
	(5)	VIDEO ANALYZER	1	SET													
17.																	
	(1)	SYSTEM RACK	10	SET	**1**		**1**		**2**	**4**					**1**		**1**
	(2)	VE OPERATION CONSOLE	2	SET	**1**		**1**										
	(3)	OPERATION DESK for CG	1	SET	**1**												
	(4)	CHAIR	27	SET	**3**		**7**		**3**	**2**		**2**		**5**	**2**		**3**
	(5)	OPERATION DESK	3	SET			**2**		**1**								
	(6)	AUDIO OPERATION DESK	1	SET						**1**							
	(7)	OPERATION DESK for CHARACTER GENERATOR	1	SET					**1**								
	(8)	EDITING DESK	1	SET											**1**		
	(9)	SIDE RACK	1	SET											**1**		
	(10)	MIXER TABLE	1	SET										**1**			
	(11)	RACK POWER PANEL	4	SET								**3**		**1**			
	(12)	DAW PEDESTAL	1	SET										**1**			
	(13)	MIXER TABLE	1	SET								**1**					
18.		**CONSUMABLES**															
	(1)	CD-R/W	135	SET													
	(2)	VIDEO CASSETTE TAPE(60MIN)	135	SET													
	(3)	DAT TAPE	135	SET													
19.					**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**		

Table 2-2-6 (2/3) Equipment Installation Plan

Table 2-2-6 (3/3) Equipment Installation Plan

2-2-3 Basic Design Drawings

The basic design drawings of the project are shown in the following.

Number	Item
IM-G-01	Overall Layout of Multi Media Training Center
IM-G-02	Ground Floor Plan of Multi Media Training Center
IM-B-01	Block Diagram for TV Master Control Room (1)
IM-B-02	Block Diagram for TV Master Control Room (2)
IM-B-03	Block Diagram for TV Master Control Room (3)
IM-B-04	Block Diagram for TV Production Studio (1)
IM-B-05	Block Diagram for TV Production Studio (2)
IM-B-06	Block Diagram for TV Production Studio (3)
IM-B-07	Block Diagram for TV Production Studio (4)
IM-B-08	Block Diagram for TV Production Studio (5)
IM-B-09	Block Diagram for TV News Continuity Studio (1)
IM-B-10	Block Diagram for TV News Continuity Studio (2)
IM-B-11	Block Diagram for TV News Continuity Studio (3)
IM-B-12	Block Diagram for TV News Continuity Studio (4)
IM-B-13	Block Diagram for TV News Continuity Studio (5)
IM-B-14	Block Diagram for TV OB Van (1)
IM-B-15	Block Diagram for TV OB Van (2)
IM-B-16	Block Diagram for TV OB Van (3)
IM-B-17	Block Diagram for TV OB Van (4)
IM-B-18	Block Diagram for TV OB Van (5)
IM-B-19	Block Diagram for Non-Linear Editing System (1)
IM-B-20	Block Diagram for Non-Linear Editing System (2)
IM-B-21	Block Diagram for 1 to 1 Editing Equipment
IM-B-22	Block Diagram for Radio Master Control Room (1)
IM-B-23	Block Diagram for Radio Master Control Room (2)
IM-B-24	Block Diagram for Radio Continuity Studio
IM-B-25	Block Diagram for Digital Audio Work Station
IM-B-26	Block Diagram for Radio Studio-1
IM-A-01	New Equipment Layout in TV Master Control Room
IM-A-02	New Equipment Layout in TV Sub-control Room
IM-A-03	New Equipment Layout in TV Production Studio
IM-A-04	New Equipment Layout in TV News Continuity Studio
IM-A-05	New Equipment Layout in Radio Master Control Room
IM-A-06	New Equipment Layout in Radio Sub-control Room
IM-A-07	New Equipment Layout in Radio Studio-1
IM-A-08	New Equipment Layout in Radio News Continuity Studio
IM-A-09	New Equipment Layout in Video Editing Room
IM-AE-01	Existing Equipment Layout in TV Master Control Room
IM-AE-02	Existing Equipment Layout in TV Sub-control Room
IM-AE-03	Existing Equipment Layout in Production Studio
IM-AE-04	Existing Equipment Layout in Editing Room
IM-AE-05	Existing Equipment Layout in Radio Master Control Room
IM-AE-06	Existing Equipment Layout in Radio Sub-control Room

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2-2-4 Implementation Plan

(1) Implementation Policy

The project will be implemented within the framework of the grant aid system of Japanese government. Accordingly, the project will only be implemented after the approval by the government of Japan and the formal Exchange of Notes (E/N) between the Government of Japan and the Government of Indonesia. The basic points of consideration for the implementation of the project are described below.

1) Project implementation body

Although the organization that is responsible for the implementation of the project on the Indonesian side is LIN at this point, the responsible organization may have changed from LIN when the facility is to be used. In any case, the responsible organization and MMTC are required to select the representatives responsible for supervising the project. The representatives need to communicate closely and have discussions with the Japanese consultant and contractors for the smooth progress of the project. The representatives on behalf of the Government of Indonesia needs to explain to concerned organizations and parties so they will fully understand the project in order to obtain cooperation from them in implementing the project.

2) Consultant

The Japanese consultant will conclude a consultancy agreement on design and supervision with MMTC for procurement and installation of equipment in the project. The consultant will conduct the design (preparation of tender documents) and supervision (tender on behalf of the project implementation body and procurement supervision) of the work involved in the project

3) Contractor

The contractor, which will be a Japanese trading house as an authorized Japanese corporation. The contractor shall be undertaken the procurement and delivery of equipment in accordance with the specification and time schedule stated in tender document.

As it is deemed necessary for the contractor to provide after-care in terms of the supply of spare parts and the repair of breakdowns after the completion of the project.

