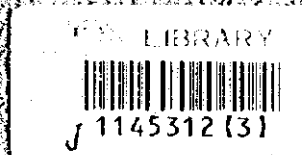


CENTER FOR EDUCATION AND TRAINING OF HEALTH PERSONNEL,
MINISTRY OF HEALTH,
GOVERNMENT OF THE REPUBLIC OF INDONESIA

**BASIC DESIGN STUDY REPORT
ON
THE PROJECT
FOR
HEALTH MANPOWER
TRAINING INSTITUTION DEVELOPMENT
AT
NORTH SULAWESI AND SOUTH SULAWESI
IN
THE REPUBLIC OF INDONESIA**

November, 1997



JAPAN INTERNATIONAL COOPERATION AGENCY
PACIFIC CONSULTANTS INTERNATIONAL





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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 Health Manpower Training Institution Development at North Sulawesi and South Sulawesi, and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Indonesia a study team from 22 June to 20 July 1997. 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.

November, 1997



Kimio Fujita
President

Japan International Cooperation Agency

November, 1997

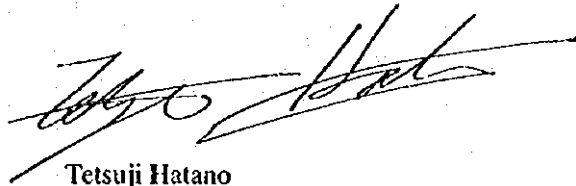
LETTER OF TRANSMITTAL

We are pleased to submit to you the basic design study report on the Project for Health Manpower Training Institution Development at North Sulawesi and South Sulawesi in the Republic of Indonesia.

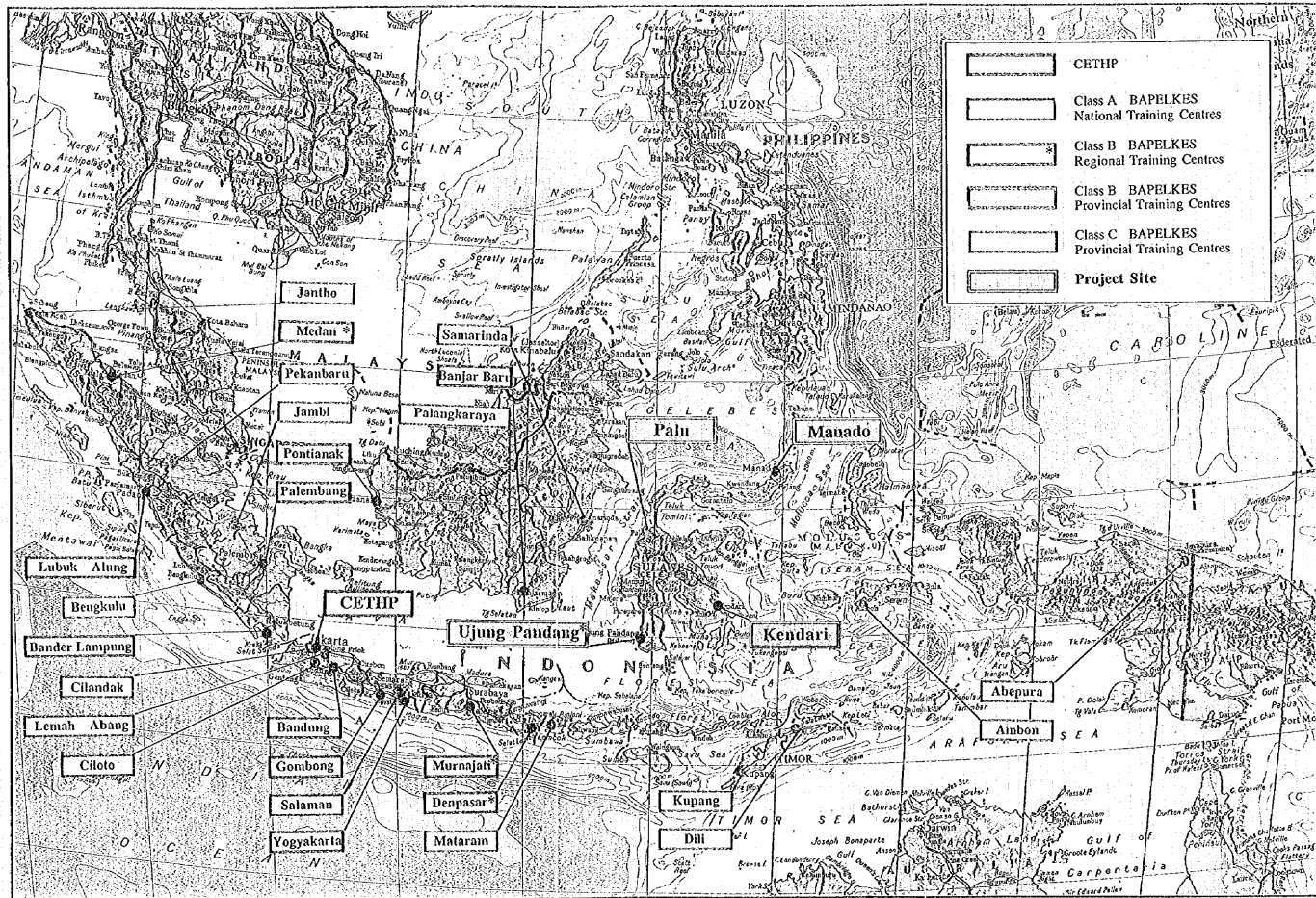
This study was conducted by Pacific Consultants International, under a contract to JICA, during the period from 16 June 1997 to 15 December 1997. In conducting the study, we have examined the feasibility and rationale of the project with due consideration to the present situation of Indonesia and formulated 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.

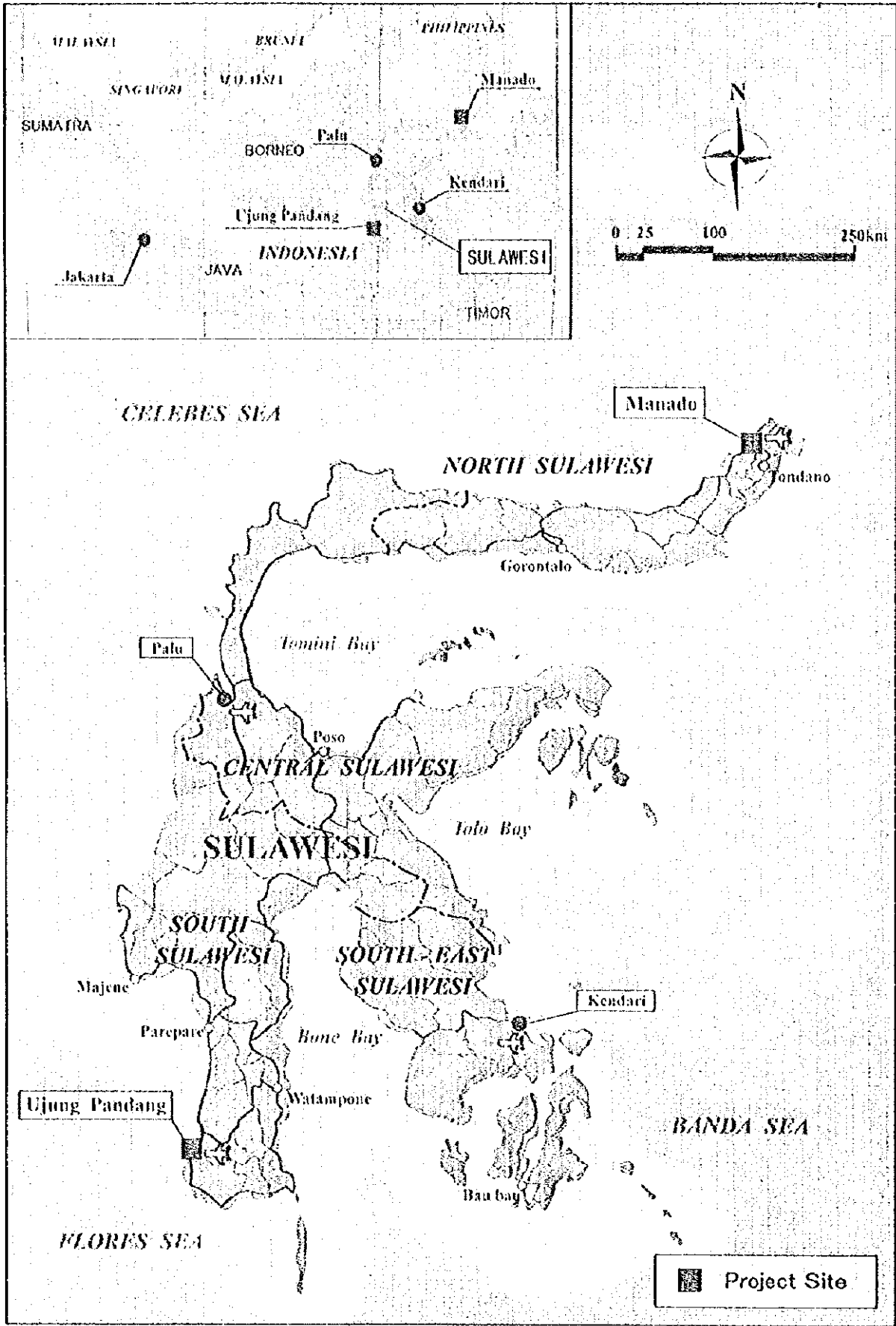
Very truly yours,



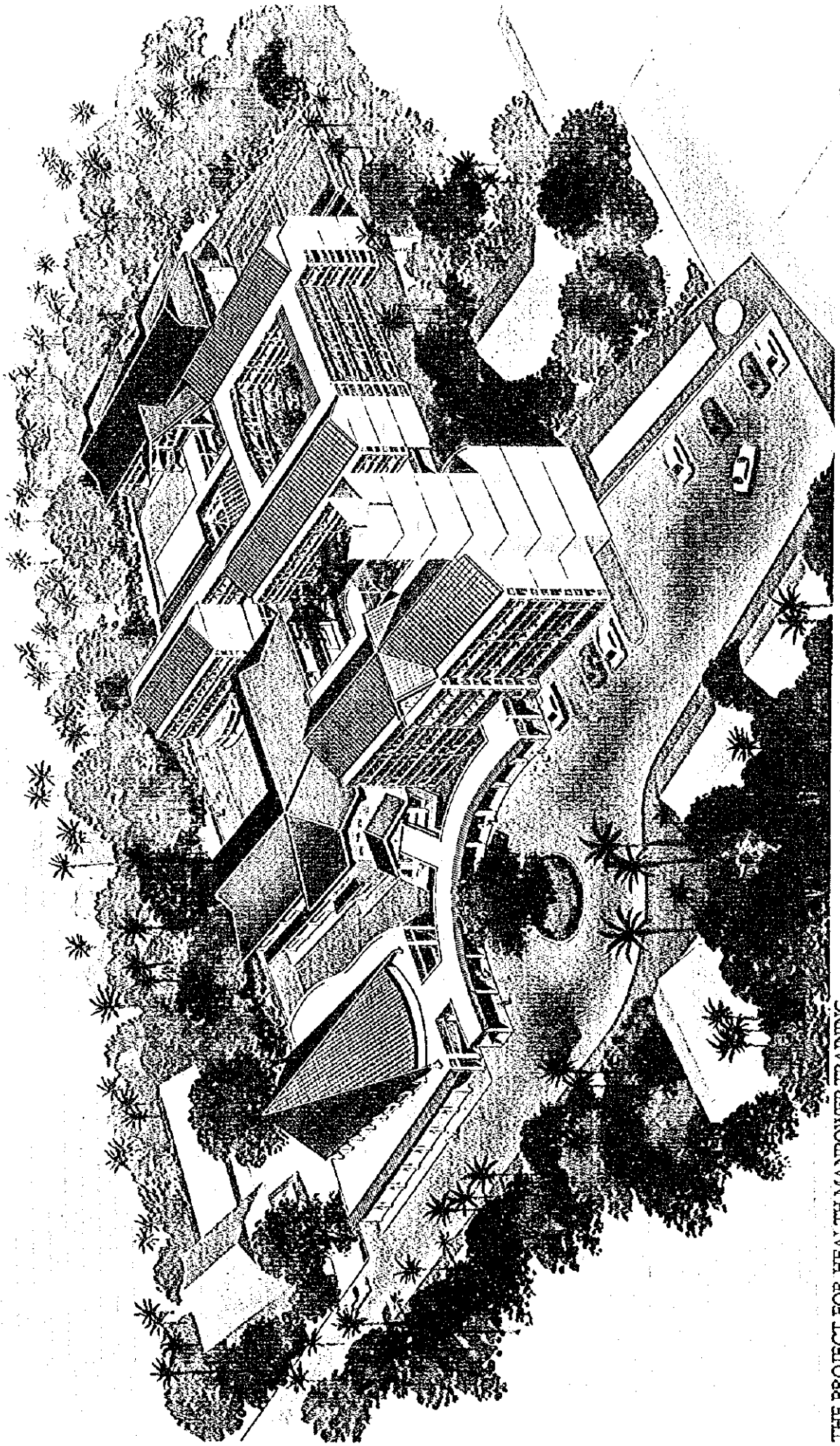
**Tetsuji Hatano
Project Manager,
Basic design study team on
The Project for Health Manpower Training
Institution Development
at North Sulawesi and South Sulawesi
Pacific Consultants International**



