

THE UNIVERSITY OF CHICAGO

DEPARTMENT OF CHEMISTRY

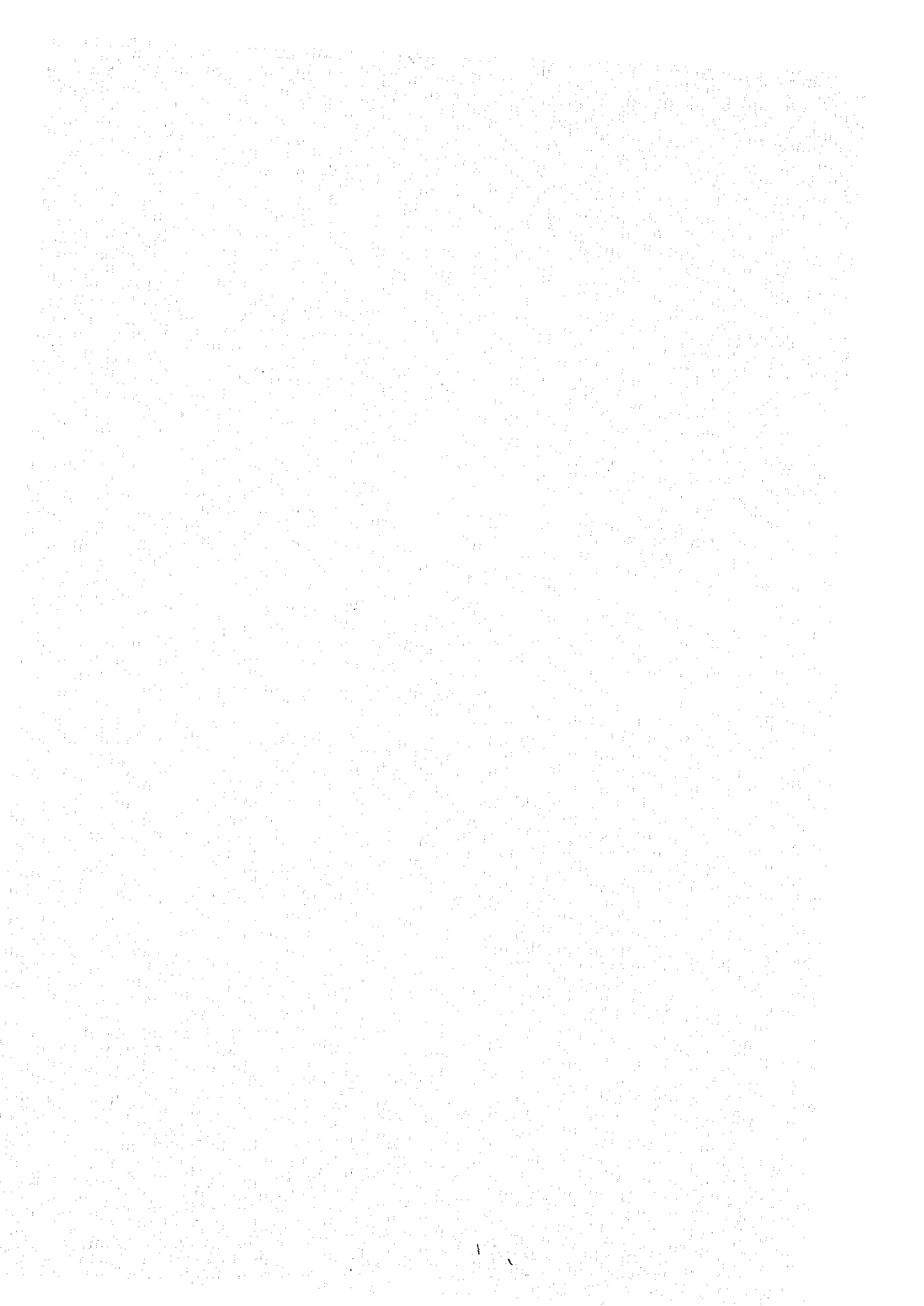
RESEARCH REPORT

1902

1903

1904

1905



マイクロ  
フィッシュ作成

THE REPUBLIC OF INDONESIA

BASIC DESIGN REPORT  
ON  
MIDDLE LEVEL AGRICULTURAL  
TECHNICIAN  
TRAINING CENTER

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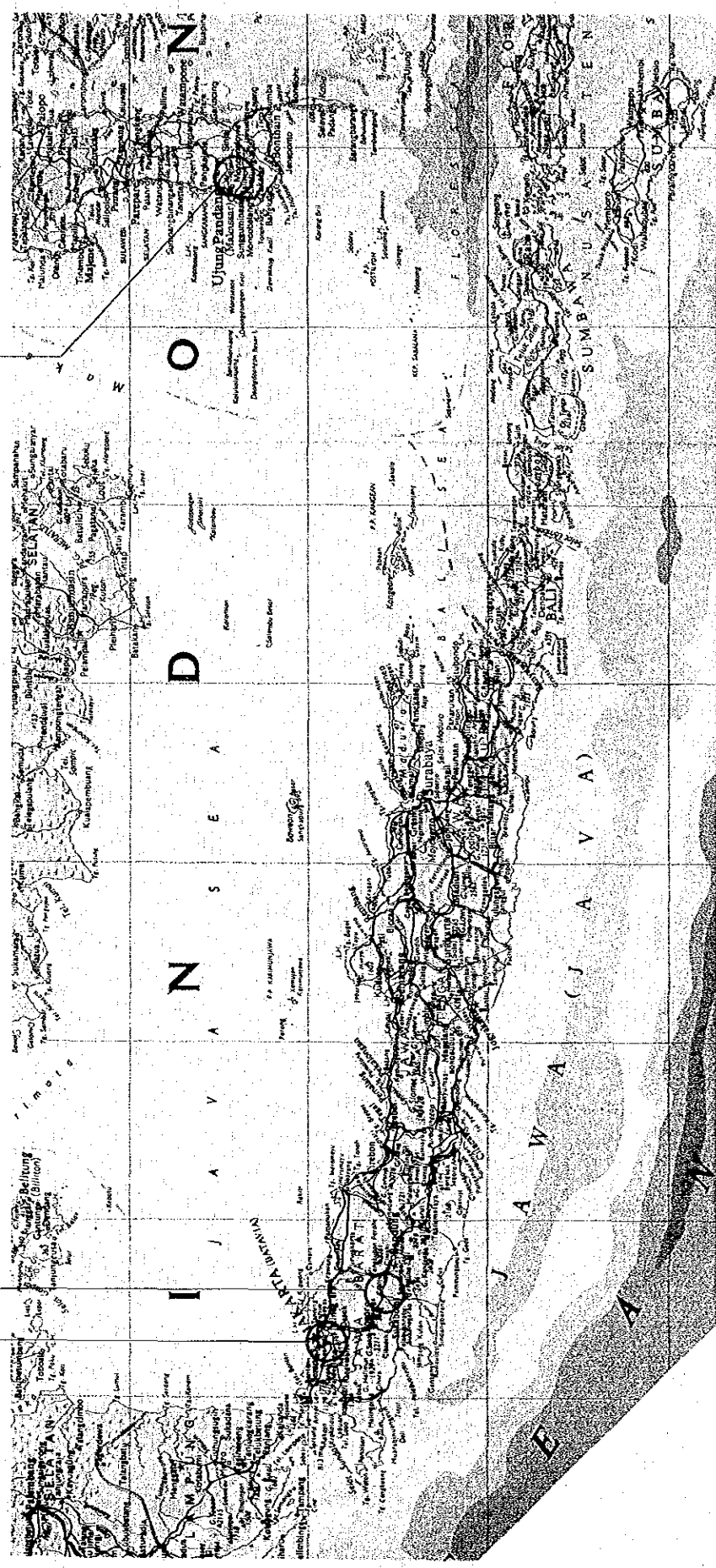
JAPAN INTERNATIONAL COOPERATION AGENCY

国際協力事業団	
受入 月日 84-3-28	105
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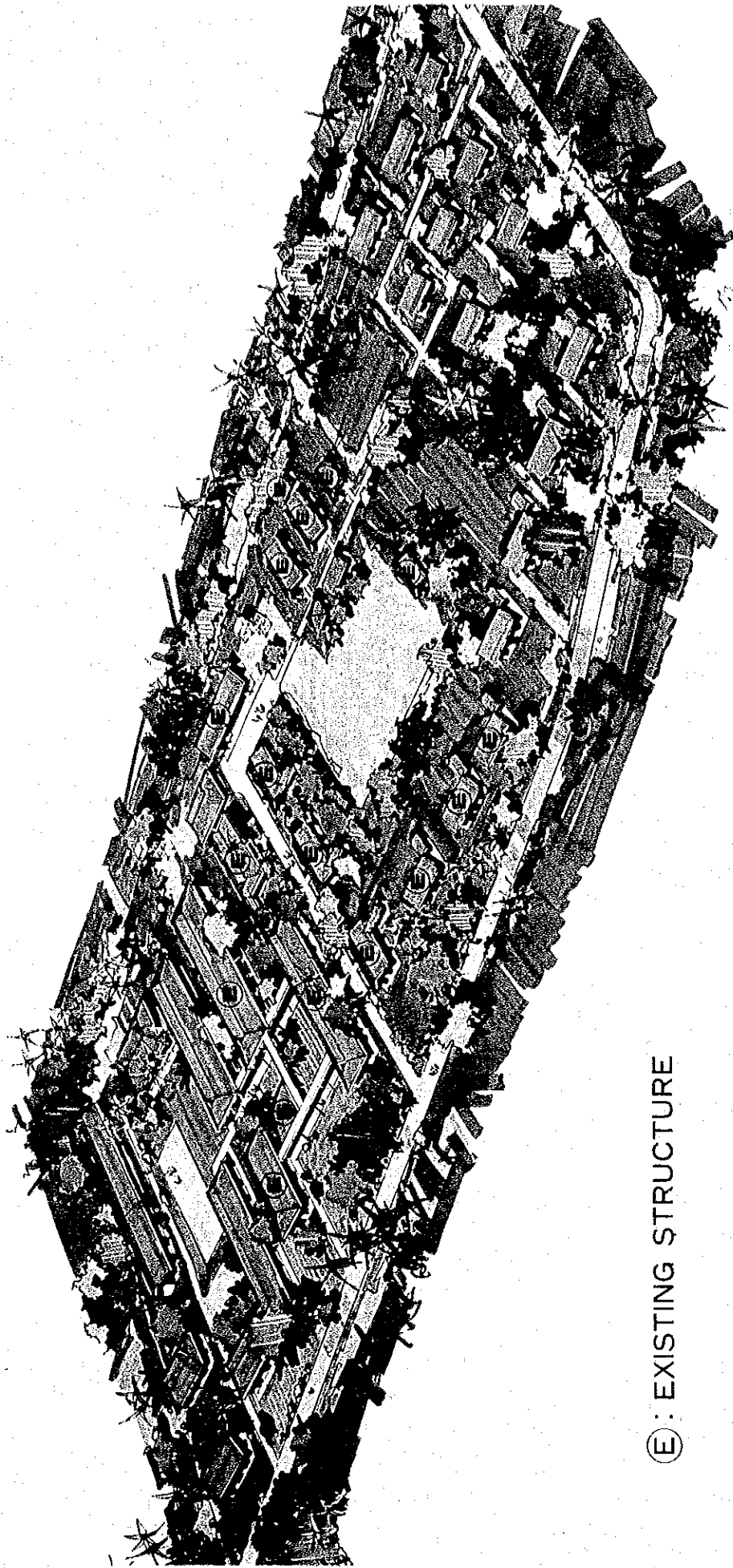
CENTRAL OFFICE OF AAETE

CIHEA TRAINING CENTER

BATANGKALUKU TRAINING CENTER

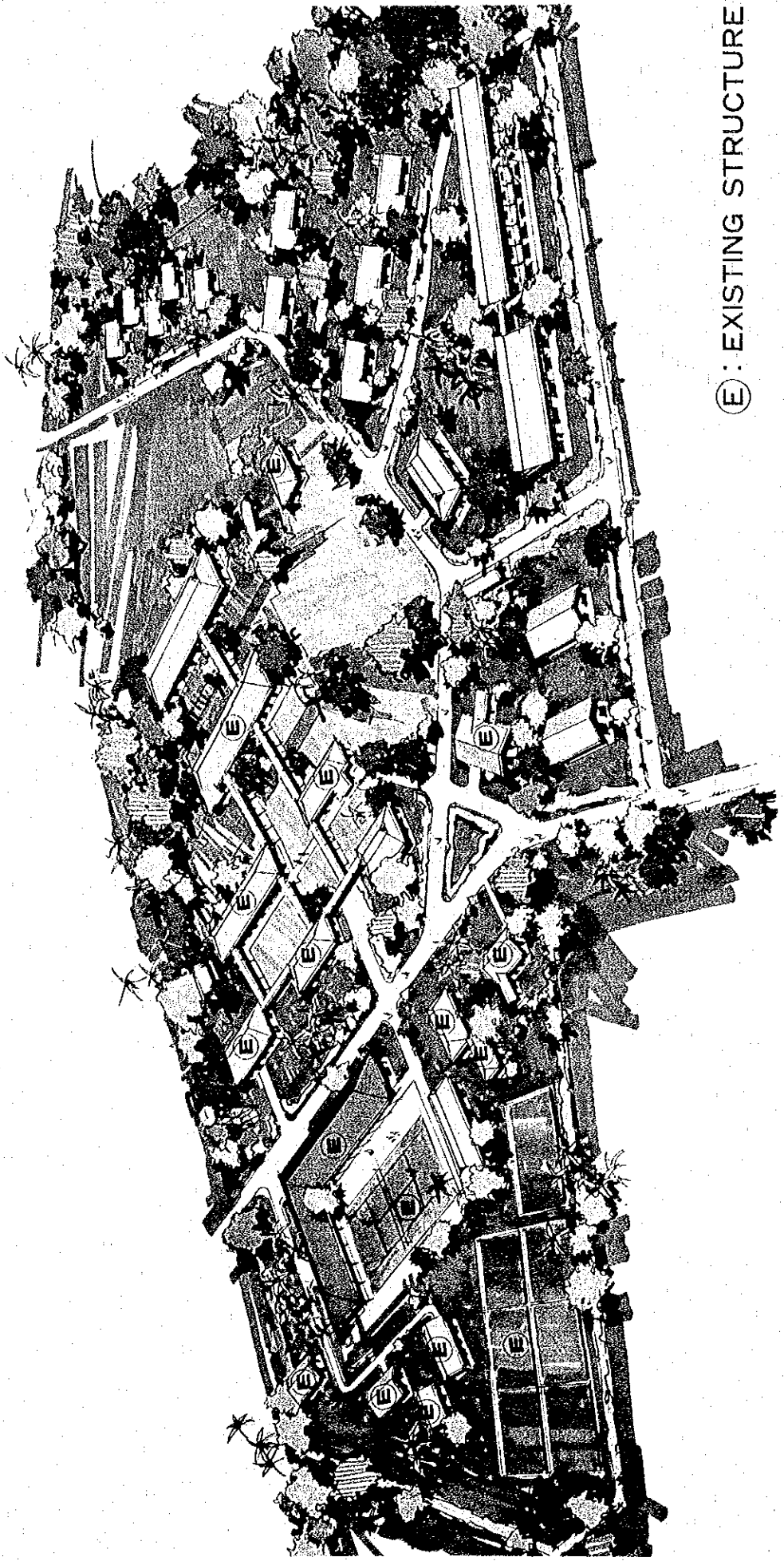


LOCATION MAP



Ⓔ: EXISTING STRUCTURE

PERSPECTIVE VIEW—CIHEA TRAINING CENTER



ⓔ : EXISTING STRUCTURE

PERSPECTIVE VIEW - BATANGKALUKU TRAINING CENTER

## PREFACE

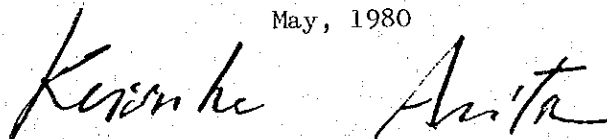
In response to the request of the Government of the Republic of Indonesia, the Japanese Government decided to conduct a survey on the Basic Design of the Middle Level Agricultural Technician Training Center, and entrusted the survey to the Japan International Cooperation Agency. The J.I.C.A. sent to Indonesia a survey team headed by Mr. Ken Uesugi from April 9 to April 28, 1980.