4) Necessity to dispatch of engineers

Because the installation work and adjustment and tests of the broadcasting equipment in the project after the installation require a high level skill, it is necessary to dispatch Japanese engineers to provide quality control, technical instruction and schedule control.

Many staff and instructors of MMTC have been trained in Japan, and they have a certain level of operation and maintenance skills of broadcasting equipment. Thus, currently existing equipment are kept in a good condition in general. Although staff and instructors of MMTC are used to operating, maintaining and managing old-fashioned equipment, they are not used to the latest equipment. It is necessary to dispatch Japanese engineers to provide instruction on operation and maintenance of the new equipment when it is installed under the project.

(2) Implementation Conditions

1) Conditions of construction and electric engineering works

Construction and electric engineering companies conduct engineering works in the projection site of Yogyakarta. However, there are few companies that conduct installation works of broadcasting equipment. Because there are few such works and the works require a high-level and unique skill. Thus, it is necessary to dispatch engineers from Japan for the installation works of the broadcasting equipment, who will provide technical instructions and conduct quality control and schedule control.

2) Use of local materials and equipment

Materials and equipment will be procured locally as much as possible.

(3) Scope of Works

The Japanese side is responsible for the procurement and installation of broadcasting equipments and the Indonesian side is responsible for the necessary removal and reform of currently used equipment. The division of work between the two countries is shown in Table 2-2-7.

Table 2-2-7 Division of Work between Japanese Side and Indonesian Side

Work Item	Division of Work		Notes
	Japanese Side	Indonesian Side	
(1) Procurement of equipment including spare parts	○		
(2) Inland transportation of equipment	○		
(3) Installation of equipment	○		
(4) On-site tests and adjustment after installation	○		
(5) Removal of existing equipment from the place where the equipment for training procured by the Japanese side is to be installed		○	To be completed before the Japanese side begins work

(Note): ○ indicates the side responsible for the work.

(4) Consultant Supervision

1) Basic policy on supervision of work and procurement

The consultant will organize a project team in accordance with Japan's grant aid scheme and the concept and principles of the basic design in order to smoothly proceed with the implementation of the project in terms of implementation design and supervision of works. The consultant will also dispatch engineers as necessary in accordance with the progress of the works including the installation of equipment, on-site tests and adjustment after the completion of installation works. They will supervise the works and conduct schedule control, quality control and safety control to be conducted by the contractor. The consultant will also examine the materials and equipment manufactured in Japan before they are shipped to Indonesia and manage them to prevent any trouble that may occur after they are brought into the project site.

The main points to be noted for the supervisory work are described below.

① Schedule Control

The consultant will make weekly and monthly comparisons between the actual work progress and the contract schedule submitted by the contractor at the time of signing the contract on the following items. If the consultant foresees any delay of the work, he will issue a warning to the contractor, requesting that the latter submit a remedial plan to ensure the completion of the construction work and equipment delivery within the planned work period.

a. Quantity of the work conducted (including the volume on the site and volumes of manufactured equipment by the manufacturers and shipped equipment)
b. Confirmation of delivery of equipment
c. Confirmation of work efficiency and actual number of engineers, technicians and workers at work

② Quality control

The consultant will supervise the contractor in regard to the following items to check the equipment to be purchased in accordance the quality of the equipment and materials indicated in the contract documents. If the consultant believes that the quality does not meet the requirements after checking, he will demand that the contractor correct, change or modify the situation.

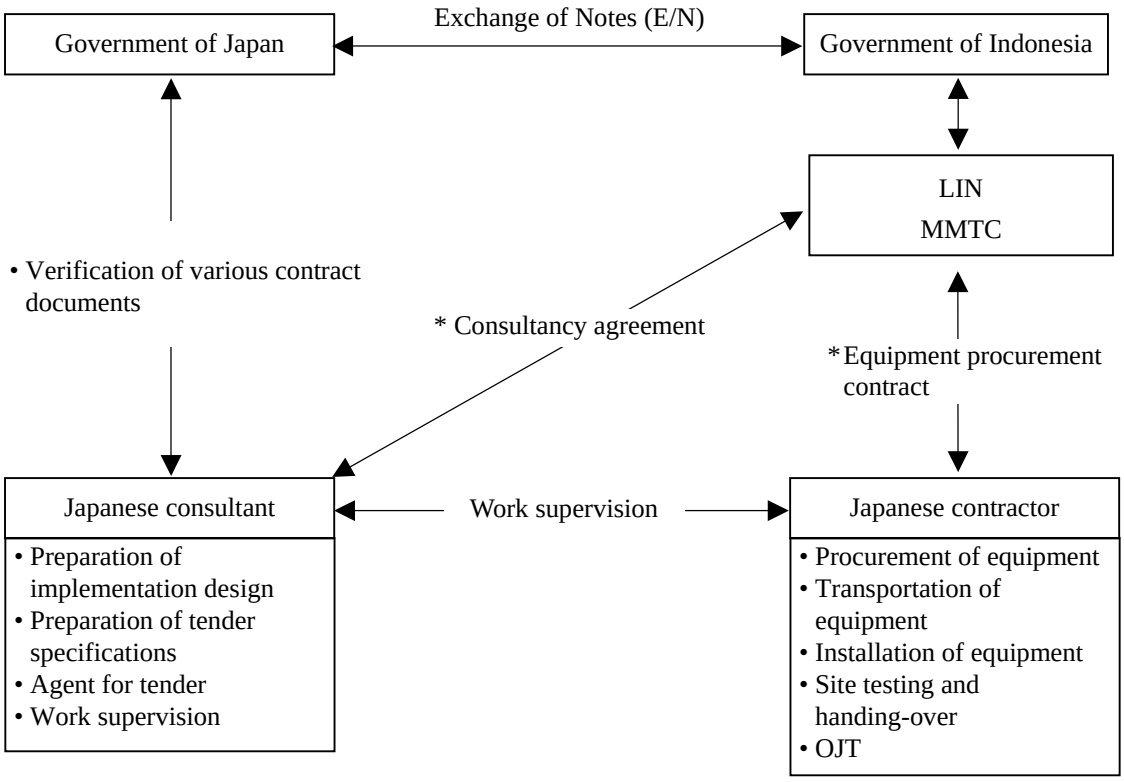
a. Checking of specifications of the used equipment
b. Checking of the shop drawings and specifications of the equipment
c. Attendance at the shop inspection checking of the factory inspection results for the equipment
d. Checking of the installation manuals
e. Checking of the test running, adjustment and inspection manuals for the equipment
f. Supervision of the site installation of the equipment and attendance at the test running, adjustment and inspection.