Distribution map of CETHP and BAPELKES in Indonesia



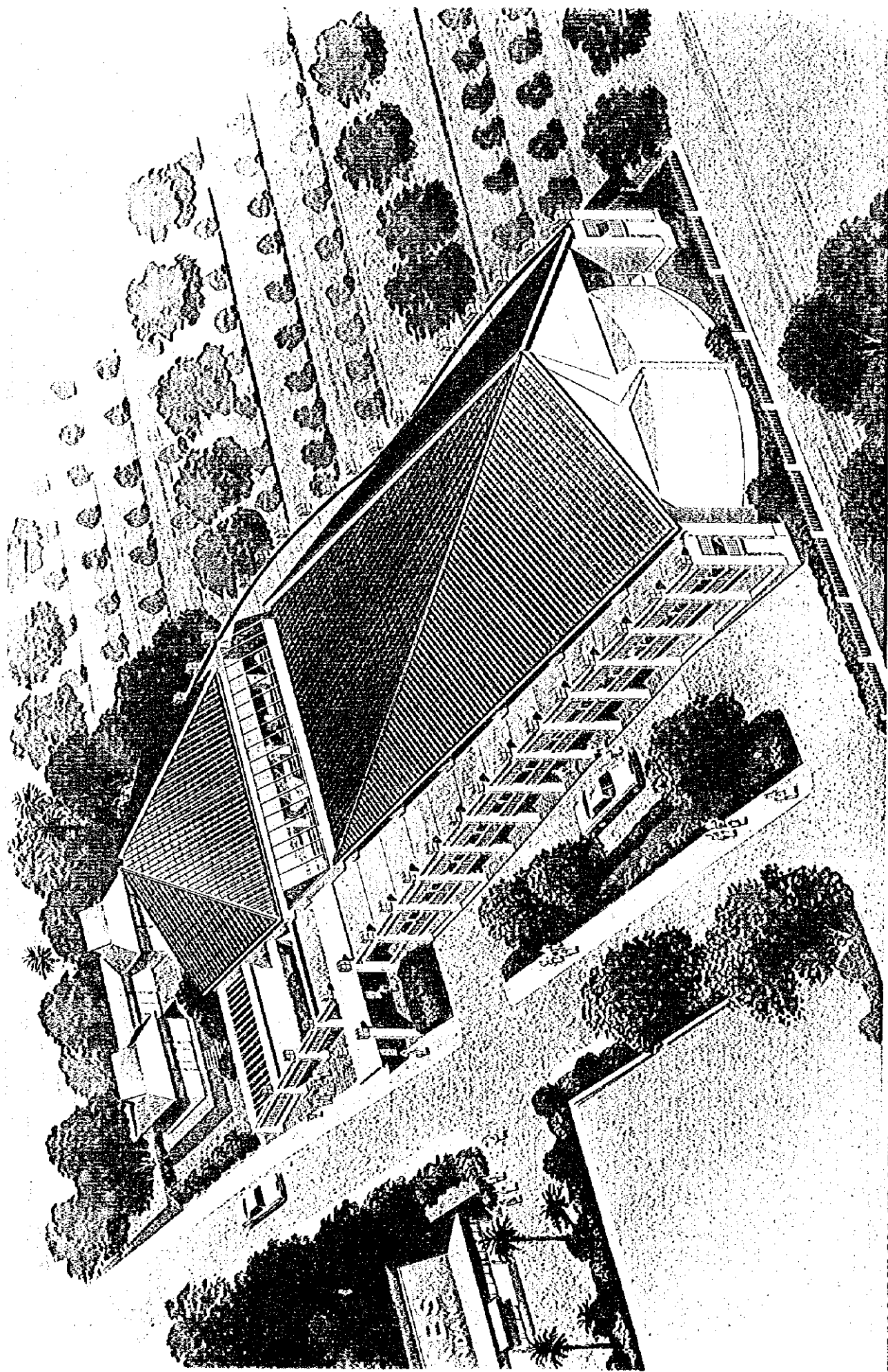
Location Map of the Project Site— 1



THE PROJECT FOR HEALTH MANPOWER TRAINING
INSTITUTION DEVELOPMENT
AT NORTH SULAWESI AND SOUTH SULAWESI

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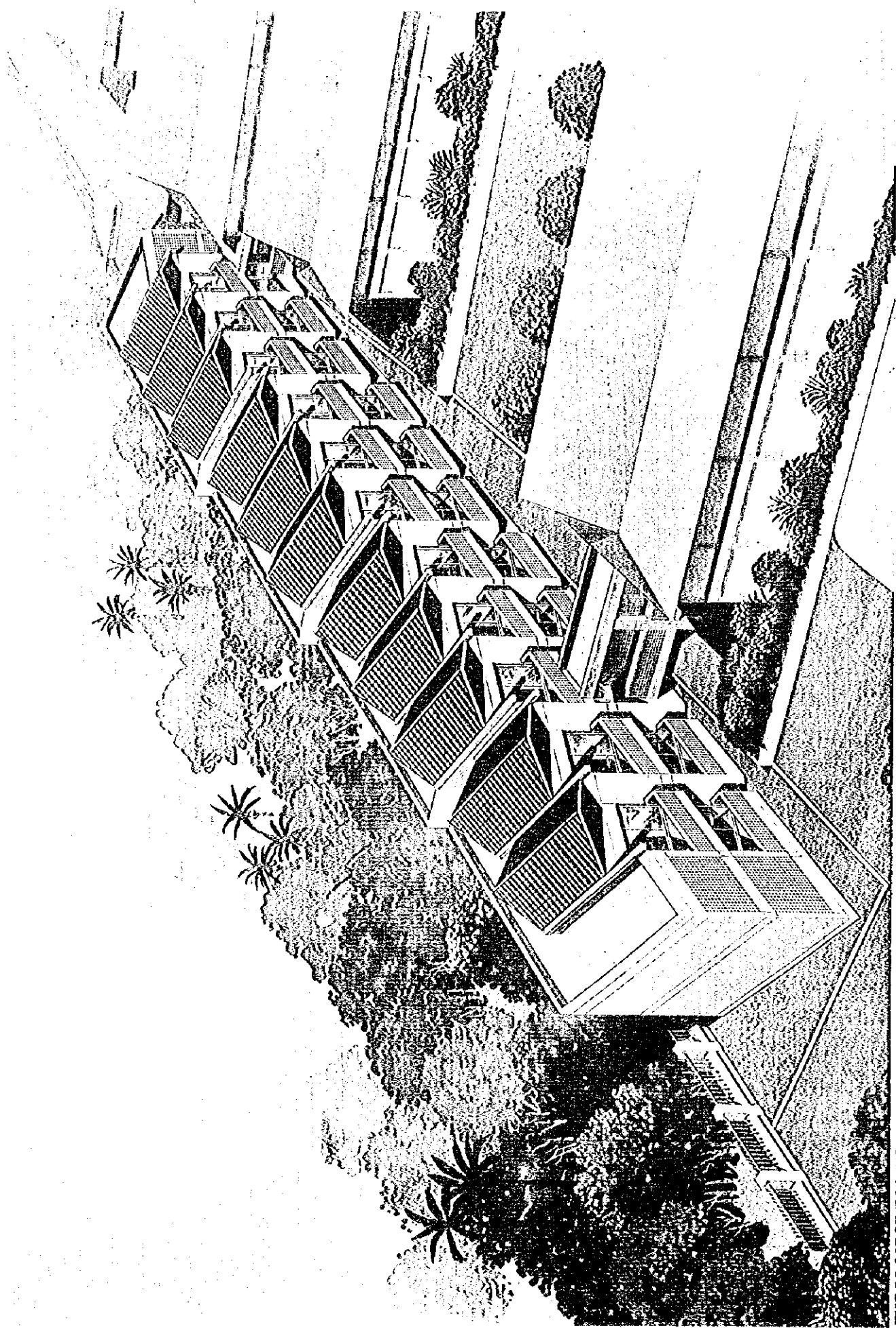
Perspective
(BAPELKES — Manado)



THE PROJECT FOR HEALTH MANPOWER TRAINING
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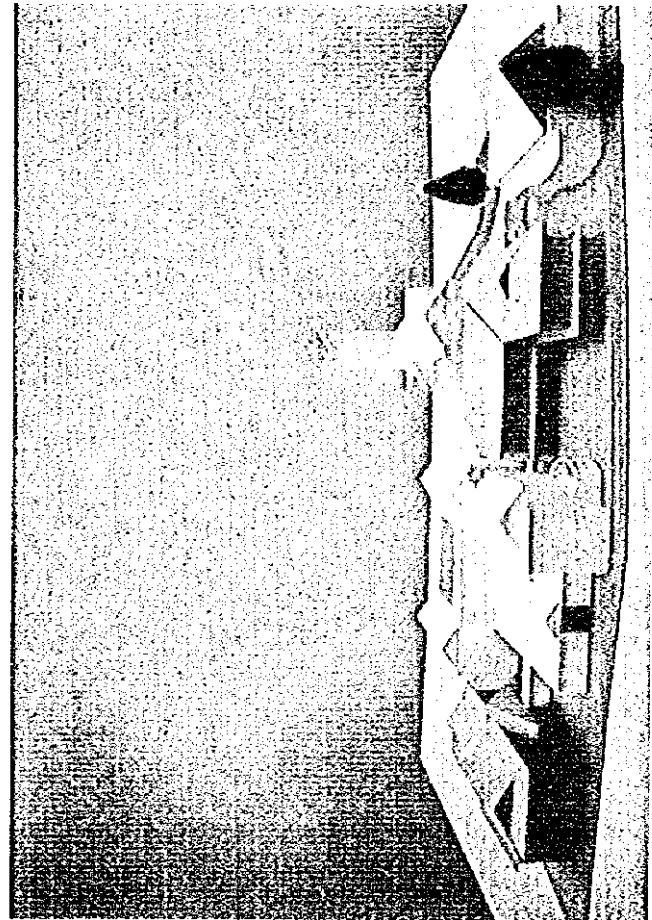
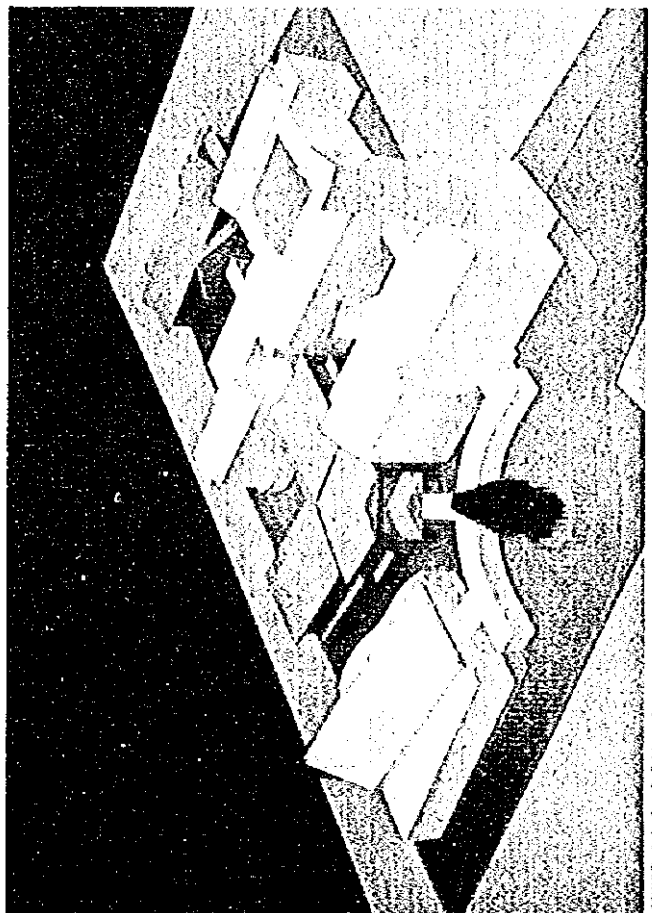
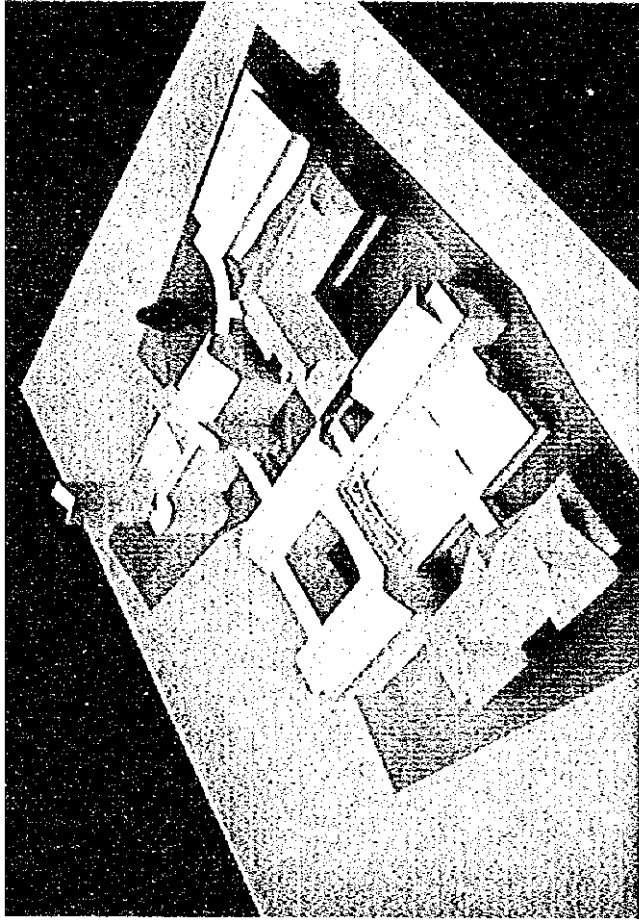
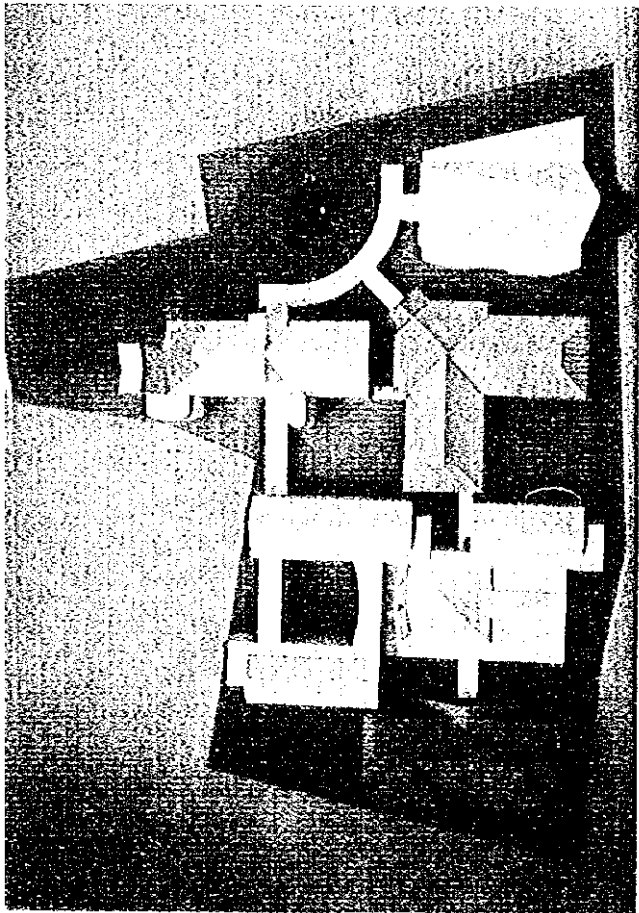
Perspective / Auditorium
(BAPELKES - Ujung Pandang)