The team, in consultation with the officials concerned of the Government of Indonesia, conducted a field survey in Cihea and Batang Kaluku area, Indonesia. After the team returned to Japan, further studies were made and the present report has been prepared.

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

I wish to express my deep appreciation to the officials concerned of the Government of Indonesia for their close cooperation extended to the team.

May, 1980



Keisuke Arita

President

Japan International Cooperation Agency



## CONTENTS

### FOREWORD

Page

### CHAPTER 1 OUTLINE OF AGRICULTURAL EDUCATION AND TRAINING PROJECT

1.1	Introduction .....	1
1.2	Outline of Improvement Efforts on In-Service Training Centers.....	4

### CHAPTER 2 REQUEST OF ASSISTANCE TO JAPANESE GOVERNMENT

2.1	Background .....	8
2.2	Scope of Facilities Requested .....	9
2.3	Particulars of Request .....	10

### CHAPTER 3 PURPOSE OF MISSION AND ACTIVITIES

3.1	Purpose of Mission .....	13
3.2	Members of Survey Team .....	13
3.3	Concerned Officials in Indonesia .....	14
3.4	Itinerary of Survey Team .....	15

### CHAPTER 4 SUMMARY OF SURVEY AND DISCUSSION

4.1	Major Activities of Survey Team .....	18
4.2	Summary of Discussion .....	19
4.3	Interim Report .....	21
4.4	Effects of Assistance on Project .....	31

### CHAPTER 5 BASIC DESIGN

5.1	Site Conditions .....	32
5.2	Outline of Existing Facilities and Use of Them .....	42
5.3	Basic Design .....	48
5.4	Scope of Facilities .....	49

	<u>Page</u>
5.5 Arrangement of Facilities .....	53
5.6 Architectural Design .....	56
5.7 Utilities Design .....	60
5.8 Construction Cost Estimate .....	63
5.9 Implementation Time Schedule .....	66
5.10 Basic Design Drawings .....	67
APPENDIX -1 GROUND WATER SURVEY AT BATANGKALUKU TRAINING CENTER .....	 A-1
APPENDIX -2 CONSTRUCTION COST ESTIMATE FOR SECOND PRIORITY GROUP .....	 A-15

## CHAPTER 1

### OUTLINE OF AGRICULTURAL EDUCATION AND TRAINING PROJECT

#### 1.1 Introduction

Agriculture as a whole still plays one of the most important roles in Indonesian national economy along with mining industries. It has therefore given an important position and preponderantly invested in three consecutive 5-Year Development Plan which started in 1967.

Continuous investment and efforts on the agricultural development, however, have not turned over satisfactory results. One of the reasons of falling short of the target could be attributed to the shortage of competent agricultural technicians specially those who, with practical knowledge and expertise, effectively work with farmers to upgrade overall agricultural level in the country.

Education and training for the agricultural personnel in national and provincial governments, the first step toward comprehensive agricultural education and training plan, was started in 1970 by various agencies of the Ministry of Agriculture as the occasion particularly required.

In 1971, the Government with assistance from FAO mission prepared a project proposal for World Bank financing constituting the second phase of the Government's long range plan for the improvement and further development of agricultural training. The project proposed two-step strategy consisted of the following:

First Phase Plan: To improve the quality and efficiency of selected national institutes preponderantly to

meet urgent national demand for middle level agricultural manpower.

**Second Phase Plan:**

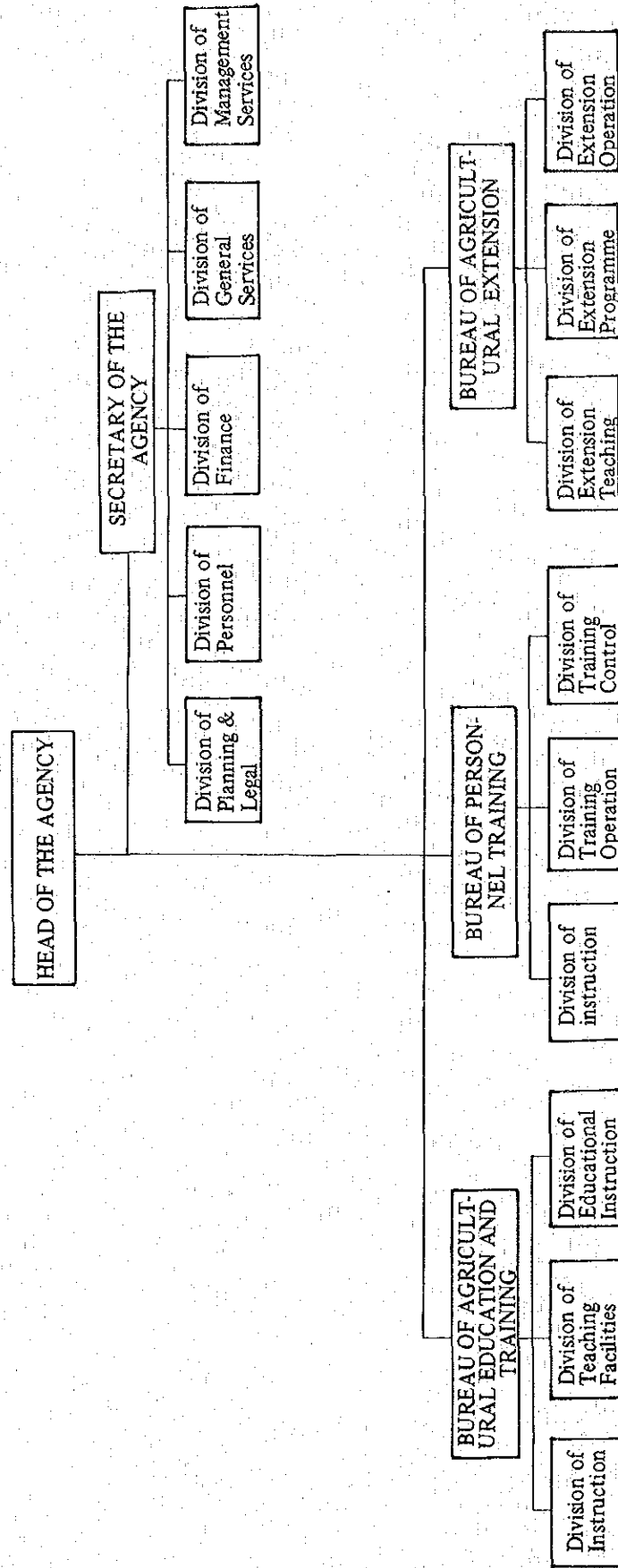
To improve the quality and efficiency of other public institutes putting emphasis on provincial institutes in outer islands and expanding the scope of education and training to marine fishery and forestry which are not included in First Phase Plan.

First Phase Plan was put into effect by a World Bank loan in 1972 (Credit 288-IND) under the name of Second Education Project.

Under the project, Agency for Agricultural Education and Training (AAET) was established in 1972 in Ministry of Agriculture as a central agency to administer, coordinate and supervise the agricultural training programs. On the other hand, from 1975 through 1977 improvement of 14 existing national agricultural highschool and of 16 in-service agricultural training centers (1 central training center, 13 agricultural and 2 forestry) among other 23 existing national centers was materialized.

The said AAET in the mean time was re-named Agency for Agricultural Education Training and Extension (AAETE) in 1974 having an organization as shown below:

ORGANIZATION OF AAETE



Second Phase Plan is scheduled to be implemented by another World Bank loan in the name of Second Agricultural Training Project starting in parallel with the Third 5-year Development Plan which compasses 1979 through 1983.

Under this project, 1) expanding and/or upgrading of the national agricultural highschoools and in-service training centers which received basic improvement under the Second Education Project providing them with additional facilities, 2) establishing 5 national agricultural highschoools and 7 in-service training centers (6 agricultural and 1 livestock hygienics), 3) relocaing or remodeling 13 provincial agricultural highschoools, 1 national agricultural highschool and 3 in-service training centers (2 forestry and 1 marine fishery and 4) strengthening manpower qualities for planning, administration and supervision at AAETE are envisaged to keep pace with progress of agricultural development projects throughout the country and to cope with the need for extending training programs into new fields.

It must be noted that among the 13 agricultural in-service training centers covered by the First Phase Plan, Cihea In-service Training Center in West Java Province and Batan Kaluku In-service Training Center in South Sulawesi Province have been excluded by the Indonesian Government from the list of Second Phase Plan calling for an assistance from Japanese Government because these two centers have had a close bearing with technical cooperation by Japanese Government.

## **1.2 Outline of Improvement Efforts on In-service Training Centers**

Agricultural education and training for agricultural personnel of governmental institutes when started in 1970 as stated hereto was carried out at the outset utilizing

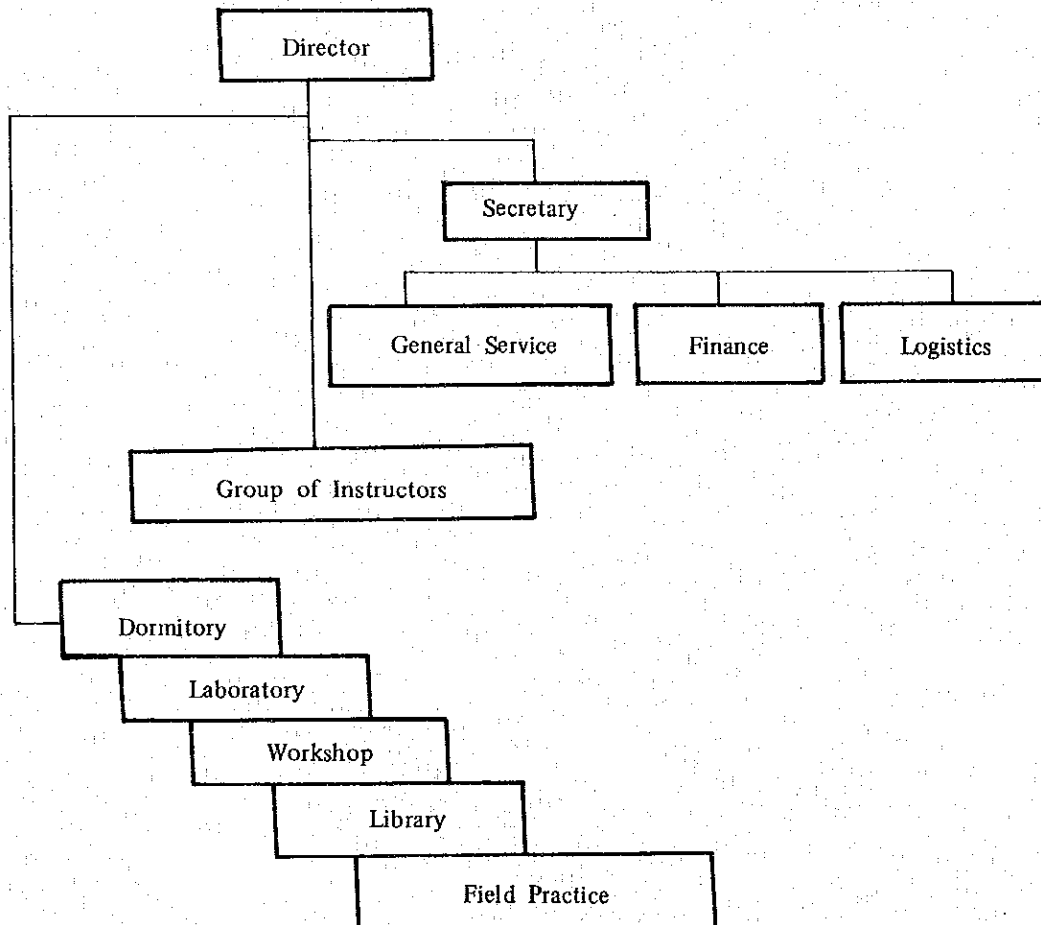
existing facilities such as seed centers, which lacked essential training instruments and materials and practice fields and whose instructors were mostly of part-timer.

Substantial qualitative improvement both in physical facilities and teaching staff was subsequently made under the First Phase Plan in 13 in-service training centers.