③ Safety control

The consultant will discuss and cooperate with the representative of the contractor responsible for safety control with a view to supervising the on-site construction and installation work to prevent any accidents to workers and the third party. Attention should be paid to the following safety control principles.

a. Establishment of safety control rules and appointment of a person responsible for work safety
b. Establishment of traffic route of work vehicles and transportation machinery and ensuring safe driving
c. Enforcement of welfare measures and days-off for workers

The project implementation regime, i.e. relationship between the parties involved in the implementation of the project, including at the work supervision stage, is shown in Fig. 2-2-1.



* Note: The consultancy agreement and work contract must be verified by the Government of Japan.

Fig. 2-2-1 Relation among Parties Involved in the Project

2) Work supervisors

The contractor is responsible for the procurement, delivery and installation of the equipment. The contractor dispatches engineers to the site who have experiences in a similar project overseas in order to ensure that local subcontractors are thoroughly aware of the work schedule, quality and safety stipulated in the contract for implementing the project. The engineers will provide guidance and train the local subcontractors.

(5) Quality Control Plan

The equipment procured in Japan should be confirmed to conform to technical specifications requested by the consultant at the factory inspection before they are shipped. The consultant should conduct a factory inspection of the equipment procured in a third country before they are shipped for quality control. During the work, quality

control should be conducted in accordance with work management standards described in the work guidelines.

(6) Procurement Plan

Main equipment procured under the project is not manufactured in Indonesia and thus it is procured from Japan.

(7) Implementation Schedule

The project will be implemented as follows in accordance with Japan's grant aid scheme.

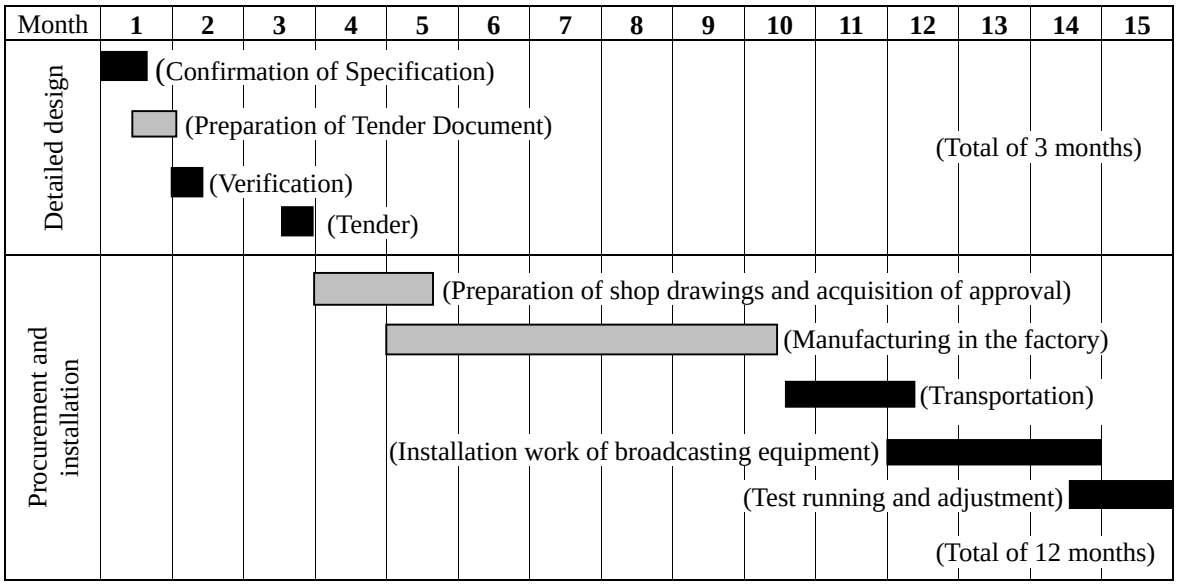


Fig. 2-2-2 Project Implementation Schedule

2-3 Obligations of Recipient Country

2-3-1 Obligations

The Indonesian side is responsible for the following in addition to the responsibilities of the Indonesian side shown in the "Work classification/procurement and installation" in 2-2-4 (3).

1) Supply of information and data necessary for the project

2) Procedures for tax exemption at Indonesian ports for equipment for the project and ensuring the speedy unloading and customs clearance of the equipment

3) Permission for Japanese nationals to enter or stay in Indonesia in relation with the supply of products and services under the verified contract

4) Ensuring the Japanese nationals to be exempt from internal taxes or customs duties usually imposed on them in Indonesia in relation with the supply of products and services under verified contract

5) Payments of handling fees to Japanese banks for opening bank accounts

6) Payment of banking charge to Japanese nationals to be implemented under the verified contract.

7) All expenses not covered within the framework of Japan's grant aid scheme in implementing the project.

8) Attendance at equipment inspection.