THE PROJECT FOR HEALTH MANPOWER TRAINING
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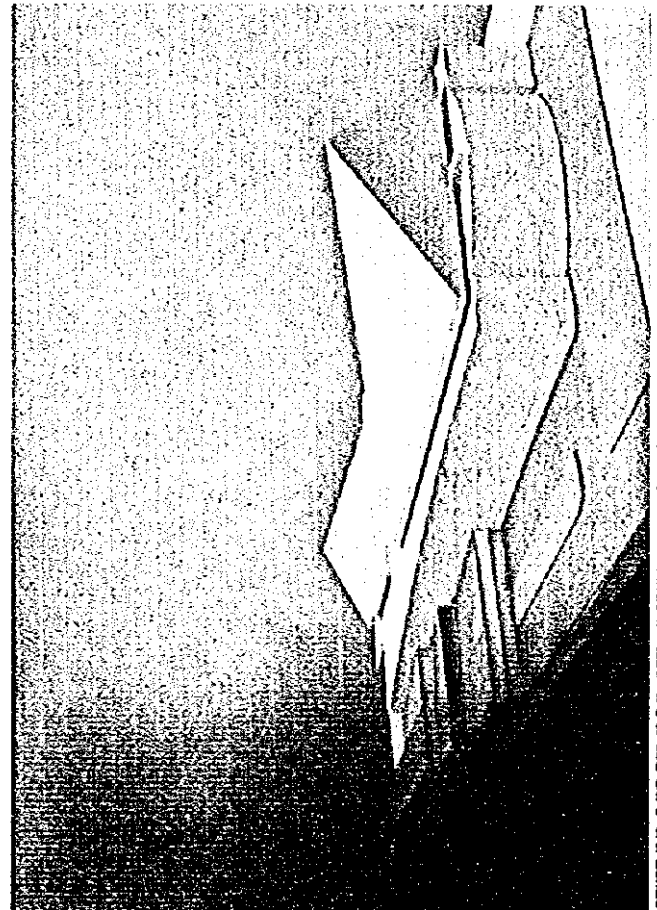
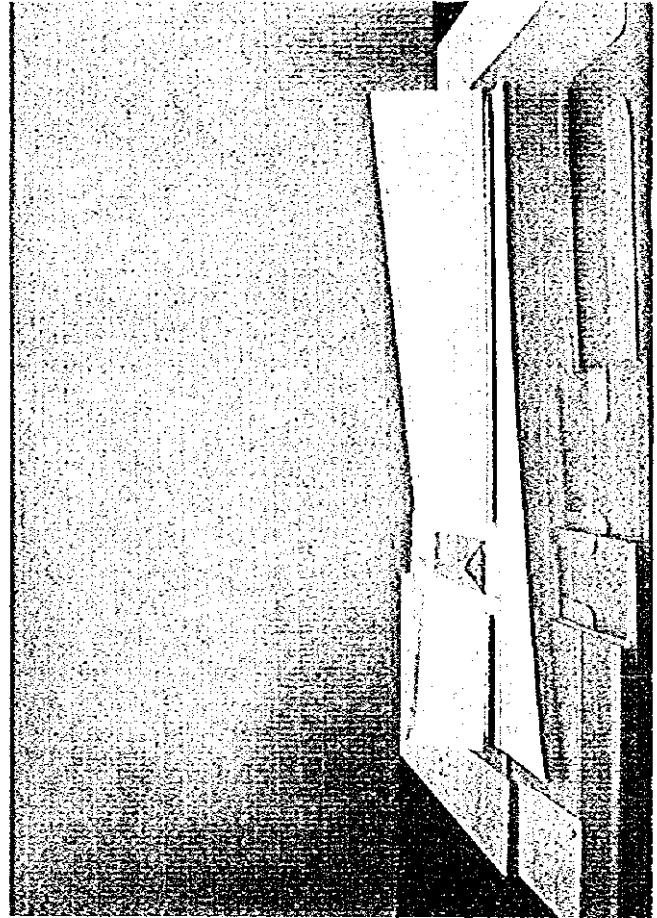
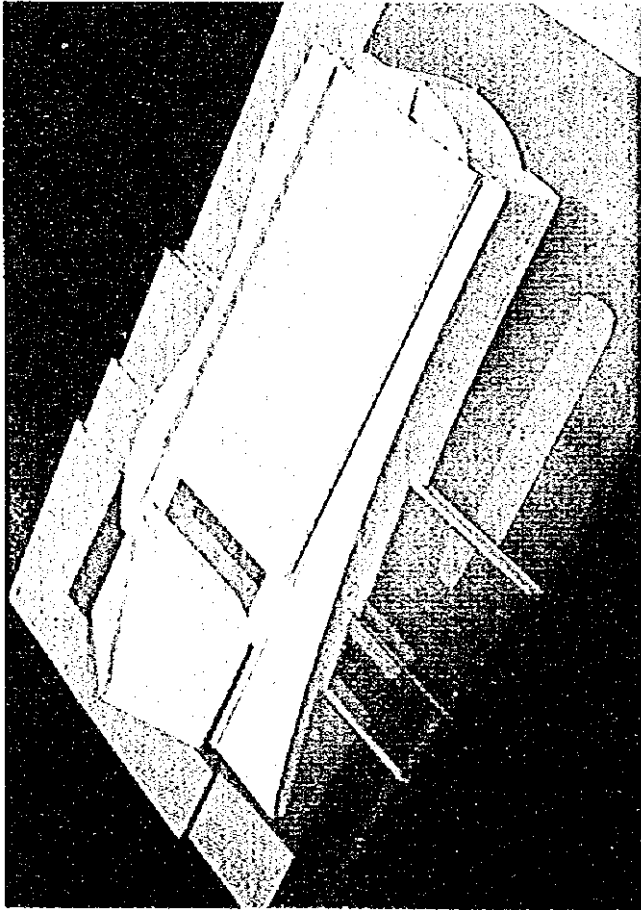
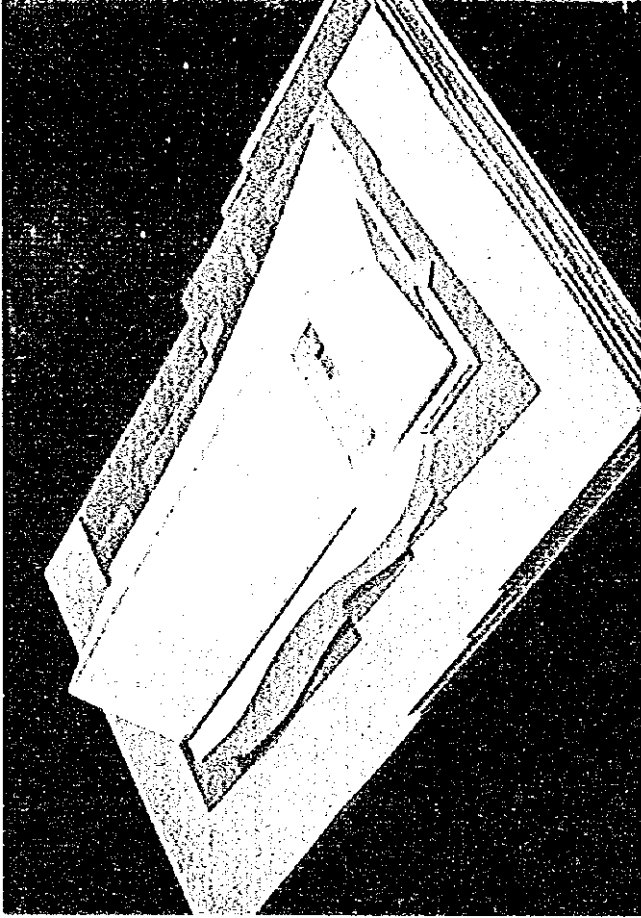
Perspective / Dormitory
(BAPELKES — Ujung Pandang)



THE PROJECT FOR HEALTH MANPOWER TRAINING
INSTITUTION DEVELOPMENT
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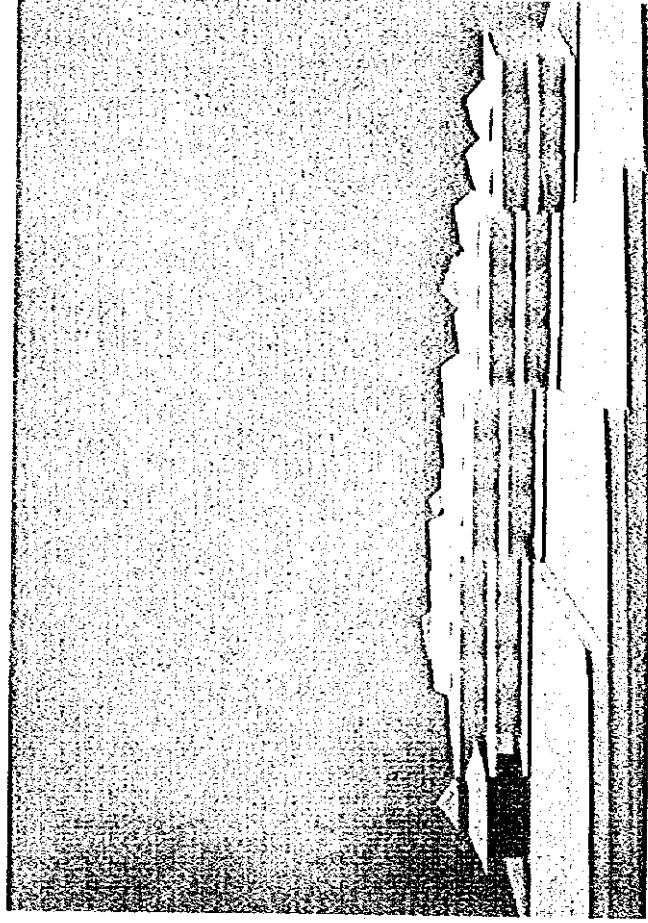
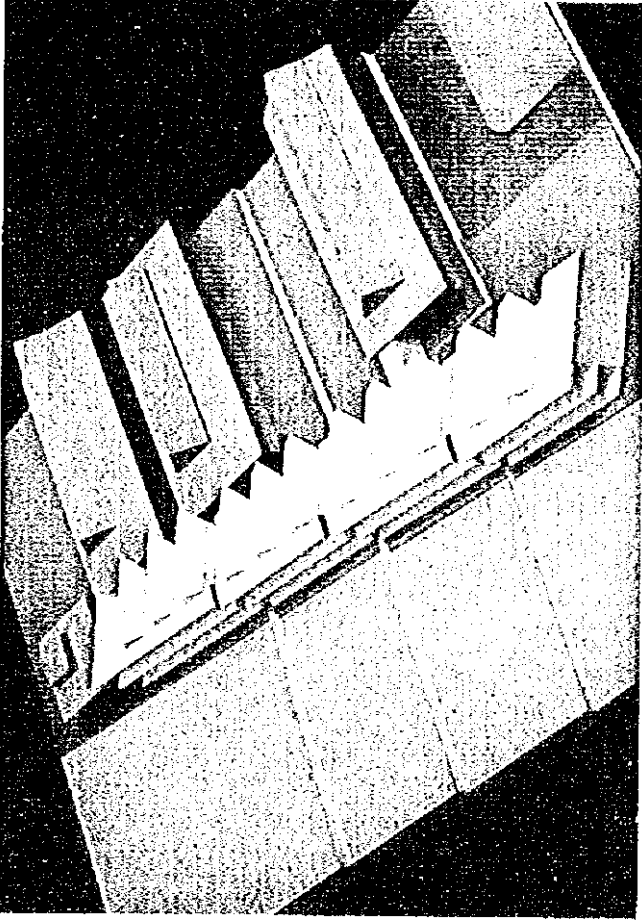
Model Photos
(BAPELKES — Manado)



Model Photos / Auditorium
(BAPELKES - Ujung Pandang)

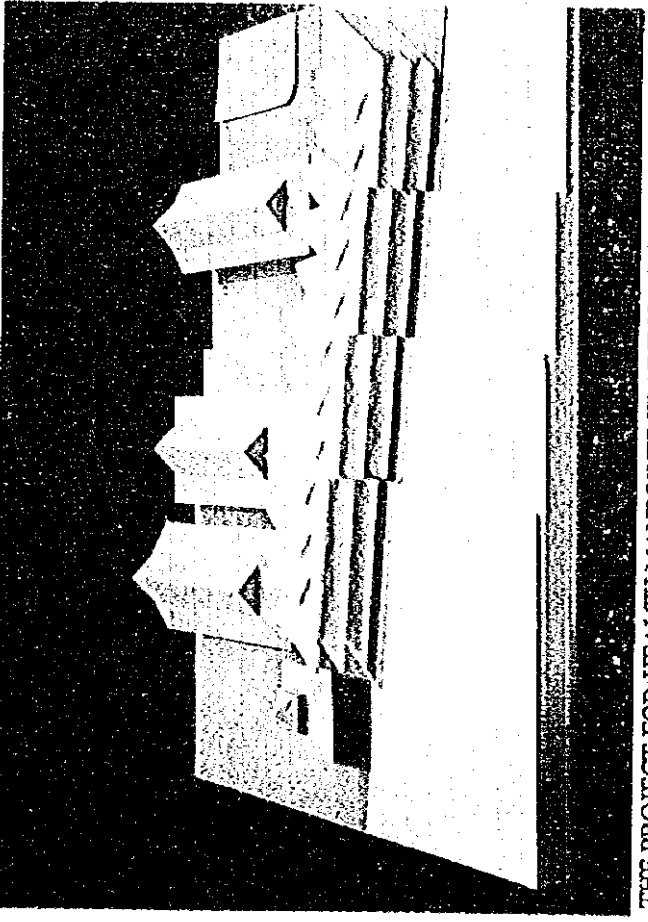
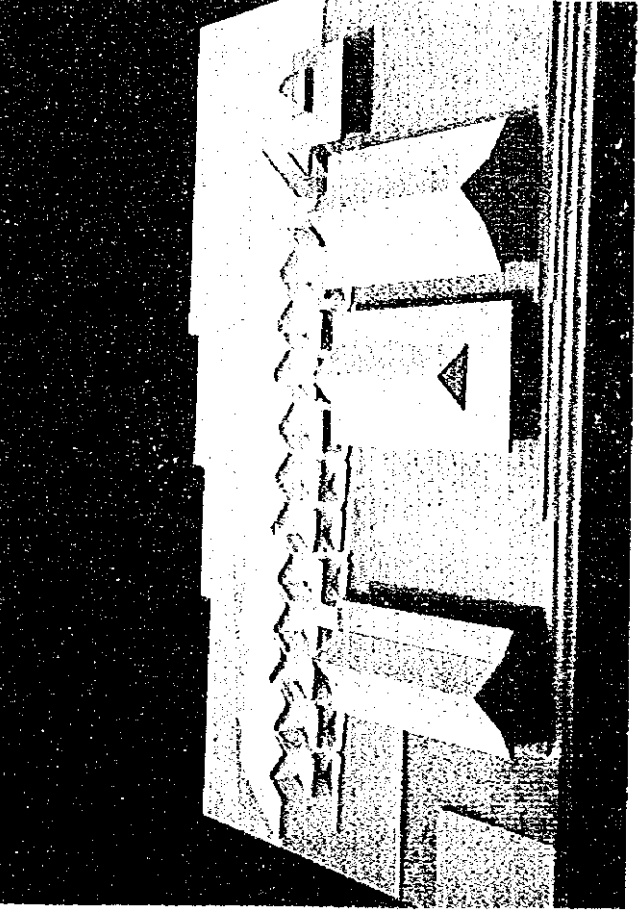
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THE PROJECT FOR HEALTH MANPOWER TRAINING
INSTITUTION DEVELOPMENT
AT NORTH SULAWESI AND SOUTH SULAWESI



Model Photos / Dormitory
(BAPELKES - Ujung Pandang)

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THE PROJECT FOR HEALTH MANPOWER TRAINING
INSTITUTION DEVELOPMENT
AT NORTH SULAWESI AND SOUTH SULAWESI

ABBREVIATIONS AND ACRONYMS

No.	ABBREVIATION & ACRONYM	INDONESIAN	ENGLISH
1	ADB		Asian Development Bank
2	AIDAB		Australian International Development Assistance Bureau
3	AIDS		Acquired Immune Deficiency Syndrome
4	APBD I	Anggaran Pembangunan & Belanja Daerah (Propinsi)	Provincial Routine & Development Budget
5	APBD II	Anggaran Pembangunan & Belanja Daerah (Kabupaten)	District Routine & Development Budget
6	APBN	Anggaran Pembangunan & Belanja Nasional	Central Routine & Development Budget
7	AUSAID		Australia Agency for International Development
8	BAPPEDA	Badan Perencanaan dan Pembangunan Daerah	Provincial Development Planning Agency
9	BAPPENAS	Badan Perencanaan dan Pembangunan Nasional	National Development Planning Agency
10	BAPELKES	Balai Pelatihan Kesehatan	Health Manpower Training Institutions
10	BAPELKES – MND		BAPELKES in Manado, North Sulawesi
11	BAPELKES – UPD		BAPELKES in Ujung Pandang, South Sulawesi
12	BOR		Bed Occupancy Rate
13	CETHP	Pusdiklat	Center for Education and Training of Health Manpower
14	DEPSOS	Departemen Sosial	Social Department
15	DG		Director General
16	GBHN	Garis-garis Besar Haluan Negara	Broad Guidelines for State Policy
17	GOI		Government of Indonesia
18	IMR		Infant Mortality Rate
19	INPRES	Instruksi Presiden	National Subsidy for Local Government

No.	ABBREVIATION & ACRONYM	INDONESIAN	ENGLISH
20	JICA		Japan International Cooperation Agency
21	KANDEP	Kantor Departemen Kesehatan Kabupaten	District Health Office
22	KANWIL	Kantor Wilayah	Provincial Office of Ministry of Health
23	MCH		Maternal and Child Health
24	MOF		Ministry of Finance
25	MOH		Ministry of Health
26	NGO		Non-Governmental Organization
27	OECD		The Overseas Economic Cooperation Fund, Japan
28	PELITA	Pembangunan Lima Tahun	Five Year Development Plan
29	PIU		Project Implementation Unit
30	POSYANDU	Pos Pelayanan Terpadu	Health and Family Planning Village Gathering
31	PUSDIKLAT	Pusat Pendidikan dan Latihan	Center for Education and Training of Health Personnel, CETHP
32	PUSKESMAS	Pusat Kesehatan Masyarakat	Health Center
33	PUSKESMAS PEMBANTU	Pusat Kesehatan Masyarakat Pembantu	Sub Health Center
34	REPELITA	Rencana Pembangunan Lima Tahun	National Five-year Development Plan
35	SKN	Sistem Kesehatan Nasional	National Health System
36	TVRI	Televisi Republik Indonesia	Television, Republic of Indonesia
37	UNDP		United Nation Development Program
38	UNICEF		United Nations Children's Fund
39	USAID		U.S. Agency for International Development
40	WHO		World Health Organization
41	WID		Women in Development

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CHAPTER 1

Background of the Project

CHAPTER 1 BACKGROUND OF THE PROJECT

1-1 Background of the Request

Indonesia is the world's largest archipelago consisting of about 13,600 islands of various sizes. The total population is currently about 189 million and is expected to become about 210 million by the year 2000 with a 2.1% growth rate annually. Amongst these, there are about 9.12 million people (approximately 4.83% of the total population) residing in 35 districts in 4 provinces of Sulawesi.