Organization, major physical facilities and training courses and past output are as described hereafter.

a) Organization

Number of personnel at the in-service training centers is about 40 in general including director and six or so full-time instructors. Typical organization structure here is as below:



b) Major Facilities

Scale of the centers rests on a total trainees of 60 and/or 2 ordinary class of 30 members. Standard facilities are as follows:

	<u>Q'ty</u>	<u>Remarks</u>
Class Room	2 units	} In one building
Multi-purpose Hall	1	
Workshop	1	
Crop Shed	1	
Livestock Shed	3	(For chicken, cattle and goat)
Dining Room	1	With kitchen
Dormitory	1	With 15 bed rooms
Director's House	1	
Instructor's House	1 ~ 2	
Administration Office	1	
Practice Field		Rice field Upland field Industrial plantation Fish pond

c) Major Training Courses

The centers offer training services aimed at upgrading agricultural technical expertise of middle level agricultural technicians and extension agents of national and provincial governments in the field of general agriculture, estate agriculture, animal husbandry and inland fishery.

Major training courses and their terms are as follows:

	<u>Term</u>
Orientation for Extension Agent:	1 month
Refreshing Course for Extension Agent:	2 (2 terms of 1 month each)



Up-grading Course for Agricultural Technician:	6 (3 terms of 2 month each)
Promoting Course for Extension Agent:	1

Promoting courses are provided for extension agents to acquire specialities such as plantation crops, irrigation, disease and insect damage etc.

Average yearly admission capacity of a center is about 600 man-month but past achievement ranges in 240 ~ 420 man-month.

d) Expansion Plan

Physical facilities will be expanded and training activities beefed up at these centers (Cihea and Batangkaluku centers excluded) under the Second Phase Plan by World Bank loan as stated hereto of which scope are as follows:

- i) New Training Course
  - Home Improvement Course for Female Extension Agents
  - Terms : 1 month
- ii) Additional Facilities
  - Laboratory - General Agriculture
  - Laboratory - Home Improvement
  - Library
  - Demonstration Class Room
  - Dining Room
  - Administration Office
  - Dormitory
  - Instructor's House
  - Staff House
  - Employee's Quarters

## CHAPTER 2

### REQUEST OF ASSISTANCE TO JAPANESE GOVERNMENT

#### 2.1 Background

As explained hereto the in-service training centers having operation experience of barely 3 years till now have struggled to offer expected training services under the limited facilities and staff. To remedy the situation and further strengthening the operation and training at the centers, the Indonesian Government requested an assistance from Japanese Government in January, 1978 in the form of so called Project-type Technical Cooperation. In response to the request, Japanese Government has, since September, 1979, been offering technical assistance to Central Office of AAETE and Cihea and Batangkaluku In-service Training Centers which have had a special relations with Japanese Government's cooperation programs. The assistance covers a period of 5 years and comprises 1) dispatching Japanese experts, 2) supplying training instruments and equipment and 3) training Indonesian experts and agricultural extension agents.

As to the existing building facilities which were mainly constructed under the First Phase Plan are short of the master plan initially envisaged because of shortage of fund resulted from a world wide economical dislocation occurred during the implementation. This now is an underlying motives in expanding existing 16 in-service training centers under the Second Phase Plan. It is a logical development of the affair under the hereto mentioned circumstances that another assistance for additional building and appurtenant facilities to Central Office of AAETE and Cihea and Batangkaluku In-service Training Centers has been made by the Indonesian Government.

## 2.2 Scope of Facilities Requested

Buildings and appurtenant facilities requested to be covered by Grant Aid program are as listed in the following table. It is noted, however, that the list is a proposal subjected to further discussion and review by both Indonesian side and the Survey Team.

	Facilities	Q'ty	Net Floor Area	
			Ciheva Center	Batankaluku Center
1	Demonstration Class Room	1	120 m <sup>2</sup>	120 m <sup>2</sup>
2	Laboratory-General Agriculture	1	80	80
3	Laboratory-Home Improvement	1	120	120
4	Library	1	60	60
5	Multi-purpose Hall	1	200	200
6	Storage for Equipment	1	120	120
7	Tractor and Vehicle Shed	1	100	100
8	Administ. and Teacher's Room	1	60	100
9	Woman's Dormitory	1	120	100
10	Kitchen		60	60
11	Guest House	1	120	120
12	Instructor's House	4	280	280
13	Assistant's House	5	250	250
14	Employee's House	5	180	180
15	Drying Floor	1	450	450
16	Deep well water pump		1 lot	1 lot
17	Campus road		1	1
18	Electricity		1	1
19	Glass House	1	128 m <sup>2</sup>	128 m <sup>2</sup>
20	Milk Room	1	25	25
21	Storage for Crops	1	35	35
22	Storage for Animal Feed	1	35	35
23	Dining Room	1	80	80

	<u>Facilities</u>	<u>Q'ty</u>	<u>Central Office of AAETE</u>
24	Office for Expert	1	50 m <sup>2</sup>
25	Library	1	60
26	Conference Room	1	150
27	Storage for Equipment	1	60

### 2.3 Particulars of Request

#### a) Central Office of AAETE

The office lacks a space for FAO staff who will coming in immediate future to assist implement the Second Phase Plan as stated hereto ( 1.1 ). Their idea is to have Japanese experts vacate their present office for FAO and provide them with new office room.

They are also in need of a library and a storage for training equipment as there are none of them.

The nature of the office as the central administration, coordination and supervision agent over the entire training activities requires a large conference room to organize various ceremonies, meetings, seminars etc. the fact that justifies the request for a conference room. The lack of it has obliged them to utilize the forestry training center at Bogor city 60 km south of Jakarta.

#### b) Cihea and Batangkaluku In-service Training Centers

Extra class rooms, dormitory and dining room automatically become necessary according to the increase of class rooms (additional 2 classes). Incidentally, it is the Government's policy to foster female agricultural technicians and extension agents that requires new women's dormitory.

Demonstration class room, laboratory for general agriculture and home improvement and multi-purpose

hall are indispensable to diversify and enrich the training services at the centers.

Storage for equipment and tractor and vehicle shed are to be used for storing, displaying and demonstrating the equipment and machinery which are just beginning to arrive under the Technical Cooperation program. Library is not existing in proper shape at both centers; other rooms partitioned for this purpose for instance.

Existing administration offices are merely 50 m<sup>2</sup> and 90m<sup>2</sup> at Cihea and Batangkaluku centers respectively; part of the Workshop converted to this purpose at Cihea center, the fact that indicates it out of the question to accommodate additional staff in the future.

It should be noted that Indonesian side strongly requested to have instructor's house, assistant's house and employee's house covered by Grant Aid though these have hitherto been categorized as the task to be borne by the recipient country in consideration of the plight they have been in.

There are only 5 and 2 units of residences in Cihea and Batangkaluku centers respectively against average 40 personnel, all of them do not necessarily need residences though, (the requested number of residences are therefore of the most urgent). To cope with this situation, the centers have rent houses in nearby villages, converted part of warehouse to residence or have had their personnel commute from a long distance. For the visiting instructors, part of the existing residences for staff family is allocated or hotels are a mainstay.

The difficulties might have arisen from the fact that both centers are located comparatively in remote areas due to their function and most of the staff and instructors are not indigenous to the places.

Recruiting common employees is without giving lodging places all the more difficult because of low wages on government basis.

Modest planing of residences found in new in-service training centers under the Second Phase Plan should also be of interesting matter.

## CHAPTER 3

### PURPOSE OF MISSION AND ACTIVITIES

#### 3.1 Purpose of Mission

Purpose of the Survey Team is to work out a basic design of building and appurtenant facilities to be covered by a Grant Aid which is now under consideration by Japanese Government in her fiscal 1980 budget, through discussions with concerned Indonesian officials and based on survey on local construction conditions.

Survey Team stayed in Indonesia for 20 days from April 9 through April 28, 1980 and carried out the assigned jobs.

#### 3.2 Members of Survey Team

Leader	Ken Uesugi	Director, Agriculture & Extension Division, Tokai Regional Agricultural Administration Office, Ministry of Agriculture, Forestry & Fisheries (MAFF)
Cooperation Planning	Akio Yamashita	Staff of Accounting Division, Pomiculture Experiment Station, MAFF
Coordinator	Yoshiro Minato	Staff of First Training Division, Japan International Cooperation Agency
Architectural Design	Shinya Osumi	Architectural Department, Nippon Koei Co., Ltd.
Structural Engineering	Hajime Endo	Architectural Department, Nippon Koei Co., Ltd.
Mechanical Engineering	Kenichi Kawaguchi	Architectural Department, Nippon Koei Co., Ltd.

Geology

Tetsuo  
Morikawa

Geological Department,  
Nippon Koei  
Co., Ltd.

### 3.3 Concerned Officials in Indonesia

#### 1) AAETE, Ministry of Agriculture, Indonesia

Salmon Padmanagara	Head, Agency for Agricultural Education, Training and Extension (AAETE)
Rujat Wiratmadja	Secretary, AAETE
M.A. Malik	Chief, Bureau of Agricultural Education and Training, AAETE
Hassan Basari	Architectural staff AAETE
Wazlir	Director, Cihea Agricultural In-service Training Center, AAETE
Joto Sumatra	Assistant Director, Cihea Agricultural In-service Training Center, AAETE
Yogaswara	Instructor, Cihea Agricultural In-service Training Center, AAETE
Haryanto	Instructor, Cihea Agricultural In-service Training Center, AAETE
Abdurrazak Djafar	Director, Batangkaluku Agricultural In-service Training Center, AAETE
Chaidar Said	Instructor, Batangkaluku Agricultural In-service Training Center, AAETE
Faruq Awaluddin	Instructor, Batangkaluku Agricultural In-service Training Center, AAETE
Ali Ratib	Instructor, Batangkaluku Agricultural In-service Training Center, AAETE



2) Japanese Experts

Masashi Kambe	Team Leader (AAETE)
Shoji Nishikawa	Coordinator (AAETE)
Kiyoaki Kubo	Farm Management (Batangkaluku AITC)
Masao Odashima	Cultivation (Cihea AITC)
Tokuo Tokutome	Farm Machinery (Cihea AITC)

3) Embassy of Japan

Saburo Miyatake	First Secretary
Takeichi Ishikawa	First Secretary

4) JICA Jakarta Office

Moriya Miyamoto	General Manager
Tomochika Uchida	Staff in charge of Ministry of Agriculture

### 3.4 Itinerary of Survey Team

Date	Activities
Apr. 9 Wed	Left Tokyo for Jakarta Discussion on itinerary and scope of survey with Messrs. Ishikawa (Embassy of Japan), Kambe, Nishikawa, Kubo, Odajima, Tokutome (Experts) and Uchida (JICA).
Apr. 10 Thu	At Central Office of AAETE Discussion with Mr. Rujat and other concerned officials of AAETE and Experts on itinerary, explanation on system of Grant Aid, question and answer and request for relevant data.
Apr. 11 Fri	At Central Office of AAETE Successive discussions on new facilities to be provided in Central Office. Survey on existing facilities. A-Group left for Cipanas on the way to Cihea center. B-group stood by for geological survey at Batangkaluku.
Apr. 12 Sat	(A-group) At Cihea In-service Training Center Discussions with Mr. Wazlir and other concerned officials and Experts on scope of

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new facilities to be provided. Survey on existing facilities.  
(B-group) Postponed trip to Batangkaluku because of a commotion in Ujung Pandang city.

Apr. 13 Sun (A-group) Successive discussion at Cihea center.

Apr. 14 Mon (A-group) Survey on existing facilities at Cihea center. Moved to Jakarta.

Apr. 15 Tue (All member) Left for Ujung Pandang. Brief discussions on new scope of facilities with Mr. Abdurrazak.

Apr. 16 Wed At Batangkaluku In-service Training Center (A-group) Discussion with Mr. Chaidar and other concerned officials and Experts on scope of new facilities. Survey on existing facilities. (B-group) Geological survey around the center.

Apr. 17 Thu (A-group) Successive discussion and survey. (B-group) Geological survey.

Apr. 18 Fri (A-group) Moved to Jakarta. At Forestry Training Center in Bogor, with Mr. Salmon and other concerned officials. Summing-up discussion and submittal of Interim Report. (B-group) Electric prospective survey at Batangkaluku. (C-group) Survey on existing facilities at Batangkaluku.

Apr. 19 Sat (A-group) Reporting to Embassy of Japan and JICA office. Survey on local construction cost. (B-group) Electric prospective survey continued. (C-group) Moved to Jakarta after surveying local construction cost and similar institutes around Ujung Pandang. Messrs. Uesugi, Yamashita and Minato left Jakarta arriving at Tokyo the next day.

Apr. 20 Sun (B-group) Electric prospective survey continued. (C-group) Pigeonholing data.

Apr. 21 Mon (B-group) Electric prospective survey continued. (C-group) Survey local construction cost in Jakarta.

Apr. 22 Tue (B-group) Electric prospective survey continued. (C-group) Reporting to Embassy of Japan and JICA office. Left Jakarta arriving at Tokyo the next day.

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Apr. 23 Wed (B-group) Electric prospective survey  
1 continued.  
Apr. 25 Fri  
Apr. 26 Sat (B-group) Moved to Jakarta.  
Reporting to Embassy of Japan and JICA office.  
Apr. 27 Sun (B-group) Pigeonholing data.  
Apr. 28 Mon (B-group) Left Jakarta arriving at Tokyo on  
the same day.

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Note: A-Group Messrs. Ucsugi, Yamashita, Minato and  
Osumi  
B-group Mr. Morikawa  
C-group Messrs. Osumi, Endo and Kawaguchi

## CHAPTER 4

### SUMMARY OF SURVEY AND DISCUSSION

#### 4.1 Major Activities of Survey Team

In conformity with the assignment, the Survey Team engaged in and executed the following activities.

*(Discussion and Explanation)*

- a) Confirmation of scope of request by Indonesian side and reasons therefor,
- b) Confirmation of budgetary arrangement and acting agency of this project on Indonesian side,
- c) Grasping Indonesia's overall agricultural education and training plans including past history and future expansion plans along with implementation schedules thereof,
- d) Grasping past achievement of operation and prospective view after expansion projects,
- e) Working out scope of facilities covered by Grant Aid program and putting priorities thereto,
- f) Explanation on system and regulations of Grant Aid,
- g) Setting demarcation line on the works executed by Grant Aid and by Indonesian side,  
*(Survey and Design)*
- h) Survey on existing facilities and use thereof,
- i) Survey on land and geological conditions of construction sites,
- j) Public utilities around the sites,
- k) Arrangement of new facilities, architectural, struc-

tural, electrical and mechanical design,

- l) Collecting relevant data on local construction costs, method, qualities etc,
- m) Electric prospective survey and test boring (100m) for a deep well at Batangkaluku In-service Training Center.