9) Appointment of engineers or technicians as exclusive counterpart engineers and technicians for transfer of operation and maintenance techniques.

10) Procedures for power cut necessary during the installation work of equipment.

11) Proper and effective use and maintenance of equipment procured under Japan's grand aid scheme.

12) Removal of existing analog equipment before new equipment shipment.

2-3-2 Funding by Indonesian Side

The required funding by the Indonesian side is shown in Appendices.

2-4 Project Operation Plan

2-4-1 Operation and Maintenance System

(1) Equipment Maintenance Plan

MMTC should be required to replace the equipment under its own budget based on maintenance plan which aiming at independent management as a broadcasting training institution. Therefore, equipment maintenance plan will be considered periodic replacement of the equipment under the project. Equipment maintenance plan is shown in Table 2-4-1.

Consumable parts to be daily expired and constant use parts such as DAT tape, tape cleaning roller, etc. will be changed constantly. Head for cassette tape and VTR, etc. will be changed every 3 years considering their physical life span. Major equipment such as VTR, editing system, etc. will be renewed after 10 years of the project operation considering depreciation and technology renovation. In case of Japanese broadcasting stations, AV equipment is mostly renewed at 6-7 years intervals. However, MMTC is training institution and does not require the latest equipment. It is planned replacement of the equipment is implemented at 10 years intervals considering less operation ratio than broadcasting stations.

Table 2-4-1 Equipment Maintenance Plan

Time to be changed	Changeable Parts or Equipment
Every year	DAT Tap, CD-R, Cassette Tape, Tape Cleaning Roller, CRT (Cathode Ray Tube), Audio Jack Panel, Cable, etc.
Overhaul at three years intervals	DAT Tap, CD-R, Cassette Tape, Tape Cleaning Roller, CRT, Audio Jack Panel, Cable, Tape Head for Cassette Tape Recorder, Tape Head for VTR, Printed Circuit Board for Switching Board, View Finder for TV, etc.
Replacement after 10 years	Complete Set of VTR, Complete Set of DAT, Complete Set of TV Camera, Complete Set of Non-Liner Editing System, Complete Set of Computer Graphics including Software, etc.

(2) Daily and Regular Checks

Equipment breaks less frequently because of improved reliability, longer durability and decrease in components of electronic parts. This has made maintenance of the equipment unnecessary, and maintenance checks are conducted less frequently in Japan.

However, because conditions of equipment are not known because of the lack of measuring equipment, it is necessary to provide necessary minimum measuring equipment for daily and regular checks to prevent accidents.

Because equipment made in Japan is used in the project, it can be operated and maintained in the same manner as done in Japan. Measuring equipment necessary for daily and regular checks of training equipment is shown in Table 2-4-2.

Table 2-4-2 Necessary Measuring Equipment for Checks

Contents of checks	Checks	Necessary measuring equipment
Daily checks, pre-operation checks	Visual check of various meters and display of breakdowns	Digital tester
	Visual check of connecting areas	Tool set
Biannual checks (characteristics tests)	Measurement of the characteristics of video and audio equipments (frequency characteristics, S/N), distortion rate, level diagram	Video signal measuring equipment
	Power sources, various voltage measurements	Oscilloscope, digital tester

2-4-2 Spare parts Purchase Plan

Warranty period is to be one year covered by the supplier under the project. Minimum necessary consumables i.e. tape, etc. for one year are to be included in the equipment to be purchased. The Indonesian side should purchase necessary spare parts by the end of the next year after completion of the project in accordance with to budgetary plan for additional spare parts. List of spare parts at 3 years interval and consumables are shown in Table 2-4-3.

Table 2-4-3 List of Spare parts

Item	Discription	Quantity									Total
		TV master Control Room	TV Production Studio	TV Continuity Studio	TV OB-Van	Non-Liner Editing System	1 to 1 Editing System	Radio Master Control Room	Radio Continuity Studio	Radio Studio 1	
1. Tool	Tool sets	1 lot				1 lot	1 lot			1 lot	4 lots
	Alignment tape						1 lot				1 lot
2. Spars Parts	Digital Video Tape Recorder/Player	2 lots	2 lots	2 lots	2 lots		2 lots				10 lots
	Parts for Mixing Console								1 lot	1 lot	2 lots
	Parts for Cassette Tape Recorder	1 lot	1 lot								2 lots
	Parts for Telephone Hybrid					1 lot			1 lot	1 lot	3 lots
	Parts for Non-Liner Editing System					1 lot					1 lot
	Distribution Amp. Board							1 lot	1 lot	1 lot	3 lots
	Parts for Computer Graphics		1 lot								1 lots
	View Finder		2 sets								2 sets
	Color Monitor Board	3 sets	3 sets	1 set	2 sets						9 sets
	9" CRT	1 set	1 set								2 sets
	9" Color Monitor			1 set	1 set						2 sets
	Mechanical Block for CD Recorder	1 set	1 set		1 set			1 set	1 set	1 set	6 sets
	I/O Board	1 lot	1 lot								2 lots
	Converter Board							1 lot			1 lot
	Interface Unit	1 lot	1 lot					1 lot	1 lot		4 lots
	Audio Cable	20 sets									20 sets
	Patch Cable	10 sets									10 sets
	Extension Cable			14 sets							14 sets
	Power Cable	1 set									1 set
	Extension Board	3 sets									3 sets
	Board for Camera		5 sets								5 sets
	Stereo Headphone	1 set								1 set	2 sets
	Headset		1 set	1 set	1 set						3 sets
	Cassette Tape Recorder			1 set				1 set	1 set	1 set	4 sets
	Battrey Pack				1 lots						1 lot
	Tally Lamp								2 sets		2 sets
	Memory Card									1 set	1 set
3. Consumables	CD-RW					1 lot	1 lot	1 lot	1 lot	1 lot	5 lots
	Digital Video Cassette Tape	1 lot	1 lot	1 lot	1 lot	1 lot	1 lot				6 lots
	Digital Audio Cassette Tape					1 lot	1 lot	1 lot	1 lot	1 lot	5 lots

2-4-3 Operation and Maintenance Cost

MMTC should be required to replace the equipment to be purchased under the Project for its sustainable operation in future. Thus, it is required to formulate an operation and maintenance plan considering equipment cost for the periodic replacement stated in Section 2-4-1 in addition to the maintenance cost for the existing and new equipment. The operation and maintenance cost for the existing equipment to be withdrawn is included in the plan in response to the intention of the Indonesian side.