At this present time the Government of Indonesia is implementing its 6th Five-year Development Plan (REPELITA VI). In this plan, the improvement of the health and medical sector is regarded as a vital part, particularly focusing on improving the quality and standards and equal distribution of health services.

Although various efforts in the health sector have been performed and have shown encouraging results, the poverty alleviation impact of health sector intervention has been modest in absolute terms. This is reflected in Indonesia's high average mortality levels and low service utilization rates, and also in the substantial disparities in these variables among the provinces, between urban and rural areas, and between income classes.

The health status in the four provinces of Sulawesi are, on an average, lower than the health status in the other western provinces of Indonesia, especially compared to provinces in Java. The major diseases in the four provinces are malaria, TBC, diarrhea, and ARI. Mortality and morbidity rates from these diseases are still high.

The major issue concerning the health sector is that the limited capability of health manpower to implement the Primary Health Care (PHC) approaches. In this regard improvements to the PHC systems are necessary. Thus, the retraining of health personnel to increase their awareness of the importance of PHC activities and to provide them with the supplementary skills necessary to carry out PHC tasks in accordance with local contexts is meaningful as well as the strengthening of education in health institutions and universities.

Ministry of Health, the Government of Indonesia rearranged the training system for Health Personnel in 1993 based on MOH decree No.911/Menkes/SK/XI/1993, and 30 BAPELKES have spread throughout 27 provinces as a provincial training institutions for Health Personnel supervised under the Center for Education and Training of Health

Personnel (CETHP). BAPELKES can be a base and source of skilled personnel for the continuing education and training of community health workers as well as for relevant local people. The districts will benefit from the training, advice, and supervision that highly qualified health professionals from the health institution can provide to PHC workers.

Under these circumstances the Government of the Republic of Indonesia has realized the importance of improving the Health Manpower Training Institutions (BAPELKES) at North and South Sulawesi Provinces, for improving health and welfare conditions throughout Sulawesi and Eastern Indonesia and so lower the present morbidity and mortality caused by various infectious diseases and particularly to eliminate preventable deaths. The Government of Indonesia has requested the Japanese Government to construct the facilities and provide training equipment for the Project through Japan's Grant Aid Program.

In response to this request, the Japanese Government confirmed the necessity and urgency of the Project and decided to conduct a Basic Design Study. They entrusted the study to the Japan International Cooperation Agency (JICA). JICA decided to dispatch a Basic Design Study team, headed by Dr. Hikita, International Medical Center of Japan, Ministry of Health and Welfare from 22 June to 20 July 1997 to formulate the Basic Design for the project.

Based on the result of the Basic Design Study, the propriety of the Project and the determination and evaluation as to the extent and contents of the Project were determined. Detailed study results are described in a Draft Report, with JICA dispatching a Study team for the explanation of the Draft Report and, as a result, the present report was finalized.

1-2 Components of the Request

(1) Components of the Request in the Application Form

The components of the request in the Application Form for Japan's Grant Aid (October 1994) by the Government of Indonesia for the construction of the facilities and provision of training equipment to BAPELKES in the North and South Sulawesi Provinces are as follows;

<Contents of the Request Based on
the Application Form for Japan's Grant Aid (October 1994)>

A. BAPELKES-MND

1) Building

a. Classroom 3 units of 100 sqm	:	300
b. Discussion room 5 units of 36 sqm	:	180
c. Trainers office 2 units of 40 sqm	:	50
d. Library	:	150
e. Office 1 unit	:	500
f. Dormitory	:	1500
g. Dining room	:	400
h. Staff housing	:	200
i. Auditorium	:	300
j. Supporting facilities	:	50
	-----	3660 sqm

2) Equipment

a. AVA/Equipment

- Set of video teaching instrument
- Set of audio teaching instrument
- Set of computer system
- Set of sound system
- Set of auditorium equipment
- Set of classroom, discussion room, furniture and equipment
- Set of communication equipment
- Set of library equipment

b. Office equipment

- Office furniture
- Office equipment
- Air conditioning
- Office supporting equipment

c. Dormitory equipment

- Bedroom furniture
- Working table set

d. Dining room

- Kitchen set
- Dining room furniture/set

e. Others

- TV set
- Stereo set
- Game set
- Vehicle

Note : the number of item is planned due to its conditions

3) Technical Assistance

To operate the training center, technical assistance is needed. Technical Assistance is proposed to establish the hardware and software for the training program and requested to be assisted by JICA.

4) Fellowships

Long term and short term fellowships are needed for the development of educational and non educational staffs.

B. BAPELKES-UPD

1. Construction of 400 sqm auditorium
2. Training equipment/water tank car

(2) Components of the Request in the revised Application Form (February 1995)

In addition to the above request, the revised Application Form was submitted in February 1995 by the Government of Indonesia. The components of the request are almost same as the first proposal.

(3) Components of Additional Request

An additional request for training equipment was submitted by the Government of Indonesia in September 1995.

(4) Components of the request in the Proposal (August 1996)

The components of this project have been reconsidered and a new proposal report has been prepared by the Center for Education and Training of Health Personnel (CETHP). The components of the new request described in the proposal report are as follows:

<Contents of the request in the proposal (August 1996)>

A. BAPELKES-MND	
1. BUILDING FACILITIES	
(1) Health Manpower Training Center (BAPELKES)	
a. Classroom 3 units of 72m ²	: 216m ²
b. Discussion room 2 units of 36m ²	: 72m ²
c. Practice room 2 units of 96m ²	: 192m ²
d. Computer training room	: 72m ²
e. Library	: 156m ²
f. Administration Office	: 108m ²
g. Director room	: 36m ²
h. Trainer's office 2 units of 36m ²	: 72m ²
i. Storage, Toilet, Machine room	: 286m ²
j. Corridor, Staircase	: 410m ²
k. Entrance Hall, Lounge	: 156m ²
Sub Total	: 1,776m ²
(2) Dormitory	
a. Staying room for 72 persons	: 1,134m ² (2 ps/room 31.5m ² x36rms)
b. Laundry, staff room	: 90m ²
c. Staircase	: 156m ²
Sub Total	: 1,380m ²
(3) Dining	
a. Dining room, Tea corner	: 276m ²
b. Kitchen, pantry	: 114m ²
c. Pray room	: 48m ²
Sub Total	: 438m ²
(4) Auditorium	
a. Stage	: 45m ²
b. Audience	: 225m ²

c. Entrance, Lounge	:	60m ²	
d. Supporting room	:	76m ²	
Sub Total	:	406m ²	

TOTAL	:	4,000m ²	
B. BAPELKES-UPD			
1. BUILDING FACILITIES			
(1) Auditorium			
a. Ground Floor			
1. Underground garage	:	97m ²	
2. Warehouse	:	13m ²	
3. Public toilet	:	13m ²	
Sub Total	:	123m ²	

b. Upper Floor			
1. Terrace	:	35m ²	
2. Hall	:	22m ²	
3. Living room	:	19m ²	
4. Lobby	:	32m ²	
5. Audience room	:	374m ²	
6. Protocol room	:	13m ²	
7. Stage room A + B	:	67m ²	
8. Resting room	:	19m ²	
9. Preparation room A + B	:	40m ²	
10. Locker room	:	19m ²	
11. Electrical room	:	5m ²	
12. Godown	:	5m ²	
13. Pantry	:	13m ²	
14. Kitchen & Washing room	:	21m ²	
15. Toilet	:	10m ²	
Sub Total	:	694m ²	

c. Balcony			
Sub Total	:	130m ²	

TOTAL	:	947m ²	
(2) Dormitory			
a. Staying room (for 32 persons)	:	518m ²	(2 ps/room, 24.3m ² x16rms)
b. Staircase	:	43m ²	
Total	:	561m ²	

(3) Computer Training Room			
a. Training room (for 36 trainees)	:	108m ²	
b. Entrance	:	18m ²	
c. Lounge	:	18m ²	
d. Teacher's room	:	9m ²	
e. Toilet	:	9m ²	
Total	:	163m ²	

Based on the above mentioned request, the Basic Design Study Team and the Government of Indonesia have further studies and discussions in order to confirm the contents of the Project and to prepare the Basic Design.

1-3 Contents of the Request

The contents of the request from the Government of Indonesia to the Japanese Government have been carefully examined for its propriety and necessity by the Basic Design Study Team through discussions with the Indonesian side on the Basic Design Study survey and Draft Report Explanation Study survey.

As a result, the contents of the request concerning the Project have been mutually agreed upon and the Minutes of Discussions were signed on September 19, 1997 between the Government of Indonesia and the Basic Design Study Team.

- 1) The Constitution of the BAPELKES facilities are described in ANNEX-I (see table below).
- 2) The Provision of equipment is described in ANNEX-II (see the Minutes of Discussions dated September 19, 1997, Appendix-5).

<Minutes of Discussions dated September 19, 1997: ANNEX-I>

REQUESTED FACILITIES FOR THE PROJECT

- | | |
|-------------------------------|---|
| 1. South Sulawesi | |
| 1) Auditorium | : 1 (for 200 persons with tables and chairs) |
| 2) Special Training Classroom | : 1 |
| 3) Dormitory | : 20 rooms (for 40 persons) |
| 2. North Sulawesi | |
| 1) Training Facility | |
| ① Classroom: | : 3 |
| | (Large size rooms for 40 persons : 2 rooms,
Middle size room for 30 persons: 1 room) |
| ② Special Training Classroom | : 1 |
| ③ Library | : 1 |
| ④ Administration Office | |
| ④-1 Trainer's room | : 2 |
| ④-2 Printing room | : 1 |
| 2) Auditorium | : 1 (for 100 persons with tables and chairs) |
| 3) Dormitory | : 40 rooms (for 80 persons) |
| 4) Dining room | : 1 (for 80 persons) |

Note: 1. Both sides confirm that each facility mentioned above includes related common spaces such as corridors, storage, toilets, machine room, the necessary utilities such as electricity, water supply, sewage, telecommunication, etc. The details of such common spaces and utilities will be discussed further between the Japanese and Indonesian sides.

2. The size and capacity of facilities will be determined after further studies.

The Basic Design has been developed based on the above mentioned Contents of the Request and the results are described hereinafter in this Report.

CHAPTER 2
Contents of the Project

CHAPTER 2 CONTENTS OF THE PROJECT

2-1 Objective of the Project

The objective of this Project is to improve the Health Manpower Training Institution in North and South Sulawesi in the Republic of Indonesia, by expanding the facilities and supplying equipment. By improving the knowledge and skills of the people involved in health care at community levels, the level of the Primary Health Care (PHC) will be raised and local differences in medical care may be solved.

2-2 Basic Concept of the Project

2-2-1 Study of the Content

Recently the Government of Indonesia has been exerting effort to improve the health care sector of the country, especially the extension of nation wide medical service and the elimination of local differences. As part of this program, there is an aim to expand the health care at community levels by conducting training for all those involved in medical care. The Center for Education and Training of Health Manpower (CETHP), the Ministry of Health supervises and guides the training conducted in the provincial training centers (BAPELKES). Currently CETHP supervises 30 BAPELKES spread throughout 27 Provinces of the country. This Project concerns the request for improvement of the BAPELKES in North and South Sulawesi.

As the training center in North Sulawesi (BAPELKES-MND) does not have its own facility, the construction of an administration and training building, an auditorium and dormitory were requested. Prior to the Project, a 900 m² training center comprised of an office and classrooms was constructed in 1995. Although the center started operating in the new building in 1996, the facilities' scale and equipment were inadequate. Also, due to the lack of dormitory rooms and classrooms, the renting of buildings outside BAPELKES is needed. Thus, the overall expansion of the facility and equipment is expected.

On the other hand, the training center in South Sulawesi (BAPELKES-UPD) was constructed in 1986 with loan from the World Bank and has been actively conducting operations as the center not only for the province but for the eastern

region of Indonesia. In order to further increase its activities, the construction of a large auditorium that can be used as a large scale of study and training space was requested. In addition, the expansion of the dormitory, which has a limited capacity, and the construction of a special training classroom for the newly developed training program were also strongly requested.

As a part of the GII (Global Issues Initiative) Project, the Government of Japan is involved in the improvement of primary health care in Indonesia, especially in the Sulawesi island. The Government of Japan has already started cooperation in this regard by implementing the Project-type Technical Assistance Cooperation. By integrating this Project with other programs, the improvement of Health Conditions in Sulawesi will be further enhanced as a whole.

According to the evaluation results, the basic concept of the Project is the improvement of the facility and supplying related equipment for the training centers (BAPELKES) in North and South Sulawesi. It also aims at providing facilities and equipment adequate enough to meet the activities programmed for A and B class BAPELKES.

As for BAPELKES-MND, necessary rooms and equipment will be provided based on the effective use of the existing facility and new facilities for a B class BAPELKES such as an auditorium, classrooms, dormitory and dining hall, as well as equipment supply.

For BAPELKES-UPD, necessary rooms will be provided for it to function as the center of activities in eastern Indonesia, such as an auditorium, dormitory, special training classroom, with the supply of necessary equipment.

The facilities and equipment required for the BAPELKES will be based on the standards prepared by CETHP for various classes of BAPELKES.

2-2-2 Study Result and Examination of the Contents of the Request

(1) Study of Design Conditions

The study of the contents of the request was made based on the results of the field survey and discussions by the basic design study team, in accordance with the Grant Aid System of the Government of Japan. After discussing and examining the following points, studies have continued in Japan to decide upon the facilities and necessary equipment in detail:

- 1) Function of BAPELKES and its relationship with CETHP and KANWIL,
- 2) Contents of Training and Activity Plan of BAPELKES,
- 3) Trainees for BAPELKES, and
- 4) Securing of staff and trainers.