## 4.2 Summary of Discussion

### a) System of Grant Aid Program

Survey Team explained to Ir. Rujat and other Indonesian officials concerned on the purpose and assignment of the Survey Team and the system of Grant Aid program particularly on regulations and conditions involved therein, procedure to be taken, expected implementation schedule, fiscal year in Japan etc. and obtained their full understanding.

### b) Scope of Facilities Covered by Grant Aid

Discussions were made based on the list of request by Indonesian side as shown in ( 2.2 ) hereto exchanging views on proper scale of each building, how to integrate existing facilities and how the training services be expanded and diversified in the future. Both parties finally came up with the scope of facilities as listed hereafter ( 5.4 ) with minor modifications on the original list.

At the same time, as a provision for the case that the considered amount of fund by Japanese Government could not cover all of the proposed scope, priorities on each facility were put in order to pick them up according to the priority order.

Besides, it is noted that during the course of discus-

sions Indonesian side expressed their sincere desire to secure by all means a domestic water source at Batangkaluku center and to have houses for instructors and other staff included in the scope as much as possible.

c) Demarcation in Works

In conjunction with the regulations of Grant Aid program and in view of the limited available fund of it, both parties have put a demarcation line in the works necessary to complete the project to be carried out by Japan and Indonesian sides respectively as stated in the Interim Report attached hereto and in (6.2) Construction Cost Estimate hereafter.

d) Implementation Schedule

Survey Team explained that a Grant Aid is now being considered by Japanese Government to be extended in fiscal 1980 national budget but its amount could not be made clear at this moment and obtained understanding of Indonesian side on this situation.

At the same time they requested a full understanding on their situation as well that Cihea and Batangkaluku centers have been excluded from the list of Second Phase Plan by World Bank loan counting on an assistance from Japanese Government.

e) Budgetary Arrangement on Indonesian Side

Indonesian side made it clear that they would make necessary budgetary arrangement for the works to be carried out by them once the Notes for Grant Aid has been exchanged between two countries.

### 4.3 Interim Report

Based on the discussions and survey, Survey Team prepared an Interim Report and presented it to Indonesian side. Representatives of both parties signed on submittal and acceptance letters upon confirming mutual concurrence on the contents of it.

Following is the whole content of the Report (Annex-III have been omitted as is reproduced in Basic Design Drawings)

Middle Level Agricultural Technician  
Training Center in the Republic of Indonesia

Dear Sir,

I have the pleasure of submitting herewith an interim report of Basic Design Survey on Middle Level Agricultural Technician Training Center with warm thanks to the officials of the Agency for Agricultural Education, Training and Extension for kind assistance and cooperation extended to us.

I wish to express our intention that we will make out a report of basic design of the Center in accordance with the result of study and a series of discussions and hoping to contribute to further friendship between Japan and Indonesia.

April 19, 1980



Ken Uesugi  
Team Leader  
Basic Design Survey Team  
JICA



Dear Sir,

I acknowledge with thanks receipt of an interim report of Basic Design Survey on Middle Level Agricultural Technician Training Center prepared by Basic Designs Survey Team of JICA and our concurrence on the contents stated therein.

In view of the importance of constructing additional facilities to strengthen activity of the Centers, I wish to have a kind consideration and assistance of the Government of Japan on this project and hope this opportunity will further strengthen the relationship of both countries.

April 19, 1980



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Salmon PADMANAGARA  
HEAD  
Agency for Agricultural  
Education, Training and  
Extension  
DOA

INTERIM REPORT OF BASIC DESIGN SURVEY  
ON  
MIDDLE LEVEL AGRICULTURAL  
TECHNICIAN TRAINING CENTER

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PREFACE

In response to a request of the Government of the Republic of Indonesia for an assistance in constructing additional facilities necessary for strengthening of Japan Indonesia Technical Cooperation Project on Middle Level Agricultural Technician Training, a basic design survey team (hereinafter referred to as the Team) organized by Japan International Cooperation Agency headed by Mr. Ken Uesugi, Director of Agriculture and Extension Division of Tokai Regional Agricultural Administration Office of MAFF stayed in the Republic of Indonesia from April 9 to April 28, 1980.

The Team has exchanged views with the officials concerned of the Agency for Agricultural Education, Training and Extension of the Department of Agriculture of the Government of the Republic of Indonesia (hereinafter referred to as the Government) and has visited Cihea Training Center in West Java and Batang Kaluku Training Center in South Sulawesi to get relevant information and data.

Followings are the main items discussed and agreed upon.

SUMMARY

The Team exchanged views with the officials concerned of the Government on various aspects of requested additional facilities for Middle Level Agricultural Technician Training Project and executed necessary survey during the stay.

Major activities are summarized as below:

- a) Explanation on purpose of the Team;
- b) Explanation on the conditions involved in and the procedure

to be taken for Grant Aid Program;

- c) Discussion on facilities to be provide including proper scale and layout plan of them;
- d) Setting demarcation on the works carried out by the Grant Aid and by the Government;
- e) Setting priorities on the required facilities;
- f) Surveying existing facilities and activities therein;
- g) Ground water survey at Batang Kaluku Center (still under way);
- h) Survey on construction cost.

#### EXPLANATION ON JAPAN'S GRANT AID PROGRAM

The Team explained to the Government features of Japan's Grant Aid.

#### SCOPE OF FACILITIES TO BE COVERED BY GRANT AID

The Centers have been suffering from shortage of building spaces and appurtenant facilities to execute intended training services and to accommodate their personnel because the original construction provided facilities short of the Master Plan.

Buildings and appurtenant facilities listed in Annex I and Annex II will be required to ease the present difficulties and to comply with the expanding services requested to perform at the Centers.

Facilities to be provided by Grant Aid shall be taken up according to the priorities due to the limited available fund and those facilities which could not be covered by Grant Ad Aid will be constructed by the Government.

Tentative layout of the required facilities are shown in Annex III.

## WORKS TO BE CARRIED OUT BY THE GOVERNMENT

In conjunction with the regulations of the Grant Aid the following works will be carried out or provided by the Government.

- a) Clearing and grading of the land where buildings are constructed;
- b) Obtaining electric power for both Centers and domestic water sources for Cihea and deliver these to supply stations;
- c) Pavement and landscaping;
- d) Furniture;
- e) Telephone and gas facilities if needed;
- f) Others.

## OTHER PARTICULARS

- A. During the course of discussion, the Government earnestly requested a kind consideration of the Government of Japan on inclusion of residential quarters and other buildings as listed in Annex II into Grant Aid.

- B. Water Sources

In Cihea Training Center, it turned out that the existing deep well has not been giving necessary water to the people there particularly in dry seasons. A deep well seems to be a good solution to this matter. However, without a proper ground survey it is impossible to predict existence of ground water. Therefore this matter will be brought forth to the attention of the people concerned. In Batang Kaluku, ground survey and test boring is now underway. Should the deep well be not possible, the only way to get water will be to take water from nearby Jeneberang River and treat water by a filtering equipment.

C. Local Budget

Necessary budgetary arrangement for the works to be carried out by the Government will be made by the Government.

D. Acting Agency for implementation of this Grant Aid on the Government side will be the Agency for Agricultural Education, Training and Extension, Department of Agriculture.

ANNEX - 1  
 BUILDINGS AND APPURTENANT FACILITIES TO BE COVERED  
 BY GRANT AID PROGRAM

A. Cihea Training Center

<u>Building/Facilities</u>	<u>Net Floor Area</u>	<u>Remarks</u>
1. Class Room	280 M2	1 storey, 4 rooms
2. Demonstration Class Room	120	2 rooms
3. Laboratory - General Agriculture	80	
4. Laboratory - Home Improvement	80	
5. Director's Office and Meeting Room	100	
6. Expert's and Counterpart's Office	60	
7. Multi-purpose Hall	200	
8. Women's Dormitory	120	For 12 persons
9. Visiting Instructor's Dormitory	120	For 10 persons
10. Dining Room and Kitchen	140	
11. Storage for Equipment	100	
12. Tractor and Vehicle Shed	100	
13. Workshop	150	2 rooms
14. Milk Room	25	
15. Remodeling Existing Educational Block to Dormitory	256	For 60 persons with new bath room (30 M2)
16. Drying Floor	450	w/o roof
17. Electric Power and Water Supply facilities from supply stations		
18. Drainage facilities		

B. Batang Kaluku Training Center

<u>Building/Facilities</u>	<u>Net Floor Area</u>	<u>Remarks</u>
1. Class Room	148 M2	2 rooms
2. Demonstration Class Room	120	1 room with movable partition
3. Laboratory - General Agriculture	80	
4. Laboratory - Home Improvement	80	
5. Administration Office	230	
6. Multi-purpose Hall	300	
7. Women's Dormitory	125	For 10 persons
8. Visiting Instructor's Dormitory	120	For 10 persons
9. Dining Room and Kitchen	140	
10. Storage for Equipment	100	
11. Men's Dormitory	250	For 60 persons
12. Electric Power and Water Supply facilities from supply station		
13. Drainage facilities		

ANNEX - II

BUILDINGS DESIRABLE TO BE COVERED BY GRANT AID PROGRAM

A. Cihea Center

	<u>Building</u>	<u>Gross Floor Area</u>	<u>Remarks</u>
1.	Instructor's House	280 M2	4 units
2.	Asst. Instructor's House	250	5 units
3.	Employee's House	180	5 units
4.	Storage for Animal Feed	35	

B. Batang Kaluku Center

1.	Instructor's House	350 M2	5 units
2.	Asst. Instructor's House	250	5 units
3.	Employee's Quarters	360	For 10 families

C. Central Office

		<u>Net Floor Area</u>	
1.	Office for Expert	50 M2	For 3 persons
2.	Library	60	
3.	Storage for Material/Equip.	25	
4.	Conference Room	150	



#### 4.4 Effects of Assistance on Project

Agricultural education and training programs which made the first advancing step in 1970 are deemed to hold a key to drive smoothly and accelerate the progress of agricultural development in Indonesia, through fostering acutely needed well-informed agricultural manpower in government offices who take care of agricultural development projects and middle level agricultural technicians and extension agents who, with practical knowledge and skill, effectively work with farmers to upgrade the level of agriculture in the country.

The programs evolved step by step to the present shapes as stated hereto are therefore further attended with improvement plan by World Bank loan and are expected to greatly contribute to the efforts.

On the other hand, Japanese Government with full understanding of the importance of training middle level agricultural technician and in response to the request of the Indonesian Government has been extending assistance under the Technical Cooperation program to the training undertaking of AAETE since 1979 through 1983. The program has picked up Cihea and Batangkaluku In-service Training Centers among others as the objectives of cooperation with a view in mind to bring them up to a "Model Center" and thus give a far-reaching impact to the whole training efforts. Therefore it is imperative to achieve token results at both model centers in order to maintain fruitfulness of cooperation.

Consequently extending further assistance by Grant Aid will definitely be justified to supplement, strengthen or even complete Japanese Government's cooperations along with the Technical Cooperation program under fait acquis that these two centers have been excluded from the Second Phase Plan.

## CHAPTER 5

### BASIC DESIGN

#### 5.1 Site Conditions

##### 5.1.1 Site Conditions

a) Central office of AAETE

The site is located in Pasarminggu 20Km south of Jakarta city. This area appears to be a sort of Ministry of Agriculture section where a number of agencies of the Ministry are located close to each other. The site has nearly a rectangular land of about 5 ha where a two storied central office building of reinforced concrete is standing in the center and a workshop and warehouse-garage of brick construction are at the rear side.

There is not a large space left for new construction because of the scale of land and recommended place would be an open space on the right to the existing central building because no obstacle is found there. The elevation of the land above sea level is much the same as that of downtown Jakarta, perhaps several meters above sea level. Surrounding area is a quiet living zone with many green trees.

b) Cihea Training Center

The center is in Cianjur regency which is nearly in the center of West Java Province. The site is located at about 17 Km east of Cianjur City, capital city of West Java Province.

The land is a narrow rectangular in shape in north-south direction having an area of 3 ha. Total land area of the center reaches 10 ha including 7 ha of practice fields.

Existing buildings have been arranged in the center part of the land and open space is left on both north and south (Ref. DWG.-01).

North side open land is a flat grass land where no obstacles are found for new constructions such as existing structures or trees. However the land seems not suitable for leveling space because of the swampy conditions which is resulted from comparatively low level with the surrounding paddy field.

West side open land is a former upland field, flat, dry and free of obstacles and seems to be very suitable for new constructions.

The center is in the floor of the Cianjur Basin in a level of about 100m above sea level, surrounded with ranges of mountains some exceeding 1,000m. The floor of the basin is mostly cultivated for wet rice field. The same is the case with surrounding of the center.

c) Batangkaluku Training Center

The center is located at the village of Tamarunang about 12 Km south-east of Ujung Pandang, capital city of South Sulawesi Province. The land is oval in shape having an area of 3.3 ha. Total land area of the center reaches 11 ha including 7.7 ha of practice fields.

Existing buildings have been arranged from the center part to east part of the land and open space is mainly left on the west side (Ref. DWG.-07).

Overall land configuration is flat in an elevation of about 13m above sea level except for a hill on the west part of the center site which is about 7m above the surrounding area at its top.

At the mid-slope of the hill is a seismological observatory station having an area of approximately 40m x 60m which belongs to other governmental agency, the fact to be taken into consideration in arranging new buildings. The mid-slope of the hill where most of the new buildings are to be arranged has a lot of high trees which requires attention to preserve good natural environment and a couple of private houses at

the west end which can be removed if need be for new buildings.

Note: The "In-service Training Centers" will be replaced with "Training Centers" hereafter to simplify wording and conforming to the titled project's name.