The maintenance and operation plan is formulated for the following three cases of the equipment maintenance cost ratio against the operation cost of MMTC, and each case is examined.

a) Case-1: The maintenance cost accounts for 20% of the operation cost of MMTC (This ratio is the lowest in the past 5-year record).

b) Case-2: The maintenance cost accounts for 23% of the operation cost of MMTC (This ratio is the average in the past 5-year record).

c) Case-3: The maintenance cost accounts for 26% of the operation cost of MMTC (This ratio is based on the budget approved by the government for the year of 2002).

The operation and maintenance cost of MMTC consists of the routine budget and a part of income from Non-regular program.

(1) Preconditions

Assumptions for three cases stated above are made by the following preconditions.

- An assumption of operation cost is made based on the routine budget (DIK) of MMTC in 2002 (fixed price at the year 2002).
- Maintenance cost is assumed on the basis of the year 2002. Maintenance cost for equipment should be excluded building and office yard maintenance, and vehicle maintenance cost (maintenance cost for equipment is 90% of total maintenance cost on the average in the past).
- Operation ratio of the existing equipment after their relocation is assumed by 60%, maintenance cost is also applied for 60%.
- New equipment will be operated from October 2003. Its maintenance cost under the Project is secured by MMTC from October 2004 (3 months for the year 2004, and one full year for the year 2005 and afterwards). Thus calculation is made for

the maintenance cost of the existing equipment as follows. For the year 2003, a full scale of the maintenance cost for 9 months from January to September, and 60% of the full scale for 3 months from October to December (maintenance cost of 2002 budget x 9/12 + maintenance cost of 2002 budget x 60% x 3/12 = maintenance budget to be required for 2003). (Maintenance cost of 2002 budget x 60% x 12/12 = maintenance budget to be required for 2004 and afterwards)

- According to the Operation and Maintenance Plan stated in Section 4-1, the major equipment shall be replaced after 10 years. In order to secure the necessary budget (Rp.16,000 million) for replacement, MMTC is required to reserve a fund (Rp.1,600 million) per annum.
- A part of the equipment to be purchased under the Project will be renewed after 10 years as mentioned in Section 2-4-1. An annual reserved fund of Rp.1,600 million (approximately 20 million Japanese Yen) is required in order to secure the budget for the renewable equipment.
- The maintenance budget is required for both the annual maintenance and overhaul maintenance to be implemented every 3 years. The overhaul maintenance budget is estimated at Rp.1.360 million (approximately 17million Japanese Yen), and the annual maintenance budget is estimated at Rp.240 million (approximately 3 million Japanese Yen).
- The maintenance cost for the new equipment in 2004 is to be Rp.240 million x 3/12 for 3 months from October to December.
- The income amount from Non-regular Program is estimated by the MMTC side.

(2) Estimation Results of Maintenance Cost

Assumptions for the three cases are shown in Table 3-5-1(A) to (C) on the basis of the preconditions stated above.

The accumulated balances will be in deficit in both Case-1 and Case-2. It means that the budget allocation is not enough. The reserved fund for replacement of the equipment in Case-1 will fall short of Rp.5,420 million (68 million Japanese Yen). In Case-2, the fund will be short of Rp.919 million (12 million Japanese Yen).

In Case-3, the overhaul maintenance of the new equipment required every 3 years will generate some deficits, but the accumulated balance will generate a surplus of Rp.3,940 million (49 million Japanese Yen). Thus MMTC operation will be sustainable in the year 2004 and afterwards in terms of the routine budget (DIK) at the level of 2002.

MMTC fully recognized importance of maintenance and operation budget derived from the above assumption and will make much efforts towards securing the sufficient budget after the project implementation in accordance with the above assumption. Maintenance ratio of 26% in operation budget of the year 2002 is to be possible judging from the ratio is within the range (20%-32%) of past performance

In addition to that, although the cost for electricity consumption will increase due to the installation of the new equipment, it will not have a significant impact on the operation cost because first, the electricity cost has accounted for some 5% of the total operation cost in the past, and second, the frequency of utilizing the existing equipment will be reduced significantly.

Notes 1) Amounts of Year 2001 are actual figures.
2) Amounts of Year 2002 are approved by the Government.
3) Amounts of Year 2003 and after are forecasts.
4) Exchange rate: One Japanese Yen is equivalent to Rp.80.