The results of survey and discussions pertaining to the above points items by the basic design study team are as follows. The contents of the Project based on this study are mentioned in Section 2-2.

- 1) Function of BAPELKES and its relationship with CETHP and KANWIL

As previously mentioned, BAPELKES is a training institution for health manpower, such as doctors, nurses, midwives as well as staff of KANWIL and DINAS on pre-vocational, technical, management and other trainings. CETHP is the organization supervising 30 BAPELKES spread throughout 27 provinces of the country, and deciding the training contents. The training program developed and prepared by CETHP is conducted at BAPELKES.

As KANWIL is a provincial office of the Ministry of Health, there is no direct connection with BAPELKES, however it is responsible for the health and medical activities within the province and monitors the activities and finances of BAPELKES. The stationing of the staff and trainers is also supervised by KANWIL. The Department of Health of the province (DINAS) conducts health and medical programs in the area. The objective of BAPELKES is to improve the health and medical situations in the province. It needs to conduct training programs according to the situation in each province, in coordination with KANWIL and DINAS.

Although some training programs are prepared by BAPELKES, most of the programs used are prepared by program holders of KANWIL or DINAS. Besides, most of the trainees are the staff of KANWIL and DINAS. Thus, BAPELKES' activities are conducted in collaboration with these two groups. The activities of KANWIL and BAPELKES differ according to the province, and in order to increase the activities of BAPELKES and expand its contents, it is necessary to strengthen the relationship between KANWIL and BAPELKES.

- 2) Contents of the Training and Activity Plan of BAPELKES

The training program conducted by BAPELKES is planned and prepared by CETHP within the budget of BAPELKES. Other training programs are

also prepared by program holders in KANWIL and DINAS with their own budgets.

The relation between the activities of BAPELKES and the training conducted by program holders in KANWIL and DINAS differ according to the provinces. In North Sulawesi, the contents of the training are conducted through discussions between the program holders in KANWIL and the trainers in BAPELKES-MND. However in South Sulawesi, the training except by BAPELKES' own budget, is left to the program holders in KANWIL and DINAS, etc., thus, the trainers do not completely understand the entire training program. As for the training, 60% is classroom lectures and 40% is practical field training. The training program for both BAPELKES are shown in the attached 1996/97 Training Activity Record and 1997/98 Training Activity Plan in APPENDIX-7. The training is mainly classroom lectures followed by debate and tutorial sessions in small groups. The training for nurses and midwives includes some practical trainings with the use of anatomical models, and other practical training which is normally held at relevant hospitals and health centers.

3) Trainees for BAPELKES

The trainees for BAPELKES are those people involved in health services in the provinces. The aim of the training center is not only to train such people as doctors and nurses, but all of the people who are involved in the medical and health sector such as community nurses, midwives, dentists, health officers and pharmacists.

In Indonesia, most of the doctors and dentists who are working in Health Centers are newly graduates from universities. Furthermore, midwives newly graduated from schools are also stationed to various villages. The training of these doctors, nurses and midwives before they are stationed to these centers and villages is an important activity of BAPELKES. Besides the training of nurses who have completed a 2 year apprenticeship to become nurses, and the training of KANWIL and DINAS health staff according to various levels is also an important activity.

4) Securing of Staff and Trainers

The number of staff and trainers for BAPELKES and the future plan to increase the personnel is under the control of KANWIL. In order to upgrade UPD from class B to A and MND from class C to B, the staff and trainers

for both centers must be increased and the level of training must also be upgraded. The increase in the number of staff and the strengthening of the staff force has already been requested to KANWIL, and they are expected to be stationed by the completion of the Project. The trainers are approved by CETHP and training is constantly being conducted to improve their level for the trainers and all staff.

(2) Study and Examination of the Contents of the Request

1) Contents of the Facility

The contents of the facilities at MND and UPD are as stated in the Minutes of Discussion, which has been signed by the Indonesian and Japanese sides. Meetings and confirmation were later conducted with regard to the necessary rooms and scale of each facility in detail.

(A. BAPELKES-MND)

Regarding BAPELKES-MND, the confirmation of the project site was one of the most important matters and, as mentioned in Section 2-4-1, the Project site of 8,000m² was confirmed. This comprises the existing 5,000 m² and the 3,000 m² of land that has been acquired. A note of confirmation has been attached to the Minutes of Discussion indicating that the land owned by KANWIL will be used by BAPELKES.

As for the facility in the first proposal in 1994 by the Government of Indonesia, the present facility had not been constructed. As the present facility (900m²) was put into use in May 1996 after the completion of the construction at the end of 1995. The major factor of this Project was how to effectively use the existing facility together with the new facility, and discussions focused on these matters were held with BAPELKES. As a result, the second floor area of the existing building will continue to be used for classrooms and the first floor area, which consists of an office and trainers' rooms, shall be used as an operation and management area after the completion of the Project. The new building will include facilities related to training such as trainers' rooms, classrooms and library. The results of the discussion regarding the facilities in detail are mentioned in Section 2-3 of this Report.

The original proposal (1994) requested a 200m² staff house. However, a plan to construct this building under the budget of the Government of Indonesia is being carried out. Meanwhile, a local consultant is preparing

the design, and the construction is expected to be completed by the end of 1997. As the location of the staff house was important to the entire BAPELKES project, the overall facility layout plan of BAPELKES was made by the basic design study team, and confirmation was made with the local consultant during the survey.

(B. BAPELKES-UPD)

As BAPELKES-UPD has no auditorium, and only has a maximum 60 person capacity classroom at present, construction of a 200 person capacity auditorium has been requested. Presently, each program holder conducts some training programs at BAPELKES depending upon facility sizes and the training schedule. However, large training programs, meetings, and seminars will either be held at KANWIL's auditorium or at other facilities. By taking into consideration the fact that BAPELKES-UPD will be upgraded to a class A BAPELKES within two years, it is believed that an auditorium having a 200 person capacity (CBTHP's standard size in the class A BAPELKES) will be necessary in BAPELKES-UPD.

Pre-assignment training for medical doctors and nurses is a very important training program conducted by BAPELKES. In South Sulawesi, there are approximately 1,000 medical doctors and nurses who need to participate in the training program each year. This training program should be conducted intensively in every year after April.

However, due to limited facilities, the training program should be divided, and each course limited to a maximum of 60 trainees. Thus, it is necessary to have a large facility to effectively conduct the training program for a large number of trainees at one time.

Presently, the auditoriums of the four class A BAPELKES are used mainly for conferences and seminars. The auditorium having a 300 person capacity in BAPELKES Ciloto is used approximately 100 times a year. The auditorium having a 150 person capacity in BAPELKES Cilandak is used approximately 50 times a year. In consideration of the conferences and seminars for 100 to 200 persons held in UPD by KANWIL, DINAS for the time being, and the medical doctors associations, and for the promotion of activities in Eastern Indonesia, a large auditorium is needed to hold large conferences and seminars. Thus, construction of an auditorium was included in the Project.

The original proposal only requested an auditorium. However the proposal in 1996 strongly requested a dormitory and a special training room to be included in this project. The present dormitory is inadequate and overcrowded, even though there are times when staff houses are used. As the necessity for improvements and expansion of the dormitory was confirmed, a dormitory capable of holding around 40 people is planned. As for special training rooms, the CEIHP has confirmed that the training programs for computers will be installed in future and was included in the Project. The shape of the construction site for the auditorium and dormitory is slightly different than the drawing attached in the proposal, especially the construction site for the dormitory is very limited compare to the drawing. However, after the discussions, the construction site for the auditorium will be located at the east side of the existing administration building, the dormitory will be located on the west side of the existing dormitories was agreed upon finally.

As for the facility plan, a tentative plan concerning the necessary rooms for each facility was made according to the above requests after the signing of the Minutes of Discussion, and it had been confirmed by the Indonesian side. Based on the agreed tentative facility plan, the planning of each facility is described in Section 2-3, Basic Design.

2) Examination on the Contents of Equipment

The results of the meeting with the Indonesian side with regard to the requested equipment for this Project are as follows:

As the equipment standard prepared by CETHP after taking into consideration the future plans for BAPELKES-UPD and MND. The selection of equipment was decided upon to meet the standards of an A and B class facility when BAPELKES-UPD and MND are upgraded.

Equipment such as air conditioners, telephones, ceiling fans, sound system for the auditorium, stage equipment and emergency exit lights, plumbing and wiring, were to be included in the facilities. Flags, national symbols, and wall clocks and deemed to be provided by the Indonesian Side were excluded from the list. Besides, some of projector (16mm), educational equipment for English language and electronic whiteboard etc. were excluded from the list in consideration of purpose and low frequency of use, and the equipment for recreation purposes in the dining room and dormitory, such as VCRs and laser discs, were also excluded. Personal computers were requested for office, audio-visual and special training use, however

only the computer for training purposes was accepted for the Project. However, the necessary training equipment for health manpower in the list will almost be provided according to TOR.

Based on the above, the equipment requested for each facility is as follows:

- 1) Audio-visual Room (MND 15 items, UPD 17 items)
VCR, white board, sound system etc.
- 2) Office (MND 7 items, UPD 2 items)
Copying machine, binding machine etc.
- 3) Trainer's Room (MND 3 items)
Desk, chair, white board, cabinet.
- 4) Training Room (MND 3 items)
Desk, chair, white board, flip chart.
- 5) Special Training Room (MND 15 items, UPD 19 items)
Personal computer, training equipment for midwives.
- 6) Auditorium (MND 6 items, UPD 6 items)
Desk, chair.
- 7) Dormitory (MND 1 item, UPD 1 item)
Bed, locker, desk, chair, desk lamp, washing machine, TV.
- 8) Dining Room (MND 1 item)
Desk, chair.
- 9) Kitchen (MND 4 items)
Cooking utensils, refrigerator, rice cooker, kerosene and gas cooking stove.
- 10) Transportation (MND 2 items, UPD 2 items)
Mini-bus (25 to 35 people), mini-bus (7 to 8 people)
- 11) Library (MND 4 items)
Desk, chair, cabinet, copying machine.

2-3 Basic Design

2-3-1 Design Concept

The basic design of the facilities and equipment in the Project is based on the following design policies with due consideration of the results of the field survey, the environmental and social conditions of Indonesia, the construction and procurement conditions, the maintenance and management ability of the facility and equipment and the construction schedule under Japan's Grant Aid assistance:

- (1) The new facilities should be planned giving consideration to the contents and level of training according to the training and teaching method and curriculum, based on the results of the basic design study.
- (2) The new facilities should be arranged to meet the functional concept of the existing facilities so as to coexist effectively as a whole and show the significance of this extension plan. The design of the new buildings must harmonize with the existing building and surrounding environment.
- (3) For the design of BAPELKES-MND, it should be carefully considered in the design that the clear distinction of each function and a smooth functional relation between the existing building and the proposed staff house, and new facilities. For the design of BAPELKES-UPD, accessibility and flow line should be carefully studied in relation to the existing facilities.
- (4) The good design points of relevant facilities in Indonesia and Japan should become a reference for the design, while the existing problems of the building should be improved upon in the plan.
- (5) The physical conditions of the space (affected by rain, sun and wind) and local customs (security, life style) should be taken into consideration.
- (6) The design of the facilities, utilities and selection of equipment should be to reduce the maintenance and operation and should be minimized costs.
- (7) Local construction methods and local materials should be considered and used as much as possible. Necessary costs should also be considered not only for initial costs, but for long-term recurrent costs as well.

2-3-2 Study of the Design Criteria

(1) Basic Concept for Determination of the Facilities' Scale

The study of the number of rooms or the scale of each room will formulate a useful basis on which to make the design. The design concept and determination of the facilities' scale may have an important impact not only on the function of the facilities, but it will have an important effect on the future operational budget as well as on the activities of BAPELKES. The determination of the facilities scale is based on the following policies:

- 1) The contents of the facilities and their assumed scale is based on the Minutes of Discussions between the Government of Indonesia and the Government of Japan.
- 2) Although the necessary floor areas of room per person for education and training purposes have various sizes, the size of major rooms is to be confirmed through discussions with the Indonesian side regarding the layout plan of the required minimum space for equipment and usage of room on the drawing. The number of necessary rooms should be minimized by enhancing multiple usage as much as possible. Optimum facility design is to be formulated through adequate studies of the existing facilities of BAPELKES and other similar facilities (BAPELKES in Jakarta or CETHP, etc.) as a reference for the project.
- 3) The objective of this project is to develop Training Centers for Health Manpower which have specific functions and requirements as a training and educational facility. Therefore, the determination of the size of each room is complicated compared with the conventional buildings. Unit size for training groups must be considered as a fundamental design criterion for the facility plan. Space design for utilities and equipment is to be planned by taking into consideration the safety and functions of a training and educational center.
- 4) The flow line, zoning plan and facility plan shall be prepared by taking into consideration the existing and proposed facilities as a whole.
- 5) The facility scale for health manpower training and practice should be calculated on the basis of a training program confirmed during the basic design study.
- 6) The facilities' scale should be formulated rationally based on the new number of the staff and the organization for the BAPELKES prepared by the Indonesian side.

(2) Study for the Number of Rooms

The number of rooms indicated on the Application Form for Japan's Grant Aid in 1994, the proposal of 1996 and the standards of BAPELKES by CBTHP are used for this study in accordance with a series of discussions. The comparative table of BAPELKES standards and the proposed plan are shown in Table 2-3.

A. BAPELKES-MND

A building with classrooms and an administration office has recently been built in BAPELKES-MND. The building component and scale described in the original request is no longer relevant due to the existing building, which was built in 1995, and new staff house building, which will be built in 1997 by the Indonesian side.

The first floor of the existing building consists of a director's room, administration office, library and trainers' room, while the second floor provides a classroom and discussion rooms.

In the new facility plan, the administration and management division will be allocated to the existing building, the training division will be allocated to the new building. On the second floor of existing building, each room will be used as is, and the library of the existing building will be converted into a meeting room, and the existing trainers' room and administration office will be used for the office of the administration division and program operation division.

1) Classrooms:

The required basic components of classrooms were 3 general classrooms, 2 discussion rooms and 2 practice rooms. The size of classrooms was studied based on this basic assumption, considering the utilization of the large classroom (96m²) and two discussion rooms on the second floor of the existing building. As a result of a series of discussions with BAPELKES and the examination of the training curriculum (shown in the APPENDIX-6), it was found that 3 to 4 classrooms were needed when the capacity of a classroom was 30 to 40 people.

A general classroom can be utilized as a practice room by adjusting the table lay-out, since the training method is group-oriented by using models. For the discussion rooms, the large classroom can be divided into two rooms by providing movable partitions. In view of the above, four classrooms are necessary. However, one classroom can be allocated to the existing building, and three classrooms will be provided in the new building.

For computer training, a special training classroom will be provided based on the future plan for the development of a computer network plan in the health sector. Therefore, a special training classroom can be used both as a general classroom.

2) Trainer's room:

When BAPELKES-MND is raised to the higher status of Class B BAPELKES, the number of trainers will be increased from 8 to 14. Considering accessibility for the trainers, two trainers' rooms will be provided in the new building adjacent to the administration office, classrooms and library.

3) Dormitory:

Dormitory: As the training program at BAPELKES will be conducted for trainees from various regions, the trainees will basically be required to stay at the Center. As previously there were no dormitories, trainees had to stay in nearby YAYASAN facilities. In order to cut back on those expenses, the dormitory was planned for this Project.