### 5.1.2 Geological Conditions

a) Central Office of AAETE

Top soil is silty clay and this seems to go down to a considerable depth. Load bearing capacity of the ground can be assumed over  $20\text{t/m}^2$  from the fact that the existing 2-storied reinforced concrete building of the Central Office were constructed without foundation piles. No difficulty will arise in constructing single-storied buildings.

b) Cihea Training Center

Same as the Central Office, the soil here is silty clay which seems to reach deep in the ground. For single-storied brick buildings the existing buildings can be a good reference as far as load bearing capacity is concerned. In case of 2-storied reinforced concrete buildings, no reference can be found in and around the center to assume a ground load bearing capacity without a test. But experience tells us  $15\text{ t/m}^2$  could safely be taken as the load bearing capacity in here.

c) Batangkaluku Training Center

As detailed hereafter in Appendix -I, a geological survey on this area shows the ground has been formed of sedimentary rock in Tertiary period covered with Alluvial soils in Quaternary period. The Alluvial plain around Ujung Pandang city are dotted with low hills of sandstone of the Tertiary period, one of which is the hill on the west part of the Center. Top soil is silty clay and its depth will be rather shallow around the hill. It can be antic-

ipated the sandstone will quickly be encountered on excavation works around this hill. This bed rock will provide a load bearing capacity of over 50 t/m<sup>2</sup>, on the other hand silty soil will give us only 15 t/m<sup>2</sup> as experience tells.

### 5.1.3 Climatic Conditions

Central Office and both Centers belong to the tropical rain forest zone of high temperature and humidity, mean temperature staying constantly at around 28°C and relative humidity ranging between 70 ~ 85% throughout the year. Rainfalls though fluctuate in both rainy and dry seasons reaches 2,000mm annual rainfalls.

Wind rarely blows strongly as these area belong to one of the wind-free zones on earth.

### 5.1.4 Earthquakes

Indonesia belongs to one of the most seismically active parts of the world, Circum Pacific Earthquake zones. Earthquakes are mostly of Tectonic origin as it is a mountainous country and most of them still active.

As a guide book of earthquake, "A Brief Outline of Seismicity and Earthquake" is a good reference on this problem. The country is divided into four earthquake zones according to the Modified Mercally Intensity.

Central Office and Batangkaluku Training Center are classified in Degree V ~ VI and Cihea Training Center in Degree VII ~ VIII respectively.

For structural design of civil construction, application of static forces to the structure is recommended for which a seismic coefficient is determined according to the type of structure, height, place and geological conditions.

In this project, the seismic coefficient can be figured out to be 0.1.

### 5.1.5 Transportation

It is characteristic of this project that there would be few importation of materials or equipment from abroad because of the nature of constructions, most of the buildings are single-storied brick construction common to the regions and finishing materials and utility equipment for them are available in local markets.

Therefore, inland transportation conditions may be the main concern.

a) Central Office of AAETE

As the site is located in the suburbs of Jakarta city, 20 Km south, and the road is well paved, nothing can be desired any further.

b) Cihea Training Center

A national highway all weather, asphalt paved and two-way traffic connecting Jakarta, Bogor, Cianjur, Bandung and so forth will be the main access to the Center. The Center is at 4 Km south of Ciranjang town which is located at about 13 Km east of Cianjur city.

The national highway is one of the most important and busy trunk roads in Java island and so well maintained, though the by-road from Ciranjang to the Center has long been left unattended. The pavement, old and potted all over makes the traffic by car a bit difficult. Besides, slab of a bridge about 10 m long crossing a stream midway has been damaged partially making traffic by a heavy loaded car risky. But it will not amount to a roadblock since the road is still passable by cars with care and the bridge beam made of steels still structurally intact makes mobilization

of temporary wood slab possible when needed for heavy cars.

A railway just passing Ciranjang is another way of transportation but this will not be so useful for this project because of remarkable convenience of road transportation.

c) Batangkaluku Training Center

The Center faces a national road going along to east from Ujung Pandang city to Malino city.

The road all weather, asphalt paved and of two-way traffic provides an easy access to the Center in a distance of 12 Km from downtown Ujung Pandang.

As Sulawesi island is one of the outer islands some materials and equipment for building construction are not always available where these should be shipped from Tanjung Priok port in Jakarta or Surabaya port to Ujung Pandang Port, one of the major ports in Sulawesi island. In case of Surabaya-Ujung Pandang, there are for instance three steamers in a week by a local shipping company the fact that shows frequent traffic in between.

## 5.1.6 Basic Utilities

a) Electric Power

i) Central Office of AAETE

Existing power center is installed in the Central Office building, consisting of three transformers of single phase, 110V, 50Hz, 10KVA. Power stepped up to 220V is distributed to each facility from here.

New building facilities will demand additional power of about 4.8 KW requiring additional transformers since the existing transformers are being used up to full capacity.

ii) Cihea Training Center

The Center has two sets of diesel engine generator which, now stand by, were installed as a power source when the Center was constructed in 1977 because no commercial power was available then. The present power supply station has been incorporated into the distribution panel in Diesel Engine Room having a characteristics of three phase, four wires, 200V, 50Hz and with a contracted capacity of 10.6KW. Power is distributed from here to each requirement through direct buried underground cabling system. New buildings will require additional power of about 48 KW if all planned residential buildings are included. Though the Center plans to increase the power supply capacity up to 23 KW, this provision will not be enough depending on how many buildings are to be included. New power distribution network will have to be independent to the existing one not to interfere with the ongoing operation.

iii) Batangkaluku Training Center

Existing power source is found on an electric pole in the seismological observatory station, a pole transformer of high voltage, three phase, four wires, 220V and 50Hz.

Power is distributed from here by overhead distribution network. New buildings will require a total power of about 47 KW if all the residential houses are included which requires replacement of the transformer and incoming wires with larger ones.

b) Water and Drainage

There is no city water line or sewerage system around the Central Office and both Centers and in-



dependent water sources and disposal facilities have been provided.

i) Central Office of AAETE

Water source is a shallow well, 1.2m diameter and 8m depth, with a well pump of a capacity  $25\phi \times 12\text{mAq}$ . The well is accompanied with a water head tank of 10m high and a water tank of  $5\text{m}^3$ , from where water is distributed to requirements with gravity.

Water delivery of the well has been sufficient for the consumption of the people occupying the office up till now.

If new building was constructed this time, number of people will not increase so much, less than 10, therefore the existing water supply system could well be used for additional service.

Sewage is treated by a septic tank and living waste water and rain water is conducted to drainage side ditches and discharged into side ditches on public road.

ii) Cihea Training Center

Water source is a deep well, 125mm casing diameter, 80m depth, with a deep well pump of a capacity of  $40\phi \times 0.75\text{KW}$  positioned at 36m below the ground surface. The well is accompanied with two units of water head tank of 5m high and a water tank of  $4\text{m}^3$ , from where water is distributed with gravity.

Water delivery of the well has, according to what the Center say, not been sufficient since the start of operation of the Center, enough only 30 persons at the moment. To get along with the situation, shallow wells have been constructed for residential houses to name a few

countermeasure.

The cause of short delivery of the well could not be pinpointed upon the survey whether the well is not workable or the well pump has defects, which will further be inspected by the Center.

Untill the outcome of inspection is obtained, no provision on water source for new buildings can be worked out, so this matter will be left out of the scope of construction this time.

Sewage is treated by independent septic tank and living waste water and rain water is conducted to drainage side ditches and discharged into nearby irrigation or drainage canals.

iii) Batangkaluku Training Center

Water source is two units of shallow wells, 2m diameter and 6m depth, with floor mounted centrifugal pump of a capacity  $32\phi \times 1.5KW$ .

The well is accompanied with a water head tank of 10m high and a water tank of  $4m^3$ , from where water is distributed by gravity.

The well gets depleted of water completely in dry seasons though affluent in rainy seasons resulted from the geological conditions as stated hereto ( 5.1.2 ) and hereafter in Appendix-I. This situation has long put the Center in a plight of carrying living water from as far as Ujung Pandang city in drum cans and curtailing the use of it to the extreme. To overcome the difficulties, countermeasures are recommended as explained hereafter

( 5.7.2 ) which must be taken regardless of new building constructions.

Sewage, living waste water and rain water is disposed of the same as Cihea Training Center.

c) Telephone, Gas

There is no city gas system around the Central Office or the Centers.

For cooking, portable kerosene burners are used even catering for trainees sometimes as many as 60 at Dining Room.

As to telephone system, the Central office has three circuits (automatic) and Cihea Center one circuit (calling type).

## 5.2 Outline of Existing Facilities and Use of Them

### 5.2.1 Background

As stated here to ( 2.1 ), original building and appurtenant facilities constructed under the Second Improvement Plan by World Bank Loan were curtailed from its master plan because of shortage of fund which was resulted from a world wide economical dislocation during implementation of the plan. Consequently both Centers have been forced to get along with squeezed scale of facilities and to convert some of the building to other purposes out of necessity on operation.

Following are the existing buildings and use of them.

a) Central Office of AAETE

Main building is of two-storied, reinforced concrete construction, others single-storied brick masonry construction with clay tile roof.

<u>Building</u>	<u>Floor Area</u>	<u>Use</u>
Central Office	1,065 m <sup>2</sup>	Occupied by about 100 administrative people. Space just enough for present staff but lacks office for FAO consultants coming in immediate future. Desired to be provided with library, equipment storage and conference room to fulfill the function as headquarter.
Warehouse	72	
Garage	72	

b) Cihea Training Center

Buildings are all of single storied brick masonry construction with clay tile roof.

<u>Building</u>	<u>Floor Area</u>	<u>Use</u>
Administration Room	52 m <sup>2</sup>	Occupied by director and two Japanese experts.
Multi-purpose Room	259	As educational block, comprises two class rooms, one multi-purpose hall and one preparation room. Multi-purpose hall partitioned, one part used for library the other for reception and meeting.
Dormitory	381	Comprises fifteen bed rooms, one lounge, superintendent room and shower room. Bed room 14m <sup>2</sup> good for only 2 people but mostly used by 4 with double bunk, suffocating.
Workshop	181	Comprises carpentry shop, furnace room etc., Partially converted to office room due to shortage of it.

<u>Building</u>	<u>Floor Area</u>	<u>Use</u>
Dining Room	108m <sup>2</sup>	Kitchen being used as a pantry not for cooking, kerosene burners and preparation on floor prefers more open air, cooking done at other place. Dining room accommodating 30 people seems a little narrow perhaps due to narrow span and high wainscot.
Crop Storage, Machine and Car Shed	140	Comprises a crop storage, machine storage and garage. Crop storage used for general store, machine storage for employees' lodging.
Livestock Sheds	216	Consists of a chicken battery, cattle shed and goat shed. Being used as intended.
Diesel Generator House		Equipped with two diesel generating units now standing by for emergency use.
Ablution Block	24	
House Type B	117	One unit. Originally provided for director. Now being used for visiting instructors

or female trainees.

House Type C                      64                      4 units, three of them later constructed by center's own fund. Occupied by director and instructors.

House Type D                      48                      One unit. Occupied by a staff.

c) Batangkaluku Training Center

Buildings are all of single-storied brick masonry construction with corrugated asbestos cement sheet roof.

<u>Building</u>	<u>Floor Area</u>	<u>Use</u>
Administration Room	90 m <sup>2</sup>	Expansion has been made by about 40m <sup>2</sup> by Center's self-help effort. Occupied by about 10 people including director, an instructor and administrative staff.
Multi-purpose Room	307	As educational block, comprises two class rooms, one multi-purpose hall and one preparation room. Multi-purpose hall now being used as class room and preparation room as Japanese expert's office. Expansion, about 48m <sup>2</sup> , has been made by

<u>Building</u>	<u>Floor Area</u>	<u>Use</u>
		Center's own fund for use of instructor's office. Consideration to make ceiling higher requested by center due to high temperature and humidity climate here.
Dormitory	406m <sup>2</sup>	Comprises fifteen bed rooms, one lounge, superintendent room, shower room and mosque. Mosque has later been added by Center. Use is the same as Cihea Center.
Workshop	181	Plan is the same as that of Cihea. Completely converted to other purposes; metal shop being used as printing room and carpentry shop as dormitory. Dormitory is packed with metal double bunks like a barrack, worst as a living space.
Dining Room	166	Dining Room has been expanded by 58m <sup>2</sup> on west side. Accommodates 60 people, comparatively spacious than Cihea due to expansion.



<u>Building</u>	<u>Floor Area</u>	<u>Use</u>
Livestock Sheds	216m <sup>2</sup>	Consists of a chicken battery, cattle shed and goat shed.
Workshop	873	Old building in the days of experimental pilot farm, now converted to storage, female trainees' dormitory and employees' quarters. Not suitable of course for use of residential building.
House Type B	117	Director's house. Due to lack of guest house, frequently used as dining and reception for visting instructors.
House Type D	48	Being used as resting room for visiting instructors.
Ablution block	24	

## 5.3 Basic Design

### 5.3.1 Design Principle

Design principle to outline the scope of facilities to be provided by Grant Aid shall be to cover 1) the building which were originally envisaged in the master plan but omitted due to shortage of fund, 2) buildings which are also planned in the Second Phase Plan by World Bank loan in other training centers and 3) buildings which have been felt needed in the course of operation of the Centers up till now in order of priority.

In arranging the building and in making out an utility plan such as electric power supply, water supply and drainage system, due consideration will be made to incorporate the existing ones into a new integrated total plan, though there seems no consideration been made in the existing facilities for future expansion thereby appearing as if complete in its profile.

Qualities of building particularly concerning scale of building and finishing materials will in principle have to be the same as those of the existing ones in order to cover as many buildings as possible within the limited fund.

On the other hand improvement must be made to the design to remedy the shortcomings the past experience of operation revealed and any betterment occurred to the center people as far as the fund allows.

It must be advisable on designing, to take into consideration the locality and individuality of each Center as much as possible making it unrealistic as a result to apply uniform design standard throughout.

## 5.4 Scope of Facilities

Scope of facilities to be covered by Grand Aid shall be limited to buildings and their appurtenant utilities since machinery, equipment and tools for training purpose are planned to be supplied by Technical Cooperation program. All furniture and utensils in office, kitchen, dormitories etc. will also be excluded except for built-in cabinet in laboratory or the like. On the other hand, regardless of available funds, basic design will be made out for all proposed buildings and appurtenant facilities along with their layout plan, since it is not predictable at the moment how far the proposed facilities could be covered, though it seems likely that addition to the Central Office and construction of houses in the Centers would be put out of the scope this time.