Table 2-4-4(A) MMTC Operation and Maintenance Budget/Cost Assumption (Case 1: 20%)

Rp. Million

					1	2	3	4	5	6	7	8	9	10	
	Item	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
A.	Operation Budget (Routine Budget)	13657	15005	15005	15005	15005	15005	15005	15005	15005	15005	15005	15005	15005	
B.	Maintenance Budget (A x20%)	3132	3937	3001	3001	3001	3001	3001	3001	3001	3001	3001	3001	3001	
C.	Income from Non Regular Program	270	700	700	700	700	700	700	700	700	700	700	700	700	
D.	Total Maintenace Budget (B+C)	3402	4637	3701	3701	3701	3701	3701	3701	3701	3701	3701	3701	3701	
E.	Maintenance Budget for Exist.Equipment	2776	3475	3128	2085	2085	2085	2085	2085	2085	2085	2085	2085	2085	
F.	Newly Incremental Maintenance Budget for				60	240	1360	240	240	1360	240	240	1360	240	16000
G.	Total Required Maintenance Budget after Project Implementation (E+F)				2145	2325	3445	2325	2325	3445	2325	2325	3445	2325	
H.	Reserve for Equipment Replacement after 10 years (Rp.16,000million)				1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	-16000
I.	Total Required Maintenance and Replacement Cost (G+H)				3745	3925	5045	3925	3925	5045	3925	3925	5045	3925	
J.	Balance (I-D)				-44	-224	-1344	-224	-224	-1344	-224	-224	-1344	-224	
K.	Accumulation of Balance				-44	-268	-1612	-1836	-2060	-3404	-3628	-3852	-5196	-5420	

Table 2-4-4(B) MMTC Operation and Maintenance Budget/Cost Assumption (Case 2: 23%)

Rp. Million

					1	2	3	4	5	6	7	8	9	10	
	Item	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
A.	Operation Budget (Routine Budget)	13657	15005	15005	15005	15005	15005	15005	15005	15005	15005	15005	15005	15005	
B.	Maintenance Budget (A x23%)	3132	3937	3451	3451	3451	3451	3451	3451	3451	3451	3451	3451	3451	
C.	Income from Non Regular Program	270	700	700	700	700	700	700	700	700	700	700	700	700	
D.	Total Maintenace Budget (B+C)	3402	4637	4151	4151	4151	4151	4151	4151	4151	4151	4151	4151	4151	
E.	Maintenance Budget for Exist.Equipment	2776	3475	3128	2085	2085	2085	2085	2085	2085	2085	2085	2085	2085	
F.	Newly Incremental Maintenance Budget for				60	240	1360	240	240	1360	240	240	1360	240	16000
G.	Total Required Maintenance Budget after Project Implementation (E+F)				2145	2325	3445	2325	2325	3445	2325	2325	3445	2325	
H.	Reserve for Equipment Replacement after 10 years (Rp.16,000million)				1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	-16000
I.	Total Required Maintenance and Replacement Cost (G+H)				3745	3925	5045	3925	3925	5045	3925	3925	5045	3925	
J.	Balance (I-D)				406	226	-894	226	226	-894	226	226	-894	226	
K.	Accumulation of Balance				406	632	-262	-35	191	-703	-477	-251	-1145	-919	

Table 2-4-4(C) MMTC Operation and Maintenance Budget/Cost Assumption (Case 3: 26%)

Rp. Million

					1	2	3	4	5	6	7	8	9	10	
	Item	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
A.	Operation Budget (Routine Budget)	13657	15005	15005	15005	15005	15005	15005	15005	15005	15005	15005	15005	15005	
B.	Maintenance Budget (Ax26%)	3132	3937	3937	3937	3937	3937	3937	3937	3937	3937	3937	3937	3937	
C.	Income from Non Regular Program	270	700	700	700	700	700	700	700	700	700	700	700	700	
D.	Total Maintenace Budget (B+C)	3402	4637	4637	4637	4637	4637	4637	4637	4637	4637	4637	4637	4637	
E.	Maintenance Budget for Exist.Equipment	2776	3475	3128	2085	2085	2085	2085	2085	2085	2085	2085	2085	2085	
F.	Newly Incremental Maintenance Budget for				60	240	1360	240	240	1360	240	240	1360	240	16000
G.	Total Required Maintenance Budget after Project Implementation (E+F)				2145	2325	3445	2325	2325	3445	2325	2325	3445	2325	
H.	Reserve for Equipment Replacement after 10 years (Rp.16,000million)				1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	-16000
I.	Total Required Maintenance and Replacement Cost (G+H)				3745	3925	5045	3925	3925	5045	3925	3925	5045	3925	
J.	Balance (I-D)				892	712	-408	712	712	-408	712	712	-408	712	
K.	Accumulation of Balance				892	1604	1196	1908	2620	2212	2924	3636	3228	3940	

Chapter 3

Project Evaluation and Recommendations

CHAPTER 3 PROJECT EVALUATION AND RECOMMENDATIONS

3-1 Project Effect

Current situation and problems	Improvement measures under the Project	Project effects and degree of improvement
1. The existing analog equipment is extremely decrepit and thus needs urgent replacement to establish a stable system to carry out training programs.	AV equipment for the following facility shall be installed. -TV master control room -TV studio 1 -TV continuity studio -TV OB-van -Editing equipment -Radio master control room -Radio continuity studio -Radio studio 1 -Maintenance room -Training room	It will be able to provide complete implementation for 18 training programs under planning.
2. The existing analog equipment is not capable of training persons who will be required for digitalization.	Same as above	The project will be able to develop TVRI and RRI staff who have abilities demanded in digital equipment operation (some 2,000 persons in 10 years)
3. Under expansion of human resources needs in the private broadcasting industry, training needs by MMTC is increasing, but the existing analog equipment will not be able to comply with its demand.	Same as above	The project will be able to develop human resources with digital knowledge for private broadcasting industry.
4. MMTC will not be able to develop human resources with highly specialized knowledge of main tasks in Indonesian broadcasting institution.	Same as above	The project will be able to develop human resources required for Indonesian broadcasting institution for the next generation.
5. MMTC has not accumulated know-how in digital equipment.	Same as above	Instructors of MMTC will be able to gain a good knowledge of digital equipment operation.
6. Even though MMTC receives overseas trainees, its status is decreasing because the equipment is decrepit.	Same as above	MMTC status as a training facility will be increasing

3-1-1 Direct effects

(1) Development of human resources versed in digital equipment

Development of human resources versed in digital equipment is essential not only public but also private mass media in Indonesia. The Project will be able to develop many highly trained persons with digital knowledge.