The dormitory requested by the Indonesian side has rooms for 72 persons. Although, rooms for 160 persons, which seems to satisfy the standards of CETHP, was not adopted. As a result of the study, the capacity of the dormitory is 80 persons. This was decided upon after a series of discussions with BAPELKES. One room for 2 persons is required based on the standards of BAPELKES. From the facts described in the above the total number of dormitory rooms formulated into 40.

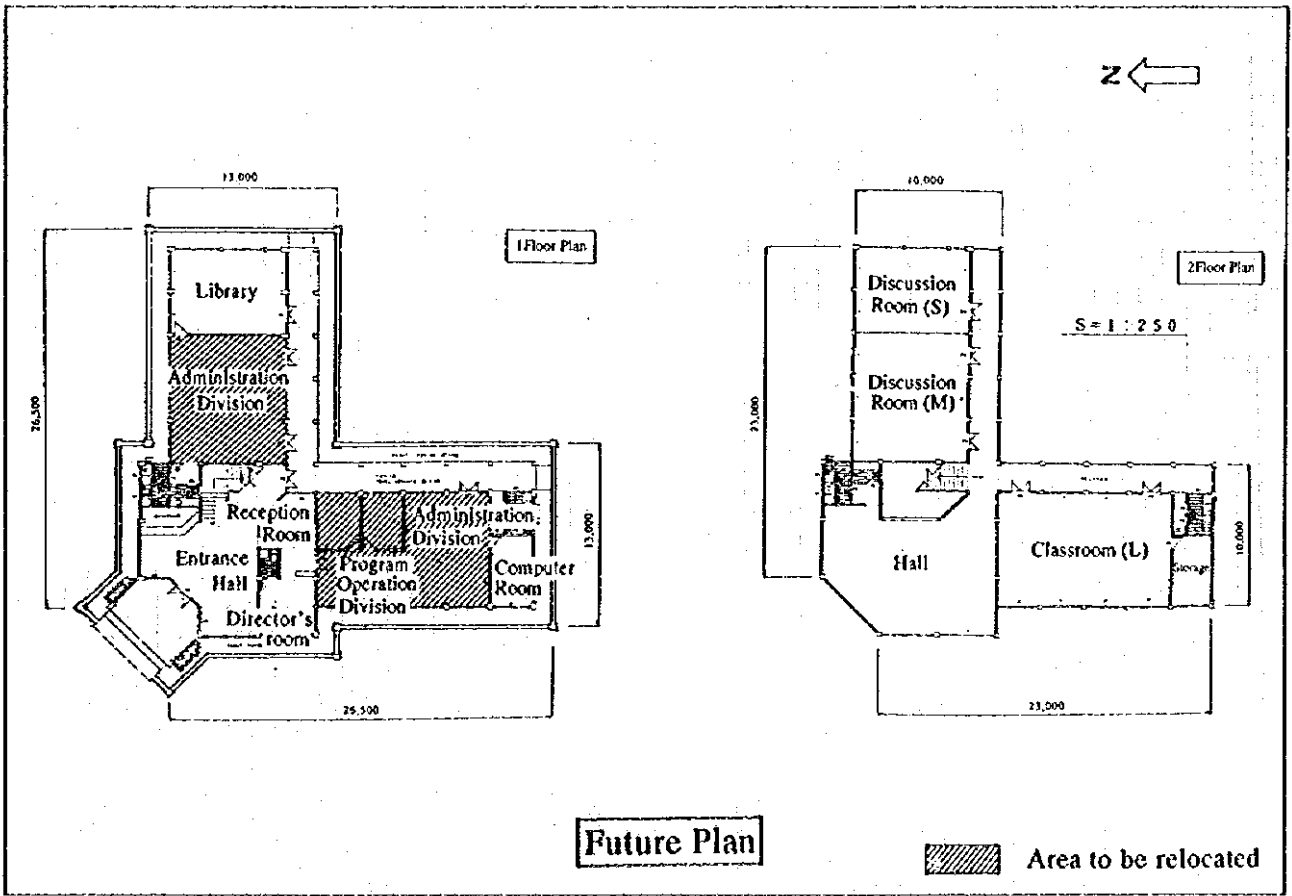
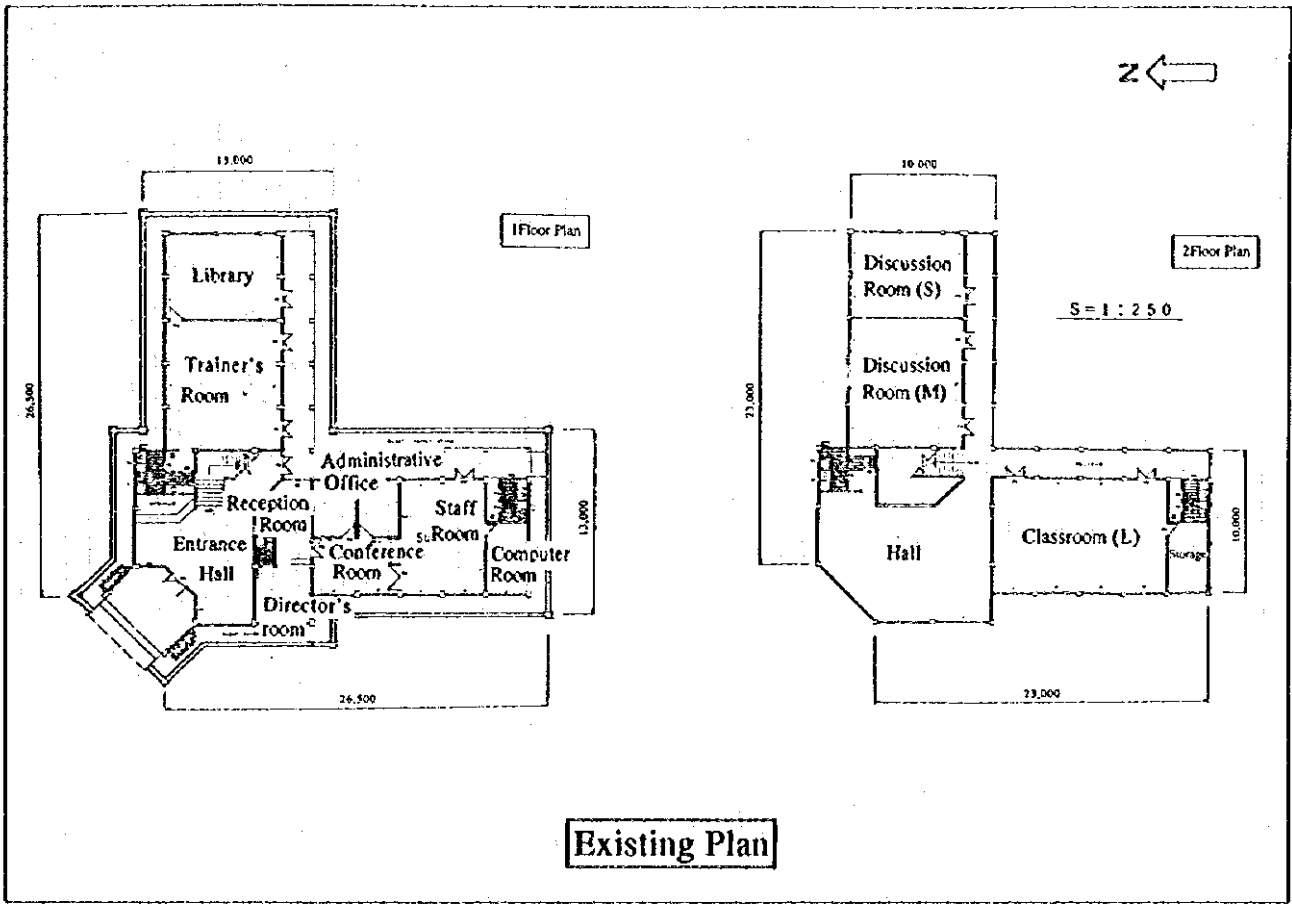
Additional rooms required are: Lobby, Warden room, and Laundry and Washing room for trainees.

4) Dining room:

BAPELKES must provide all meals including tea time for trainees, but not for staff and seminar participants. Therefore, based on the capacity of dormitory, the floor area of the dining room should permit table space and adequate gangways for 80 persons. Large seminars (200 people) can be divided into two and three groups. However, meals for others attending formal occasions, opening or closing training, ceremonies are also served in the dining room either before or after the routine meal service for the trainees.

5) Auditorium:

Auditorium: As there is no space to conduct large seminars at present, opening and closing ceremonies for the various training courses are conducted at other facilities. The request for the auditorium was made so that these activities could be conducted at the BAPELKES. KANWIL and DINAS in Manado do not have a large auditorium, in addition a large space for meetings and seminars is also very limited in MND. After completion of the Project, large seminars and meetings by the medical and health sector can be held at the new auditorium. In addition, the new auditorium will be a very important facility for use by other government agencies. Thus, construction of an auditorium is included in the Project.



Future Plan for Existing Building

The auditorium will be required to accommodate various sizes of meeting and function of BAPELKES. Therefore, an auditorium that can accommodate a different number of people and provide a more flexible layout with a maximum of 200 chairs and/or 100 chairs and desks on a flat level will be adapted.

Table 2-1 Future Plan of Existing and New Buildings at BAPELKES-MND

	Existing Building				New Buildings		Remarks
	Present Conditions		Future Plan		No. of Rms.	Area	
	No. of Rms.	Area	No. of Rms.	Area			
Administration and Training Building							
a. Classrooms	1	96m ²	1	96m ²	3	264m ²	Including Discussion rm and Practice rm M: 72 m ² x 1 Rm L: 96m ² x 2 Rms
b. Discussion rooms	2	120m ² (72 ,48)	2	120m ² (72 ,48)			
c. Practice room							Requested to be built
d. Special training room					1	72m ²	48 m ² :Training rm 24 m ² :Preparation rm
e. Library	1	48m ²			1	72m ²	
f. Administration offices	1	111m ²	1	183m ²			
g. Director 's rooms	1	35m ²	1	35m ²			
h. Trainer rooms	1	72m ²			1	96m ²	
i. Meeting room			1	48m ²			Existing Library will be converted
j. Printing room					1	24m ²	
k. Storage, Toilet	1	60m ²		60m ²		120m ²	
l. Staircase, Corridor, etc.		144m ²		144m ²		259m ²	
m. Entrance hall		174m ²		174m ²		119m ²	
Total		860m ²		860m ²		1,025m ²	

Note *: Future plan indicates the use of existing building after completion of the Project.

The future plan for the existing and new buildings listed above is based on the study with considerations with the following:

1. It is considered that the effective use of the existing building with clear distinction between each function the existing and new buildings to avoid wasteful duplication.
2. It is considered that the existing and new buildings will function effectively as a class B BAPELKES.

BAPELKES-UPD

The auditorium, dormitory and special training room are required to provide for the training of BAPELKES-UPD to fulfill expected roles.

1) Auditorium:

In BAPELKES-UPD, the development of a training facility, such as the provision of an auditorium, is becoming more important in terms of the increased demand for holding large seminars or for training use, due to the situation as the central BAPELKES in the eastern region of Indonesia. Presently, large seminars or training of BAPELKES are conducted at a hotel in Ujung Pandang.

Because there is no auditorium in BAPELKES-UPD, a definite plan for large seminars has not been formulated yet. However, based on tentatively planned large meetings and seminars prepared by KANWIL-UPD (please referred to APPENDIX-10) and the standard of BAPELKES, the auditorium of BAPELKES-UPD will be planned and designed based on 200 persons with chairs and desks.

2) Dormitory:

BAPELKES-UPD currently provides a dormitory that can accommodate a maximum of 84 persons. Seminar and training of BAPELKES often extend from several days to several weeks with a various number of participants depending upon the programs. According to seasonal changes of the occupancy of the dormitory, the number of participants was peak from October to December. One occasion, there were more than 300 participants (please referred to Table 2-2).

As for class A BAPELKES, 120 rooms for 240 persons are required based on CBTHP standards. However, with good training program coordination, the capacity can be reduced. Considering the site capacity, training program and other possible items relating to dormitory construction, a new dormitory will be planned and designed based on 20 rooms for 40 persons. The total capacity of dormitories will be enough to accommodate 124 persons.

3) Special training classroom:

In order to replenish findings on health care services, there is a need to redevelop the information gathering system by using computers so that various institutions can communicate with each other. The computer room along with a preparation room will be provided for improving computer accessibility.

Table 2-2 The Number of Participants for the Training Program at BAPELKES-UPD

	0 [day]	1~84* ¹ [day]	85~124* ² [day]	125~* ³ [day]	Total [person]	Average [pr./day]
96/4	29	1			30	1.03
96/5	2	29			1,100	35.45
96/6	7	17	6		1,747	58.23
96/7		17	4	10	2,757	88.93
96/8		13	8	10	2,746	88.58
96/9		21	5	4	2,331	77.7
96/10		13	0	18	4,474	149.13
96/11		3	8	19	4,920	164.00
96/12		21	7	3	2,258	72.84
97/1		31			1,896	61.16
97/2		28			1,322	47.2
97/3	9	11	4	7	1,805	58.2


- Note: *1 All participants can be accommodated in the existing dormitory.
 *2 All participants can be accommodated in the new and existing dormitory.
 *3 The capacity of the dormitory will be insufficient even after this project is completed.

The comparison between the standard facilities of BAPELKES and proposed plan for BAPELKES-MND and UPD is shown in the following Table 2-3.

Table 2-3 Comparison between the BAPELKES Standard and Proposed Plan

	Standard Facilities of BAPELKES*1			BAPELKES - UPD	BAPELKES - MND
	A class	B class	C class	B class → A class	C class → B class
1. Site Area	3 - 5 ha	1 - 2 ha		≈ 2.5 ha	0.8 ha
2. Building Area	4,500m ²	3,000m ²		≈ 3,600m ² + 1,600m ²	≈ 3,300m ²
3. Classroom	4 - 5 Rms 90m ² for 40 persons/Rm (9mx10m)	3 Rms 90m ² for 40 persons/Rm (9mx10m)		5 Rms 43m ² x 1 Rm 75m ² x 3 Rms 136m ² x 1 Rm	1 Rm x 96m ² + 1 Rm x 72m ² 2 Rms x 96m ²
4. Discussion room	6 Rms 30m ² (5mx6m) for 15 persons/Rm	3 Rms 30m ² (5mx6m) for 15 persons/Rm			2 Rms 72m ² , 48m ²
5. Administration Building	1 unit 200m ² for 40 persons	1 unit 150m ² for 30 persons		1 unit 320m ²	183m ²
6. Dormitory	120 Rms Bedroom with bathroom, toilet, 20m ² for 2 persons	80 Rms Bedroom with bathroom, toilet, 20m ² for 2 persons		21 Rms. with bath room + 21 Rms. (for 2 persons)	40 Rms Bedroom with bathroom 22m ² for 2 persons
7. Kitchen	150m ² (10mx15m)	100m ² (10mx10m)		187.5m ²	
8. Dining room	200m ² (10mx20m)	150m ² (10mx15m)		232.5m ²	174m ² (12mx12m)
9. Auditorium	700m ² for 200 persons	500m ² for 150 persons	350m ² for 100 persons	770m ² (for 200 persons)	413m ² (for 100 persons)
10. Trainers' room	100m ² for 20 persons	75m ² for 15 persons	50m ² for 10 persons	59.4m ²	36m ² for 10 persons
11. Library		100m ² (10mx10m)		47.3m ²	22m ²
12. Special training room		-		100m ²	720m ² (Except Prep.Rm)
13. Staff house.		8 units 54m ² /unit		6 units	(8 units)*3
14. Mosque		25m ² (5mx5m)			
15. Generator room		9m ² (3mx3m)			

*1 Standard Facility of BAPELKES published by CETHP

*2  : Proposed facilities of this project

*3 Under- construction by the Indonesian side

Table 2-3 Comparison between the RAPIID™ Standard and Part 51 of Title 26

Standard	RAPIID™ Standard	Part 51 of Title 26
1.1.1	1.1.1	1.1.1
1.1.2	1.1.2	1.1.2
1.1.3	1.1.3	1.1.3
1.1.4	1.1.4	1.1.4
1.1.5	1.1.5	1.1.5
1.1.6	1.1.6	1.1.6
1.1.7	1.1.7	1.1.7
1.1.8	1.1.8	1.1.8
1.1.9	1.1.9	1.1.9
1.1.10	1.1.10	1.1.10
1.1.11	1.1.11	1.1.11
1.1.12	1.1.12	1.1.12
1.1.13	1.1.13	1.1.13
1.1.14	1.1.14	1.1.14
1.1.15	1.1.15	1.1.15
1.1.16	1.1.16	1.1.16
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1. Note: The only difference between RAPIID™ and Part 51 of Title 26 is the use of the term "RAPIID™" instead of "RAPID" in the title of the standard.