### 5.4.1 Buildings

<u>Building</u>	<u>Total Floor Area</u>	<u>Remarks</u>
a) Central Office of AAETE Annexed Office*	325 m <sup>2</sup>	Comprises Japanese experts' rooms, library, equipment storage and conference room.
b) Cihea Training Center Class room	288	Four class rooms for 30 trainees each.
Central Building	480	Comprises demonstration class room, laboratory-general agriculture, laboratory-home improvement, director's room, meeting room, Experts room etc.

<u>Building</u>	<u>Total Floor Area</u>	<u>Remarks</u>
Multi-purpose Hall	201m <sup>2</sup>	Accommodates max. 150 persons.
Woman's Dormitory	185	For 10 trainees.
Instructor's Dormitory	185	For max. 10 instructors
Dining Room	132	For max. 40 persons with kitchen
Storage for Equipment	105	For storing, displaying and demonstrating training equipment provided by Technical Cooperation program.
Storage for Farm Machinery	105	Same as Storage for Equipment.
Workshop	153	Comprises carpentry shop, metal shop, furnace room etc.
Milk Room	25	For storing milk.
Dormitory	350	Existing multi-purpose room to be remodeled to dormitory for 60 trainees. Expansion be made to provide lounge and shower room.
Drying Floor	450	For drying crops. Floor only.

<u>Building</u>	<u>Total Floor Area</u>	<u>Remarks</u>
Instructor's House*	272m <sup>2</sup>	Four units.
Assistant's House*	260	Five units
Employee's House*	180	Row house, 5 residences.
Animal Feed Shed*	35	For storing concentrated feed.
c) Batangkaluku Training Center		
Central Building	718 m <sup>2</sup>	Comprises 2 class rooms for 30 persons each, demonstration class rooms, laboratory-general agriculture, administration office etc.
Laboratory-Home Improvement	84	For training improvement of living conditions specially household management.
Multi-purpose Hall	300	For max. 200 people.
Woman's Dormitory	185	For max. 10 trainees.
Instructor's Dormitory	185	For max. 10 visiting instructors.
Dining Room	132	For 30 persons.
Storage for Equipment	105	For storing, displaying and demonstrating training equipment provided by Technical

<u>Building</u>	<u>Total Floor Area</u>	<u>Remarks</u>
		Cooperation program.
Dormitory	391m <sup>2</sup>	Comprises 15 bed rooms, a superintended room, lounge and shower room. To accommodate max. 60 trainees.
Instructor's House*	340	Five units, for full-time instructor's family.
Assistant's House*	260	Five units, for full-time assistant's family.
Employee's House*	360	Row houses, for 10 employee's family.

Note: Buildings affixed with \* have been classified into second priority group in the Interim Report as attached hereto (4.3).

d) Outdoor Constructions

i) Water supply system

Central Office : Water supply pipe line connecting Annexed Office and existing supply piping system.

Cihea Center : Water supply pipe lines connecting each building and the existing water head tank.

Batangkaluku Center: If the test boring for a deep well now under way turns out successful, it can be converted to a deep well. In this case, a deep well pump, additional water head tank and all supply piping system will be constructed.

If the test boring is not successful, a farm pond which will be constructed by another cooperation program will be utilized as a water source. In this case, water lift-up pump, filtering equipment, additional water head tank and all supply piping system for new building will be constructed.

ii) Drainage system

For sewage treatment from each building, independent septic tanks will be provided. Living waste water and rain water from building roof will be conducted to side ditches and discharged into nearby drainage or irrigation canals.

## 5.5 Arrangement of Facilities

a) Central Office of AAETE

Open space on the west side of the existing Central Building seems the only choice for new office.

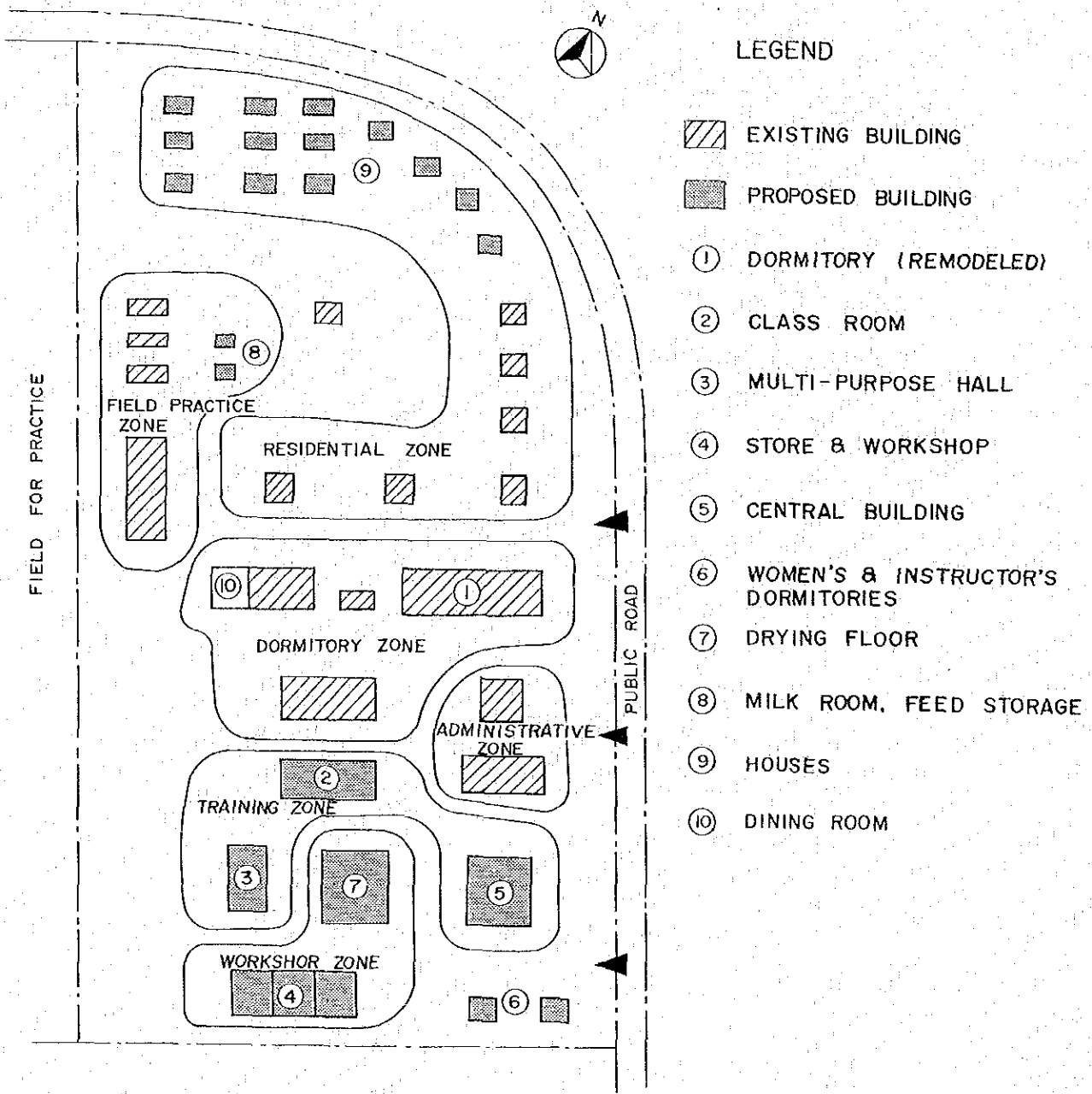
b) Cihea Training Center

Zoning plan has been made out as above taking into consideration of existing buildings, location of practice fields and access public road, which must be selfexplanatory.

One point to be noted is that the existing Multi-purpose Room has been converted (remodeled) to dormitory because if kept as it is this will become isolated from the new training zone and scale of this building seems

just fit to dormitory entailing some remodeling and expansion work though.

New class rooms will be constructed in the training zone in place of this building.



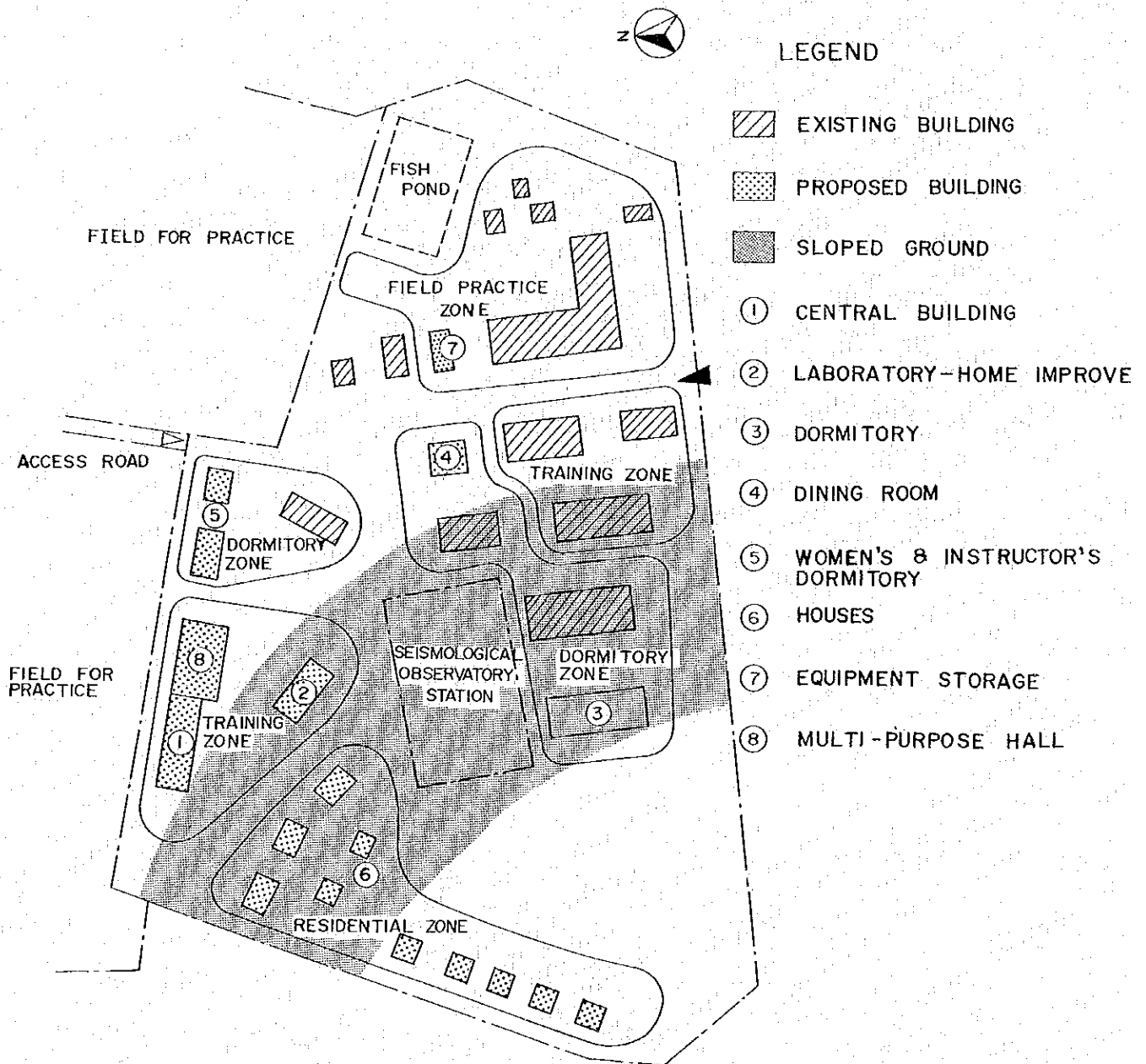
ZONING PLAN  
CIHEA TRAINING CENTER



c) Batangkaluku Training Center

There are a lot of constraints here in making a zoning plan particularly the existing seismological observatory station blocks a way to combine the existing Center and new area. Also the slope face of the hill is another factor affecting the layout.

Consequently, it seemed inevitable to have separated training zones and dormitory zones under the circumstances as the distances in between are not unbearable.



**ZONING PLAN  
BATANGKALUKU TRAINING CENTER**

## 5.6 Architectural Design

### 5.6.1 Planing of Building

a) Class room

One class of 30 members is the basic factor to determine the scale.

b) Multi-purpose Hall

To serve for various meeting, conference, ceremony mass-lecture etc. Projector room and movie screen will be provided. Maximum number of people expected to be accommodated differ in both Centers, Cihea 150 and Batangkaluku 200.

c) Dormitory

One bed room should accommodate maximum 4 persons with double bunks. Actual accommodation will vary depending on the grade of trainees and on actual training activities.

d) Women's Dormitory

One bed room will accommodate maximum 2 persons. Dormitory will be made more at-home than that for men.

e) Instructor's Dormitory

Provided for visiting instructors. To accommodate maximum 2 persons in one bed room.

f) Dining Room

To accommodate maximum 30 persons at a time. Kitchen will also be constructed. Total accommodation along with the existing Dining Room will reach 60 persons, thus making two cycle dining cover almost all people in the Centers.

g) Demonstration Class Room

Various training materials such as samples, specimens, data etc. and instruments and tools will be displayed, demonstrated for trainee's understanding. Room will be provided with movable partitions for versatile use of it.

h) Annex Office at Central Office of AAETE

As explained hereto ( 2.3 ), a library, store room for training equipment, conference room and a Japanese Expert's room are proposed. Present office rooms occupied by the Experts will be evacuated for use of FAO consultants.

i) Cihea Training Center

As stated hereto ( 5.5.b ), the existing Multi-purpose Room will be converted to Dormitory, Administration Room to library and Workshop to Administration Office. Crop Storage, Machine and Car Shed will be returned to the original use.

j) Batangkaluku Training Center

Existing Administration Room will be converted to Library and the building in the days of experimental pilot form will be used for general storage, machinery storage, crop storage etc.