(2) Reinforcement of training programs

By increasing training efficiency through the implementation of the Project, training programs will be completely implemented as planned without such troubles as happened with the existing analogue equipment.

3-1-2 Indirect effects

(1) Know-how accumulation in digital equipment

By the implementation of the project, digital equipment will be newly installed at MMTC. Teaching staff of MMTC will be able to transfer the advanced technology after they are trained to use the equipment.

(2) Improvement of MMTC status

By the implementation of the project, the importance of MMTC as the sole broadcasting training institute in the country will be increased. This will lead to not only increasing the number of participants from the private broadcasting industry but also transforming it into a more attractive research institute for overseas trainees

3-2 Recommendations

The government of Indonesia needs to carry out the following in order to implement the project as planned.

(1) Removal of existing equipment

Existing equipment needs to be removed before the new equipment is installed. (actually this work shall be finished before shipment.)

(2) Improvement in the ability of teaching staff

For realization of the project effects, teaching staff of MMTC who teach trainees how to operate equipment and editing programs needs to clearly understand the basics of the digital equipment. Although seminars on digital have been provided at random at MMTC, thorough education from basics to application of digital equipment needs to be provided for its teaching staff.

(3) Improvement in teaching materials

Teaching materials need to be improved to meet the needs of the broadcasting industry regardless they are on analog or digital.

MMTC has produced its own teaching materials in cooperation with JICA experts and senior experts and through discussions with related organizations in the country. However, the teaching materials are mainly to handle analog equipment. With the introduction of digital equipment, teaching materials that cover data compression techniques editing systems with digital equipment and measuring techniques and adjustment methods of sound and images, required for handling digital equipment, need to be produced.

APPENDICES -1

MEMBER LIST OF THE STUDY TEAM

Member List of the Study Team

(1) Members of the Field Survey

Name	Work Assignment	Current Position
Mr. Tomoyuki Naito	Leader	Third Project Management Division, Grant Aid Management Department, JICA
Mr. Eiichi Watanabe	Technical Advisor	Assistant Director, International Cooperation Division, International Affairs Department Telecommunications Bureau, Ministry of Public Management, Home Affairs, Posts and Telecommunications (MPHPT)
Mr. Masaaki Ueda	Project Manager	Yachiyo Engineering Co., Ltd.
Mr. Yoshiaki Anzai	Broadcasting Programming Equipment Planner	Yachiyo Engineering Co., Ltd.
Mr. Yutaka Muraki	Broadcasting Transmitting Equipment Planner	Yachiyo Engineering Co., Ltd.
Mr. Kazunari Fukuyama	Cost Estimation / Procurement Planner	Yachiyo Engineering Co., Ltd.

(2) Member for Explanation of Draft Final Report

Name	Work Assignment	Current Position
Dr. Makoto Inaba	Leader	Deputy Resident Representative. JICA Indonesia Office JICA
Mr. Masaaki Ueda	Project Manager	Yachiyo Engineering Co., Ltd.
Mr. Yoshiaki Anzai	Broadcasting Programming Equipment Planner	Yachiyo Engineering Co., Ltd.
Mr. Kiyofusa Tanaka	Broadcasting Transmitting Equipment Planner	Yachiyo Engineering Co., Ltd.

APPENDICES –2

STUDY SCHEDULE

Study Schedule

(1) Itinerary of Field Survey

No	Date	Movement	Activities
1	Nov. 4 (Sun)	Narita - Jakarta	・ Arrived at Jakarta by JL725 (10:50-16:25)
2	Nov. 5 (Mon)	Jakarta-Yogyakarta	・ Courtesy call to Embassy of Japan, JICA Office and LIN ・ Move to Yogyakarta by GA208 (16:45-17:50)
3	Nov. 6 (Tue)		・ Courtesy call to and Discussion with MMTC
4	Nov. 7 (Wed)		・ Explanation of Inception Report ・ Submission of Questionnaire and discussion
5	Nov. 8 (Thu)		・ Discussion with MMTC
6	Nov. 9 (Fri)		・ Discussion with MMTC
7	Nov. 10 (Sat)	Yogyakarta-Jakarta	・ Move to Jakarta by GA205 (11:25-12:30) ・ Internal Meeting
8	Nov. 11 (Sun)		・ Internal Meeting
9	Nov. 12 (Mon)		・ Discussion with LIN ・ Preparation of Minutes of Discussions (M/D)
10	Nov.13 (Tue)	Jakarta-	・ Discussion with LIN and Signing of M/D ・ (Mr. Naito and Mr. Watanabe) Leave Jakarta for Tokyo by JL725 (23:45-8:35)
11	Nov. 14 (Wed)	Narita	・ Discussion with TVRI and RRI ・ Observation of their Studios
12	Nov. 15 (Thu)		・ Discussion with TVTC and RTC ・ Survey for their training facilities
13	Nov. 16 (Fri)		・ Discussion with RCTI and TPI ・ Observation of AV facilities
14	Nov. 17 (Sat)		・ Analysis of data and information
15	Nov. 18 (Sun)	Jakarta- Yogyakarta	・ Internal Meeting ・ Move to Yogyakarta by GA208 (16:45-17:50)
16	Nov. 19 (Mon)		・ Survey for training facilities in MMTC
17	Nov. 20 (Tue)		・ Survey for training facilities in MMTC
18	Nov. 21 (Wed)		・ Survey for training facilities in MMTC
19	Nov. 22 (Thu)		・ Survey for training facilities in MMTC
20	Nov. 23 (Fri)		・ Survey for training facilities in MMTC
21	Nov. 24 (Sat)		・ Internal Meeting
22	Nov. 25 (Sun)		・ Internal Meeting
23	Nov. 26 (Mon)		・ Discussion with MMTC ・ Preparation of Field Report
24	Nov. 27 (Tue)		・ Discussion with MMTC ・ Preparation of Field Report
25	Nov. 28 (Wed)		・ Discussion with MMTC ・ Preparation of Field Report
26	Nov. 29 (Thu)		・ Discussion with MMTC ・ Preparation of Field Report
27	Nov. 30 (Fri)	Yogyakarta-Jakarta	・ Move to Jakarta by GA205 (11:25-12:30)