2. The only difference between RAPIID™ and Part 51 of Title 26 is the use of the term "RAPIID™" instead of "RAPID" in the title of the standard.

3. The only difference between RAPIID™ and Part 51 of Title 26 is the use of the term "RAPIID™" instead of "RAPID" in the title of the standard.

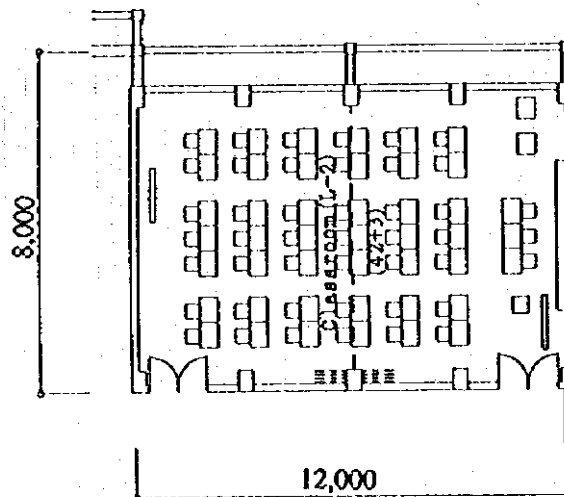
(3) Computation of the Scale of Each Room

In accordance with the scale of the project mentioned in paragraph 2) of the Basic Concept for Determination of the Facilities' Scale, the floor area is estimated based on the expected room and facilities for the BAPELKES. The facility size will be formulated based on similar facilities in Indonesia, such as the existing BAPELKES's facilities, standards of BAPELKES prepared by CETHIP, and other projects undertaken by Japan's Grant Aid assistance in South East Asia as well as the result of discussions with the Indonesian side.

BAPELKES-MND

1) Classroom:

The floor area of the existing large classroom calculated as $8.0\text{m} \times 12.0\text{m} = 96.0\text{m}^2$, while the floor area of discussion rooms are calculated as $8.0\text{m} \times 6.0\text{m} = 48\text{m}^2$ and $8.0\text{m} \times 9.0\text{m} = 72\text{m}^2$. The large classroom of 96m^2 is used for 40 trainees. The discussion room shared by these two or three groups of 10 - 15 trainees may also be used for holding discussions. There will be 40 trainees per class in compliance with the requirements of BAPELKES. A course for 60 or 80 trainees which exceed 40 is needed for two rooms. A classroom will also be used as discussion rooms by using a movable partition which can divide the room into two. Since the classroom of 96m^2 will also be used for other purposes, such as a practice room and discussion room, at the same time, the two large classrooms of $6.0\text{m} \times 16.0\text{m} = 96\text{m}^2$ for 40 trainees and one middle classroom of $6.0\text{m} \times 12.0\text{m} = 72\text{m}^2$ for 30 trainees will be designed. The floor space occupied by a trainee is 2.4m^2 based on the requirement of various usages, such as lectures, training, discussions and practice.



<BAPELKES-MND>

Fig. 2-1 Classroom

2) Special training room

The standards for BAPBLKES are issued by CETHP. According to the standards of CETHP, 7 computers for MND and 15 computers for UPD are needed. However, the number of computers will be increased to 10 for MND and 20 for UPD in accordance with future needs. The space of 56m² for 10 computers in MND, and the space of 90m² for 20 computers in UPD will be needed based on the study of the computer layout plan. There is also a need for a preparation room next to the special training classroom for the trainer's preparation space and the storage of computer handbooks, computer paper, floppy disks and other related equipment.

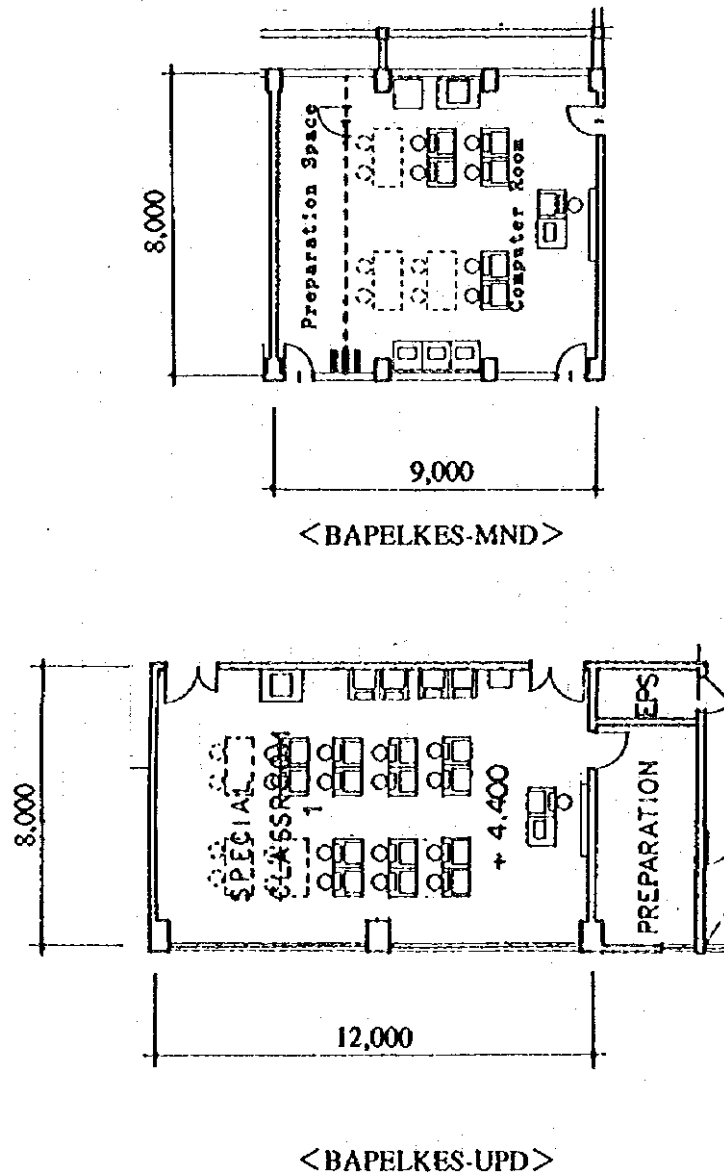


Fig. 2-2 Special Training Room

3) Dormitory:

According to the standards set by CETIP, the capacity of a Class A-BAPELKES should be 120 rooms for 240 persons, while the capacity of a Class B should provide 80 rooms for 160 persons, based on 20m^2 per room for 2 persons. As shown in Fig. 2-3, the dormitory room of BAPELKES-MND will be provided based on the floor area of 24m^2 per room for 2 persons, and the room of BAPELKES-UPD will be provided based on the floor area of 23.1m^2 per room for 2 persons.

Considering the scale of the dormitory of BAPELKES-Cilandak is $4.0\text{m} \times 5.4\text{m} \Rightarrow 21.6\text{m}^2$ and other similar facilities in South East Asia countries ranges around 24m^2 per room for 2 persons, the proposed scale is appropriate.

These rooms will be laid out to provide space for the following items of furniture; 2 single beds, 2 desks, 2 chairs, 2 lockers, and 1 bathroom.

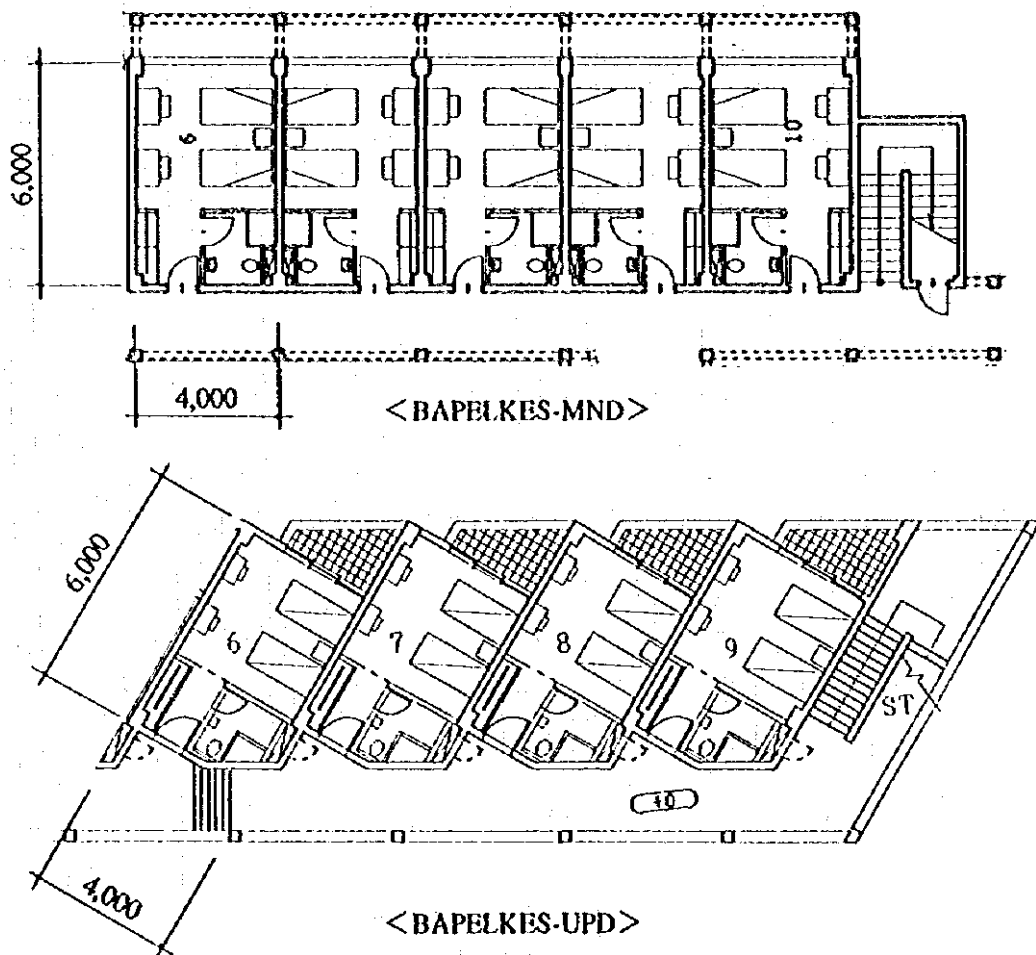
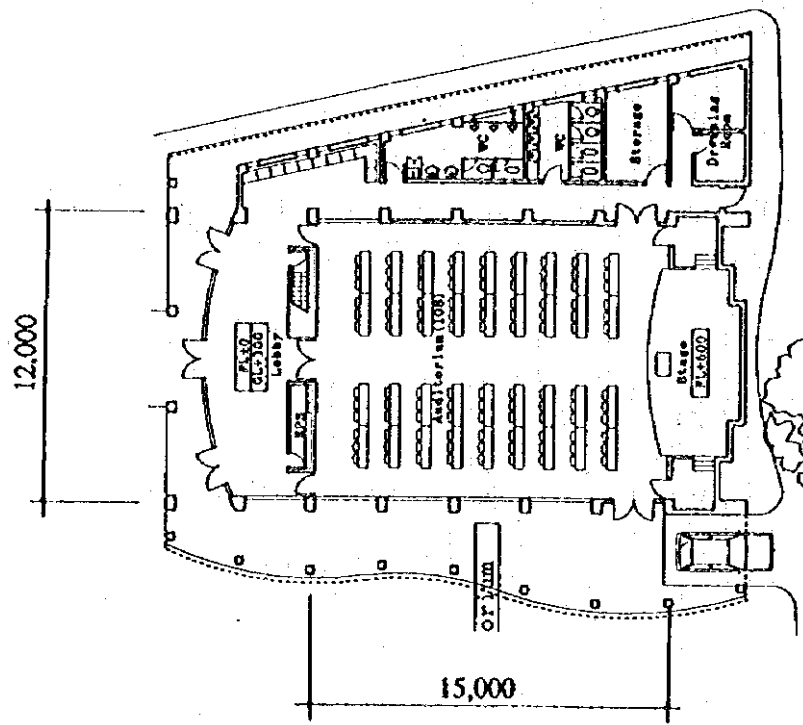


Fig. 2-3 Dormitory

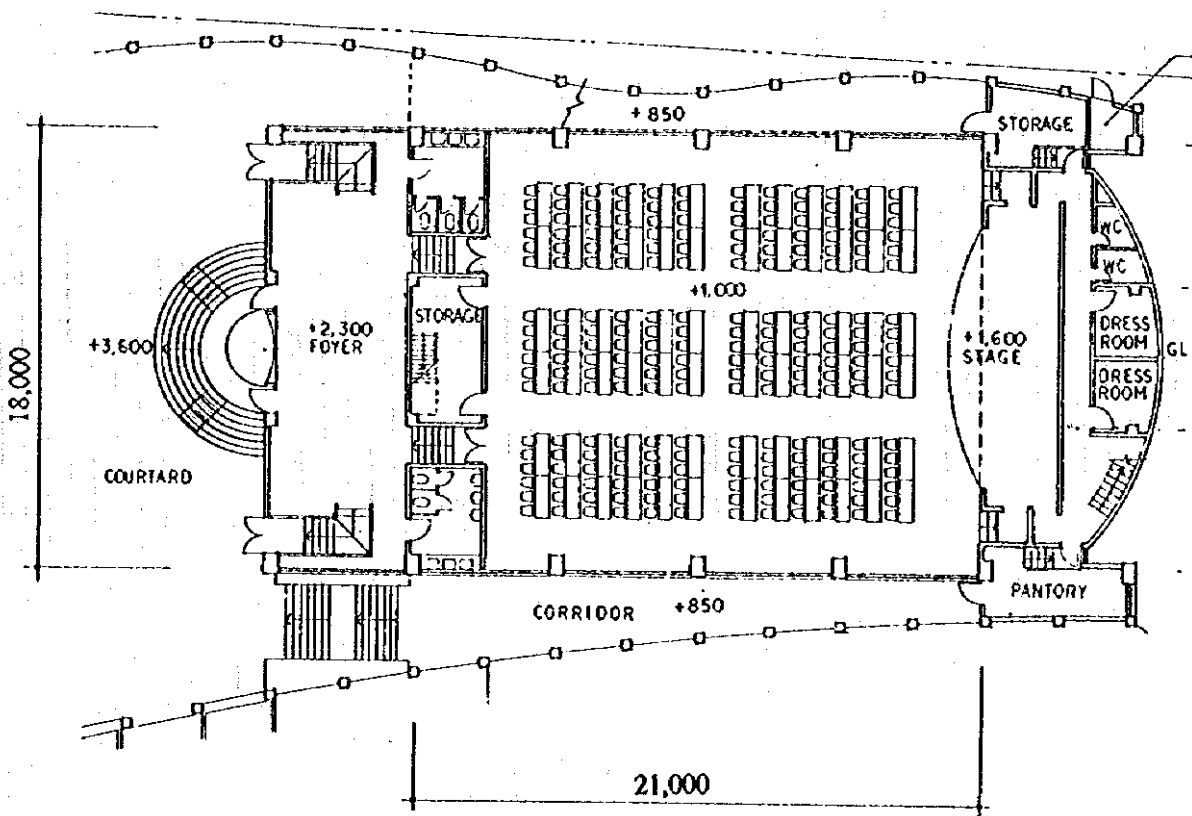
4) Auditorium:

Since the auditorium is needed for various activities and training, particular consideration must be given to its capacity and flexibility. Based on the seminar and training program, chairs and desks or chairs only will be arranged in the auditorium where there is need for frequent changes of the use of space. The three-persons desk will be recommended. The dimensions of seating area in auditorium are $15.0 \times 12.0\text{m} = 180\text{m}^2$ in MND and $21.0 \times 18.0 = 378\text{m}^2$ in UPD.