## 5.6.2 Finishing Materials

Complying with the design principle as stated hereto (5.3.1), architectural finishing materials will in principle be the same ones as those of the existing buildings. Major finishing materials will be as follows;

- a) Central Office of AAETE
  - Roof : Clay roof tile
  - Exterior wall : Cement mortar plaster, painted
  - Interior wall : Cement mortar plaster, painted
  - Interior floor : Terrazzo tile
  - Ceiling and soffit: Asbestos cement sheet, painted
  - Door and window : Wood made
- b) Cihea Training Center
  - Roof : Clay roof tile
  - Exterior wall : Cement mortar plaster, painted
  - Interior wall : Cement mortar plaster, painted
  - Interior floor : Terrazzo tile
  - Ceiling and soffit: Asbestos cement sheet, painted
  - Door and window : Wood made
- c) Batangkaluku Training Center
  - Roof : Corrugated asbestos cement sheet
  - Exterior wall : Cement mortar plaster, painted
  - Interior wall : Cement mortar plaster, painted
  - Interior floor : Cement tile
  - Ceiling and soffit: Asbestos cement sheet, painted
  - Door and window : Wood made

## 5.6.3 Structural Design

- a) Buildings will mostly be of single-storied brick construction.  
Central Building at Batangkaluku Center will be 2-storied reinforced concrete structure.
- b) Structural soundness will be checked on 2-storied

reinforced concrete building against an earthquake taking a horizontal seismic coefficient of  $k=0.1$ . If needed, structure will be checked for wind load taking a unit wind pressure of  $q=25 \text{ kg/m}^2$ .

- c) Foundations will be constructed of cobble masonry for single-storied building and reinforced concrete foundation will be provided for 2-storied reinforced concrete building.
- d) Reinforcement for brick masonry wall will be made in accordance with the local customs.
- e) Conditions for structural design will be as follows:  
For reinforced concrete structures, design standard of Japan will principally be applied taking into consideration of local practice and local construction quality level.

Allowable compressive strength  
of concrete (4 weeks) :  $F_c = 180 \text{ kg/cm}^2$

Allowable tensile strength of  
re-bar :  $\sigma_t = 1,600 \text{ kg/cm}^2$

Load bearing capacity of ground  
: Central Office  $20\text{t/m}^2$   
Cihea Center  
 $10\sim 15\text{t/m}^2$   
Batangkaluku Center  
 $15\text{t/m}^2$

Live loads :

	Floor Beam	Column Girder	Earthquake
Office, Class Room	$300\text{kg/m}^2$	180	80
Dormitory	180	130	60
Storage, Library	400	300	200

## 5.7 Utilities Design

### 5.7.1 Electrical Facilities

#### a) Power Source

Since Central Office, Cihea Center and Batangkaluku Center are obtaining power from commercial power distribution system, there is no problem to secure power, However, the existing power receiving stations will have to be enlarged to meet additional power demand by new facilities which are assumed to be as follows:

Central Office	: 4.8 kW
Cihea Center	: 48
Batangkaluku Center	: 47

Enlarging the power receiving stations will be carried out by Indonesian side.

#### b) Power Distribution Line

Power distribution lines from the receiving center to each requirement will be made in the same manner as the existing ones as shown below.

Rated voltage of the cable will be of 600 V.

Central Office	: Overhead cabling, 220V, 50 Hz
Cihea Center	: Direct buried underground cabling 220V, 50Hz
Batangkaluku Center	: Overhead cabling, 220V, 50 Hz

#### c) Lighting and Receptacles

Lighting will be done mainly by fluorescent lighting fixtures, incandescent lamps will supplementarily be used.

Illumination levels in major rooms will be as follows:

Class Room, Office, Meeting Room	: 200 Lx
Multi-purpose Hall	: 150

Store Room : 60 Lx  
Dormitory, House, Dining Room : 150  
Workshop : 200

Receptacles will be of 220V, single phase, grounded type. There will be no three phase receptacles.

d) Telephone

No provision will be made for additional telephone facilities.

### 5.7.2 Plumbing and Sanitary Facilities

a) Water Source, Supply System

At Central Office, the existing well can be fully utilized, connecting the new supply pipes to the existing system, as stated hereto (5.1.6.b).

At Cihea Center, the existing well and water pump are yet to be inspected by the Center as stated hereto (5.1.6.b). It must be advisable not to deal with this matter by Grant Aid in order to give priorities to building construction under the circumstances and to limit the scope of water supply facilities to water supply piping only. Further study should be made at the time of detailed design.

At Batangkaluku Center too, clear-cut idea can not be made at the moment since the test boring work for a deep well is still under way. Therefore, provisions will be made for two cases, one that a deep well is feasible and the other that utilize river water of Berang river flowing at about 200 m east of teh Center.

If a deep well turns out feasible, the test boring can be converted to a deep well only by installing a deep well water pump.

If this is not the case, farm pond will be utilized

which is planned to be constructed along with water intake facilities from Berang river by another cooperation program. In this case, a filtering equipment will be necessary to remove turbidity of the river water. In either cases, a new water head tank will be required on the top of the hill to supply water with gravity to all of new buildings.

Following are the assumed water consumptions by new buildings:

Central Office	:	2,000 l/day
Cihea Center	:	20,000 (Whole center : 40,000 l/day)
Batangkaluku Center	:	20,000 (Whole center : 50,000 l/day)

- b) No consideration will be made for hot water supply system and for fire fighting system.
- c) Catering at Dining Room (cooking) will follow suit the present manner.
- d) Drainage System

Air conditioning facilities (cooling) will not be considered. If need be, window type airconditioners will be provided by Indonesian side themselves taking power from wall receptacles.

Ventilation fans will be installed in Class Rooms, Workshop and Multi-purpose Hall in principle.



## 5.8 Construction Cost Estimate

### 5.8.1 Conditions of Cost Estimate

- a) Construction cost will be based upon the unit construction cost per  $\text{lm}^2$  of floor area of each kind of building and bases will be those as of March, 1980 prevailing in the regions,
- b) Gravity of construction will be assumed to be in March, 1981 and cost-up until that time (for one year) is assumed to be 20%,
- c) Though the prime contractor for this project has to be of Japanese in accordance with the regulations of Grant Aid, almost all supply and constructions will be entrusted to local sub-contractors and the prime contractor will mainly be engaged in management and coordination,
- d) Overhead expenses needed by the prime contractor is assumed to be 12% of the sub-contracted amount,
- e) Foreign exchange rate at the time of gravity of construction (March, 1981) is assumed to be \$ 1 = Y240 = Rp 625
- f) Based upon the above mentioned conditions and assumptions, unit construction cost per floor area for each kind of building can be assumed as follows:

Class room, Office	134	$\times 10^3 \text{Rp/m}^2$	(51.5	$\times 10^3 \text{Y/m}^2$ )
Dormitory, House	141		(54.2	)
Warehouse	101		(38.8	)
Connection Corridor	65		(25.0	)
2-storied Office	157		(60.3	)
Multi-purpose Hall	155		(59.5	)

## 5.8.2 Works Excluded From Cost Estimate

Following works have been excluded from the scope of works by Grant Aid in compliance with the regulations of Grant Aid and upon mutual agreement:

- a) Land clearing and grading
- b) Expansion of electric power receiving station and auxiliary equipment,
- c) Water well construction except for Batangkaluku Center,
- d) Road pavement, gradening, landscaping etc.,
- e) Furniture and utensils,
- f) Telephone and gas facilities,
- g) Others

## 5.8.3 Construction Cost Estimate

As it is quite probable under the circumstances that the amount of Grant Aid fund being considered by Japanese Government could not cover all of the proposed facilities in this report, both parties have put priorities on them as stated hereto in the Interim Report to pick them up one by one as the case may allow. However, the facilities in the first priority group could saftly be covered in other words have been tacitly approved of which construction cost is estimated as below:

### i) Civil and Building Works

Work Item	Construction Cost ( $\times 10^3$ yen)	
	Ciheo Training Center	Batangkaluku Training Center
Class Room	15,951	7,616
Central Building	34,485	34,364
Multi-purpose Hall	11,904	17,856
Women's Dormitory	10,017	10,287
Instructor's Dormitory	10,017	10,017
Dining Room	7,580	7,580
Storage for Equipment	3,878	3,878
Tractor and Vehicle Shed	3,878	—

Work Item	Construction Cost ( $\times 10^3$ yen)	
	Cihea Training Center	Batangkaluku Training Center
Workshop	7,718	—
Milk Room	970	—
Dormitory (re-modeling)	10,971	—
Laboratory-Home Improvement	—	4,516
Dormitory	—	22,199
Connection Corridor	1,475	1,475
Drying Floor	1,037	—
Outdoor Water Supply and Drainage Systems	5,760	12,672
Outdoor Power Supply System	1,728	1,075
	<u>127,369</u>	<u>133,535</u>
	Total	260,904,000
ii) Design and Supervision Fee		35,000,000
iii) Contingency		<u>4,096,000</u>
	Grand Total	¥300,000,000

5-9 Implementation Time Schedule

IMPLEMENTATION TIME SCHEDULE

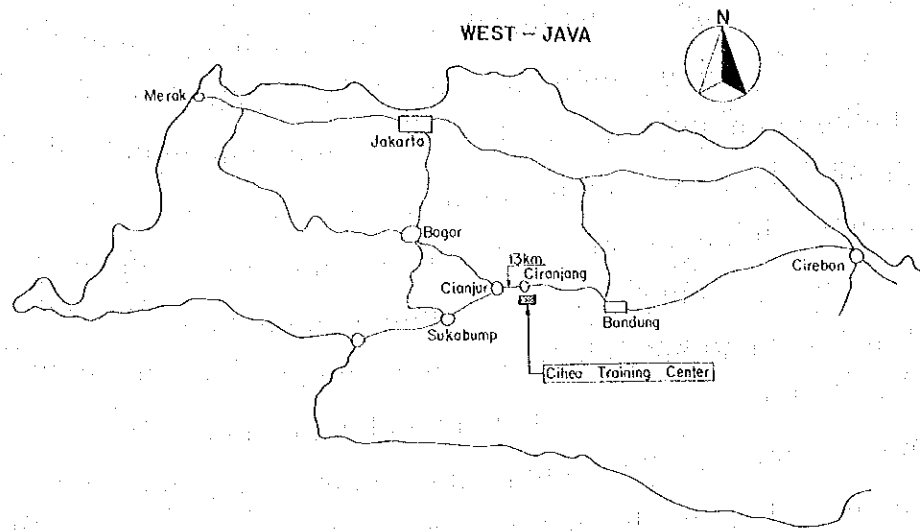
	1980				1981				1982			
	4	5	6	7	8	9	10	11	12	1	2	3
Basic Design	▬											
Exchange of Notes				△								
Detailed Design				▬								
Tender / Contact						▬						
Construction									▬			

Notes : △ : Date of Exchange of Notes(E/N) is an expected date .  
 ▬ : Schedule of Detailed Design, Tender / Contract and  
 Construction shall be shifted according to actual date  
 of E/N.

## 5-10 Basic Design Drawings

Dwg. No.	Title
01	CIHEA TRAINING CENTER PLOT PLANT
02	CIHEA TRAINING CENTER CENTRAL BUILDING/MULTI-PURPOSE HALL
03	CIHEA TRAINING CENTER WORKSHOP, STORAGE, TRACTOR AND VEHICLE SHED/CLASS ROOM
04	CIHEA TRAINING CENTER STORAGE FOR ANIMAL FEED/MEN'S DORMITORY/MILK ROOM/ ABLUTION BLOCK
05	CIHEA TRAINING CENTER INSTRUCTOR'S HOUSE/ASST. INSTRUCTOR'S HOUSE EMPLOYEE'S HOUSE/WOMEN'S DORMITORY
06	CIHEA TRAINING CENTER VISITING INSTRUCTOR'S DORMITORY/DINING ROOM AND KITCHEN
07	BATANGKALUKU TRAINING CENTER PLOT PLANT
08	BATANGKALUKU TRAINING CENTER CENTRAL BUILDING/DINING ROOM AND KITCHEN
09	BATANGKALUKU TRAINING CENTER STORAGE FOR EQUIPMENT/MULTI-PURPOSE HALL/ LABORATORY-HOME IMPROVEMENT
10	BATANGKALUKU TRAINING CENTER MEN'S DORMITORY/VISITING INSTRUCTOR'S DORMITORY
11	BATANGKALUKU TRAINING CENTER INSTRUCTOR'S HOUSE/ASST. INSTRUCTOR'S HOUSE EMPLOYEE'S HOUSE/WOMEN'S DORMITORY/ABLUTION BLOCK

Dwg. No.	Title
12	CIHEA TRAINING CENTER WATER SUPPLY PIPING SYSTEM
13	CIHEA TRAINING CENTER ELECTRIC POWER DISTRIBUTION SYSTEM
14	BATANGKALUKU TRAINING CENTER WATER SUPPLY PIPING SYSTEM
15	BATANGKALUKU TRAINING CENTER ELECTRIC POWER DISTRIBUTION SYSTEM