			・ Report to JICA and LIN
28	Dec. 1 (Sat)		・ Internal Meeting
29	Dec. 2 (Sun)	Jakarta-	・ Leaving for Narita by JL (23:45-8:35)
30	Dec. 3 (Mon)	Narita	・ Arriving at Tokyo

(2) Itinerary of Explanation for the Draft Report

No	Date	Movement	Activities
1	Feb. 19(Tue)	Narita - Jakarta	・ Arrived at Jakarta by JL725 (10:50-16:25)
2	Feb. 20 (Wed)	Jakarta-Yogyakarta	・ Courtesy call to JICA Office and LIN and State Ministry of Communication and Information ・ Move to Yogyakarta by GA208 (16:45-17:50)
3	Feb. 21 (Thu)		・ Explanation of Draft Report at MMTC
4	Feb. 22 (Fri)	Yogyakarta-Jakarta	・ Move to Jakarta by GA205 (11:25-12:30)
5	Feb. 23 (Sat)		・ Internal Meeting
6	Feb. 24 (Sun)		・ Internal Meeting
7	Feb. 25 (Mon)		・ Discussion with MMTC,LIN and State Ministry of Communication and Information ・ Internal Meeting
8	Feb. 26 (Tue)		・ Internal Meeting ・ Preparation of Minutes of Discussions (M/D)
9	Feb. 27 (Wed)	Jakarta-	・ Discussion with LIN and State Ministry, and Signing of M/D ・ Leave Jakarta for Tokyo by JL725 (23:45-8:35)
10	Feb. 28 (Thu)	Narita	・ Arriving at Tokyo

APPENDICES –3

LIST OF PARTIES CONCERNED IN THE RECIPIENT COUNTRY

List of Parties Concerned in the Recipient Country

Name	Position
(Ministry of Communications and Information)	
Dr. J.B.Kristiadi	Secretary
Mr. Mas Wigrantoro R.S	Advisor for the Minister
Ms. Kusumastuti	Deputy of Human Resources
Mr. Rusmiady	Deputy IV
Mr. Aizirman Djusan	Head of Planning Bureau
Mr. Sriwuryatmi	Assistant Deputy for Education and Training
Mr. Amry	Assistant Deputy for Profession Development
(National Information Agency.LIN)	
Mr. Saefudin	Head of LIN
Mr. Sudaryanto	Deputy -LIN
Mr. Idurus Alkaf	Deputy -LIN
Mr. Kustana	Deputy -LIN
Mr. Amsal Asagiri	Deputy Secretary-LIN
Mr. Budi Priono	Head of General Affair Bureci LIN
Mr. M.Siahaan	Assistant Deputy
Mr. Bang Bang Vu	Assistant Deputy
Mr. James Dardede	Assistant Deputy
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Mr. Maurice Simatupany	Deputy Director for General Administration
Mr. AZ Tamadjae	Deputy Director for Academic
Mr. Tugiyo	Deputy Director for Student Activity
Mr. Istyo Hartono	Head of Deputy Student Development
Mr. Syahrir Kandung	Head of Deputy Research & Development
Mr. M. Rusdi	Head of Financial Administrative Director
Mr. Anwar Harsomo	Head of Teaching
Mr. Soeharno	Head of Engineering
Mr. Edi Giantoro	Head Cooperation Unit
Ms. Korina	Secretary for Academic
Mr. Takeo Higuchi	JICA Silver Expert
Mr. Masaharu Enoki	JICA Silver Expert
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Mr. Ruslan Ramelan	Manager Technical & Infrastructure
Mr. Kenno Baihakky	Engineer Studio Equipment

Television Training Center(TVTC)

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Mr. Patnawati	Assistant Manager Planing & Evaluation
Mr. Agus Cugito	

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Mr. Rosito Sada	Senior Manager Division Electric Transmission
Ms. Awauba Erua	Assistant Secretary for Documentation, Public Relations & Protcol
Mr. Kogyami Pabro	Head for Broadcasting Cooperation
Mr. Gun Sukmagunadi	Director Marketing & Working Development
Mr. M. Kabul Budiows	Head for Broadcasting Development
Mr. Suratno	Director Administrator
Mr. Sunendra	Director at Technical

Radio Training Center(RTC)

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Mr. Yohanes	Transmitter Maintenance
Mr. Jodi Durato	Assistant Manager Transmitter Cooperation
Mr. Uneung Saneoso	Technical Studio Manage & Transmitter

Rajawari Citra Television Indonesia(RCTI)

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Ms. Yulia Maroe	Public Relations Officer

PT Television Transformer Indonesia(Trans TV)

Mr. Budiman A.. Dalimunte	Community Development
Ms. Wendi Ruky	News Producer
Mr. Tomi Satryatomo	News Producer

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Mr. Takeshi Okoda	Assistant Resident Representative
Mr. Masayuki Akibayashi	JICA Expert

APPENDICES -4

MINUTES OF DISCUSSION

APPENDICES -5

COST ESTIMATION BORNE BY THE RECIPIENT COUNRY

APPENDICES -6

REFERENCES

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