The floor area occupied by one person with chair and desk is calculated as 1.8m^2 (MND) and 1.89m^2 (UPD). The space arrangement is 100 persons with chairs and desks, and 200 persons without desks in MND. In case of UPD the capacity of seating area is 200 persons with chairs and desks, and 300 persons without desks. Basically the appropriate unit scale for the hall and large conference space is approximately $1.5 - 2.0\text{m}^2$ per person with chairs and three persons desks, and approximately $0.8 - 1.2\text{m}^2$ per person without desks. On the other hand, space standards of CETHP for BAPELKES are 700m^2 for 200 persons (class A), and 500m^2 for 200 persons (class B). The total areas of auditorium including stage and lobby at both BAPELKES-MND and UPD are 413m^2 and 711m^2 respectively, so that the scale of the planning is considered a reasonable size.



<BAPELKES-MND>

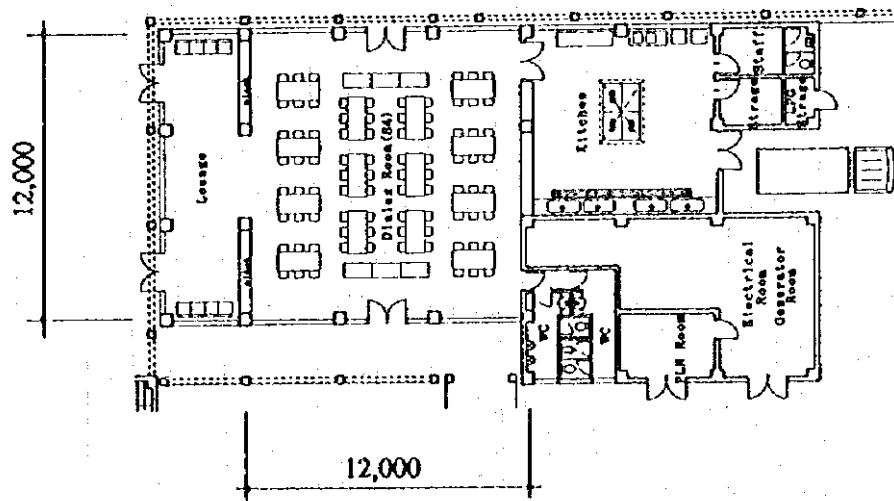


<BAPELKES-UPD>

Fig. 2-4 Auditorium

5) Dining Room:

In relation to the capacity of dormitory at MND, the dining room should have a seating capacity for all 80 trainees at one time. Visitors or guests normally eat in this dining room before or after the routine meal service. Considering the number of people, customs and table layout, the floor area of at least 1.8m^2 per person is necessary to permit table space and adequate gangways. The floor area of the dining room for 80 persons is $12.0 \times 12.0\text{m} = 144\text{m}^2$ in total. A 48m^2 lounge should be planned close to the dining space. It may be converted as a large dining room by removing the partition between the lounge and dining space.



<BAPELKES-MND>

Fig. 2-5 Dining Room

(4) Required Rooms and Their Floor Areas

Based on the discussions and study, the necessary rooms were mentioned in the previous clauses; their floor areas are listed in Table 2-4.

Table 2-4 Required Rooms and Their Floor Area

	The Application Form (1994)		The Proposal (1996)		Project Floor Area		Remarks
	No. of Rooms	Area	No. of Rooms	Area	No. of Rooms	Area	
A. BAPELKES-MND							
(1) Administration and Training Building							
a. Classrooms	3	300m ²	3	216m ²	3	264m ²	
b. Discussion rooms	5	180m ²	2	72m ²			
c. Practice rooms			2	192m ²			
d. Special training rooms			1	72m ²	1	72m ²	
e. Libraries	1	150m ²	1	156m ²	1	72m ²	
f. Administration offices	1	500m ²	1	108m ²			
g. Director rooms			1	36m ²			
h. Trainer room			2	72m ²	2	96m ²	
i. Printing room					1	24m ²	
j. Strage, Toilet		80m ²	1	280m ²		120m ²	
k. Corridor, Staircase			1	410m ²		259m ²	
l. Entrance hall, Lounge			1	150m ²		119m ²	
(2) Dormitory	1	1,500m ²	36	1,380m ²	40	1,541m ²	
(3) Dining hall and Kitchen		400m ²		438m ²		274m ²	
(4) Staff House		200m ²				-	
(5) Auditorium		300m ²		406m ²		413m ²	
(6) Attached facilities (Generator room, etc.)		50m ²				168m ²	
(7) Others (Outside corridor, etc.)						339m ²	
Total		3,660m ²		4,000m ²		3,761m ²	
B. BAPELKES-UPD							
(1) Auditorium		400m ²		947m ²		711m ²	
(2) Dormitory			16	561m ²	20	840m ²	
(3) Special training room			1	163m ²	1	148m ²	
Total		400m ²		1,671m ²		1,699m ²	
TOTAL		4,060m²		5,620m²		5,460m²	

2-3-3 Basic Design

(1) Site Layout Plan

The site layout plan of this project was planned focused on the following points which give full consideration to site conditions (environmental nature and location) in order to improve the previously mentioned problems. The zoning and flow line plan of the facilities is explained in the following Basic Policy:

1) Basic Policy-1 (BAPELKES-MND)

- a) As a premise, it is important to make clear distinction between the characteristics of the new and existing facilities as well as to establish the integrated future relationship of both facilities so as to multiply the effects.
- b) It is necessary to examine how the existing facilities and staff house are connected to the new facilities. The connection of the buildings should be determined so as not to interfere with their functions, but integrated in the architectural design, structure and utilities.
- c) It is important to consider distances between buildings and their orientation in order to secure good ventilation, natural lighting and sound proofing without mechanical devices throughout the year with consideration of the climate of MND.
- e) Since BAPELKES serves a large number of people, it should be lay-outed so that there will be no confusion of direction and traffic between the flow lines of trainees, trainers, staff and visitors.
- f) Safety, easy approaches for access and security check points from the east gate should be considered in order to make a proper site layout plan.
- g) Connect each building with covered walkways should be considered to provide protection from rainfall and strong sunlight.
- h) It is important to consider the effective utilization of external spaces such as inner gardens, for air circulation and relaxation, and to ensure that the building and landscape are harmonized each other.

2) Basic Policy-2 (BAPELKES-UPD)

- a) The new complex including the auditorium and training building, must be carefully suited to the existing administration building. However, the new dormitory should be planned on the basis of the relationship with the other existing buildings in consideration of their functions and flow lines. The layout plan must also respect the surrounding landscape.

- b) The new auditorium and training building has a difference of 6 meters in elevation toward the direction of the hill. Thus, each particular site must also be planned based on this specific condition.
- c) Because of the site of the dormitory is to be situated on a narrow space on the southern slope of the hill, the dormitory plan is rotated 45 degrees with respect to the north-south axis so as to maximize the use of the space.
- d) The relationship of the layout of the new and old dormitories should be considered secure for the privacy its occupants.
- e) Access from the existing dormitory to the new dormitory is provided by the covered walkway which offers protection from rainfall and sunlight.

(2) Architectural Designs

1) Floor Plan - 1 (BAPELKES-MND)

In terms of floor planning, the calculated areas and the layout plan as mentioned above were used and each facility was planned on the basis of the following criteria:

- a) The floor plan should be coordinated with the existing facilities and the proposed staff house. In particular, consideration must be given to the facilities contents and roles in the function between the existing facilities and this project.
- b) The functional relationship between each room shall be considered based on the curriculum and syllabus of training.
- c) In order to make a most functional layout plan for the classroom, clear zoning and smooth flow line in the whole plan must be considered in relation with other facilities such as the special training classroom, trainers' room and auditorium.
- d) It is important to plan appropriate and economic ventilation and air conditioning systems considering local climate conditions such as high humidity and rainfall.
- e) The corridor type which encloses the inner garden shall be considered instead of the single corridor type or center corridor type, by taking the merits and demerits of the existing BAPELKES into consideration.
- f) In order to shorten the schedule for the procurement of equipment and construction works, construction and materials construction method should be standardized. To achieve this, setting an appropriate module for the building and standardizing the span are required. The most commonly used modules have spans of 3.0 and 4.0 meters in the existing building and at similar projects in South East Asia.
- g) The size and layout of equipment and furniture in each room should be considered in the space planning.

2) Floor Plan - 2 (BAPELKES-UPD)

- a) Access to the auditorium should be located close to the main access of the existing facilities and located in relation to existing car parking. The access should be easily seen and recognizable by visitors.
- b) The appearance of buildings should harmonize with existing buildings and the surrounding landscape.
- c) A minimum but efficient air conditioning system for the auditorium should be provided.

- d) Emergency exits and safety measures for the auditorium should be provided in order to cope with a minimum of 200 people at any given time.
- e) Based on Indonesian standards, the necessary area of a dormitory shall be designed in consideration with the layout of furniture and comfortability in the room.
- f) Covered walkways should be provided for protection against rainfall and sunlight.
- g) The floor plan should be established considering the size and layout of educational equipment and furniture in each room.

3) Elevation and Cross-Section Plan

For the planning of the elevation and cross-sections of buildings, considering local building styles, local construction methods, and the existing BAPELKES-MND and UPD buildings should be considered for references on the basis of the following matters:

- a) The cross-section plan should be considered in regard to the floor level or floor height of the existing buildings. The connection between the proposed building and the existing building should be given careful consideration and be well integrated.
- b) The level of the ground floor will be raised above the present ground level in order to prevent possible inundation during the rainy season and from radiant ground heat.
- c) The roof should be sloped in order to quickly discharge the rain water.
- d) Deep louvers can protect the rooms from direct sunlight and rainfall.
- e) Hollow blocks which can allow natural light and air to permeate shall be installed in order to enhance the space environment as well as to prevent strong sunshine and rainfall.
- f) Wall surfaces should have openings as large as possible to enhance room ventilation and provide a balanced intake of natural lighting.

4) Cost Reduction Measures

The various factors of cost reduction which have to be considered in the course of design works for BAPELKES buildings are as follows. The cost performance and the maintenance cost must be taken into account in planning.

- a) The standardization of space is necessary to give flexibility in design of the building. The basic module is to be studied carefully by taking into consideration the combination of the basic module. Through extensive investigation, the economical

span and standard module of Indonesia has been successfully determined for incorporation into the Basic Design.

- b) Planning and construction methods on the existing BAPELKES have been carefully reviewed and studied and the results are reflected in to the architectural planning for this project.
- c) The entire size of the facility is overlooked focused on the plan so as to enhance the utilization rate of rooms and to promote the effective use of rooms, utilities and equipment.
- d) In the same manner as the existing building, gallery type corridors are planned from the viewpoint of meteorological conditions in Indonesia in spite of being less efficient compared to the center corridor type.
- e) Local construction materials of Indonesia should be effectively used so as to reduce the costs for construction and maintenance. Also, in the long-term view of the project, together with the consideration of the maintenance costs of the facilities, the finishing materials will be selected considering the long life and better maintenance characteristics of the materials.
- f) Consideration is given to the introduction of high energy efficient equipment and insulation material in order to reduce operation expenses.
- g) In principle, natural ventilation and lighting is to be applied as much as possible and mechanical ventilation and artificial lighting is to be minimized in order to reduce maintenance costs. However, some of the rooms will need mechanical systems. In this case, local and individual systems will be used in place of a central system.
- h) As mentioned above, cost reduction measures are considered in the course of the design work. In the case of training facility design, flexibility to accommodate future improvements and renovations is one of the important factors. The reduction of the initial cost shall be considered carefully so as not to cause any cost increase in operations and maintenance.

(3) Structural Plan

1) Basic Policy

The structural plan for the project should be formulated after a full review of the existing site conditions.

The structural design shall be designed to prevent such fatal defects as deflection, settlement, etc. In addition, the building shall have sufficient safety and durability against earthquakes, strong winds, etc. Consideration should also be given to local construction and maintenance conditions.

2) Standard for Structural Design

Structural design shall conform to the relevant codes, regulations and standards of Indonesia.

Other relevant standards, such as the American Concrete Institute (ACI), American Institute of Steel Construction (AISC) and Architectural Institute of Japan (AIJ) are to be referred in order to secure safety and rationality.

3) Methods and Material

The superstructure is a concrete frame type with brick in the main parts, which is an economical and widely used method in Indonesia. A steel structure system is provided in some parts of the building to achieve the required strength. Reinforcing steel bars, concrete and steel are locally available and appropriate measures should be taken for quality control.

Concrete: Design stretch (F_c) = $210\text{kg}/\text{cm}^2$
(28 days Compressive Strength of Cylinder test piece)

Since steel frame systems are one of the essential components of large structures, these frame will be considered in the structural plan of the auditoriums. However, consideration is given to the most economical and efficient truss (frame) proportions.

4) Foundation

Independent RC footings were made at the existing building of BAPELKES-MND and UPD, but there was the evidence of non-uniformed settlement on the building wall of MND. The depth of these independent footings is approximately 2.5 meters. Based on the result of site surveys, independent RC footings will be applied in BAPELKES-UPD, but considering safety, 10 meters pile foundations will be applied in BAPELKES-MND. In regards to the above mentioned method, the effects on the reducing construction costs of foundation will be large.

5) Design Load

Wind Load: The wind load is calculated in accordance with the Architectural Standards of Indonesia. Heavy winds which causes significant impact on the building are not recorded at either site.

Seismic Force: Indonesia is located in an active volcanic zone of the Pacific Ocean where earthquakes occur frequently. According to the Indonesian zoning map of seismic scales, the surrounding area of the project site lies in the area of the fourth degree on the seismic scale. Pedoman Perencanaan Kahanan Gempa Untuk Rumah dan Gedung is to be referred to for the seismic load.

Dead Load: The structural members and finish materials can be calculated for dead load.

Live Load: Pedoman Perencanaan Pembebanan Untuk Rumah dan Bangunan of Indonesia can be introduced.