LOCATION MAP

LEGEND

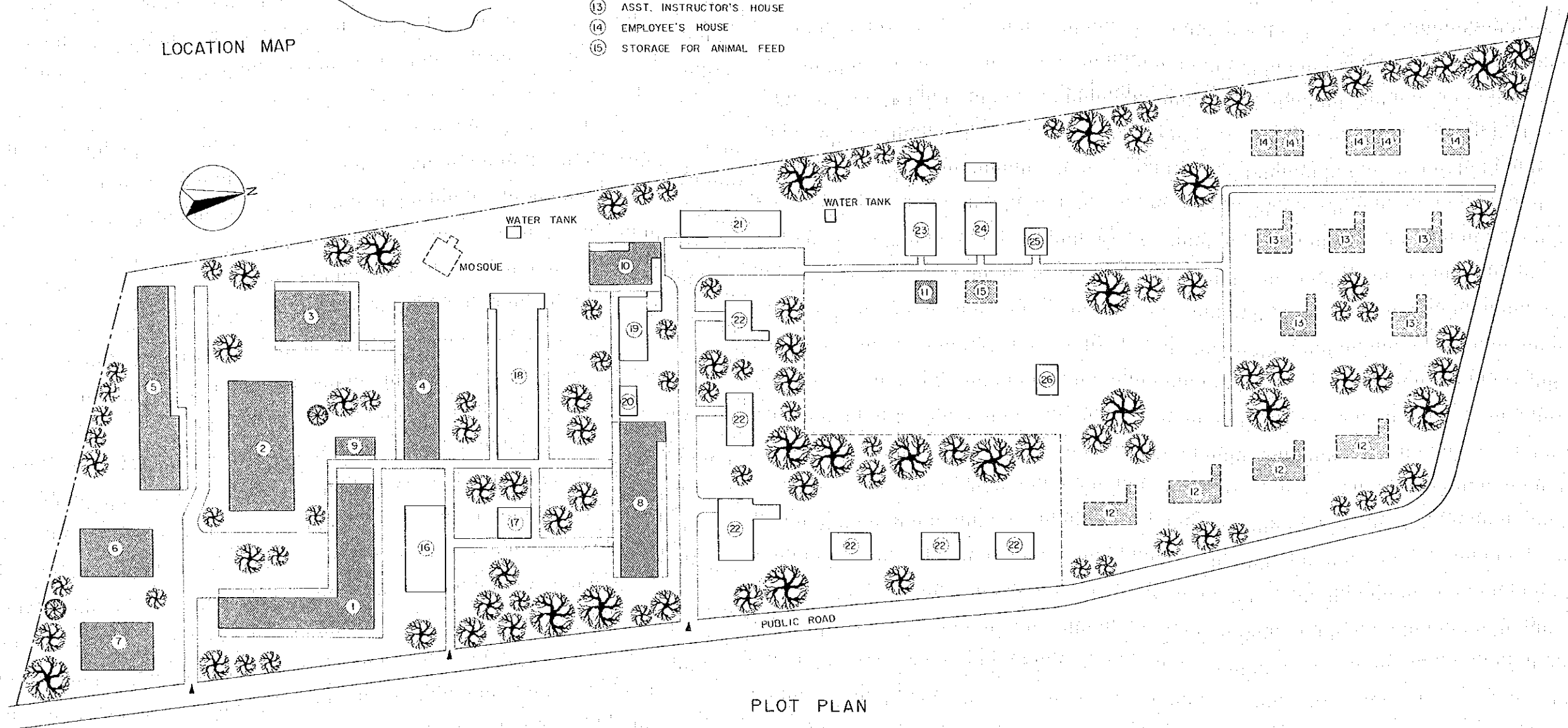
NEW BUILDINGS

- ① CENTRAL BUILDING
- ② DRYING FLOOR
- ③ MULTI-PURPOSE HALL
- ④ CLASS ROOM
- ⑤ STORAGE, WORKSHOP, TRACTOR AND VEHICLE SHED
- ⑥ WOMEN'S DORMITORY
- ⑦ VISITING INSTRUCTOR'S DORMITORY
- ⑧ MEN'S DORMITORY (EXIST. BUILDING TO BE REMODELED)
- ⑨ ABLUTION BLOCK
- ⑩ DINING ROOM AND KITCHEN
- ⑪ MILK ROOM
- ⑫ INSTRUCTOR'S HOUSE
- ⑬ ASST. INSTRUCTOR'S HOUSE
- ⑭ EMPLOYEE'S HOUSE
- ⑮ STORAGE FOR ANIMAL FEED

EXISTING BUILDINGS

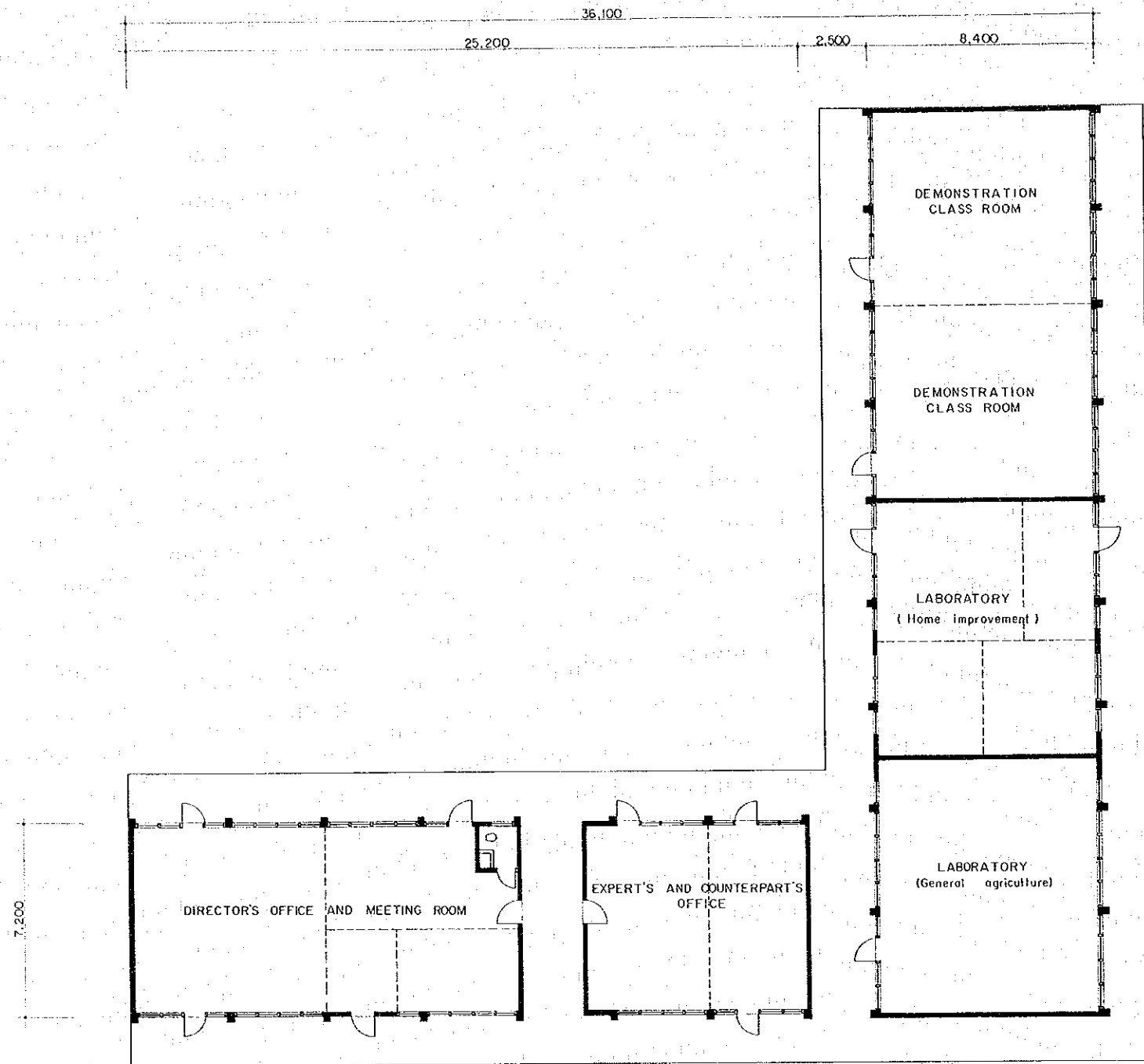
- ⑯ WORKSHOP
- ⑰ ADMINISTRATION BUILDING
- ⑱ DORMITORY
- ⑲ DINING ROOM AND KITCHEN
- ⑳ ABLUTION BLOCK
- ㉑ MACHINERY SHED
- ㉒ HOUSE (TYPE B.C.D)
- ㉓ CHICKEN HOUSE
- ㉔ LARGE ANIMAL SHED
- ㉕ SMALL ANIMAL SHED
- ㉖ GENERATOR ROOM

- ▭ — EXISTING BUILDING
- ▨ — NEW BUILDING
- ▩ — NEW BUILDING (FUTURE)

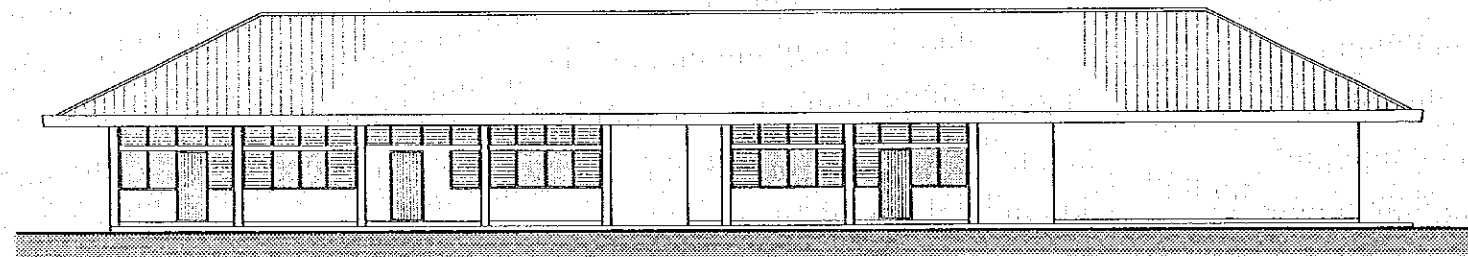


PLOT PLAN

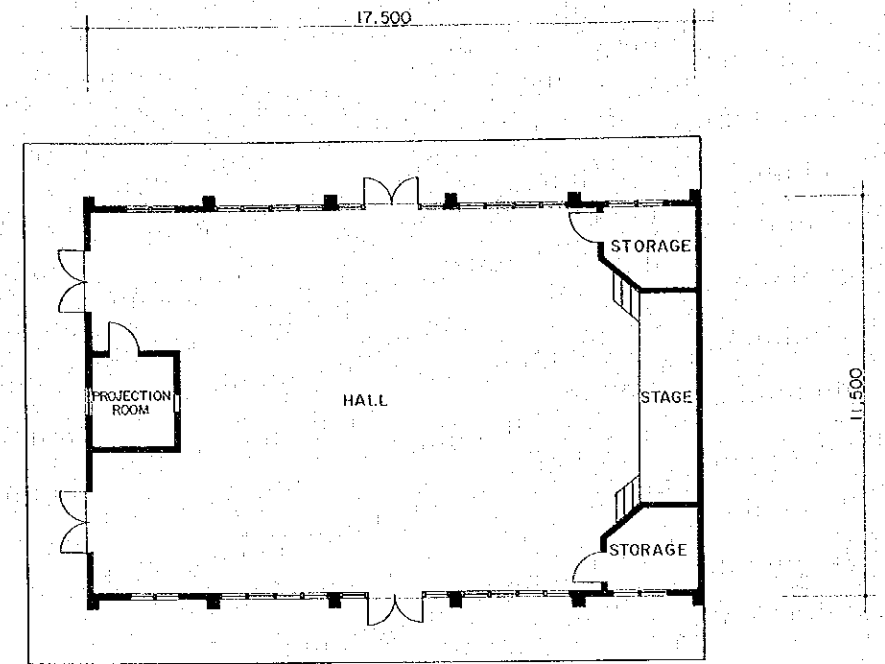




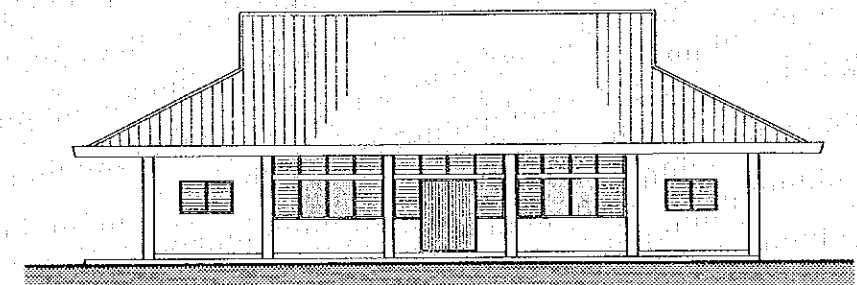
PLAN



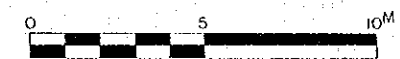
ELEVATION  
CENTRAL BUILDING



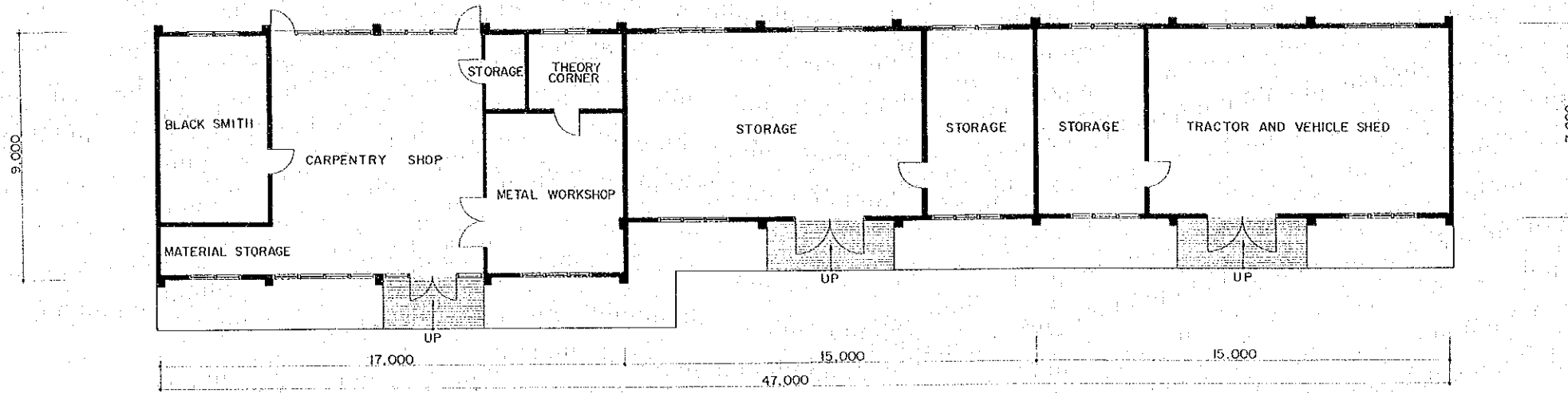
PLAN



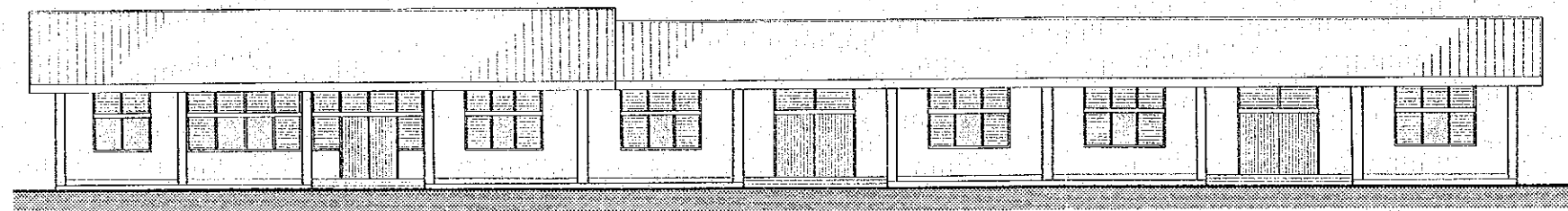
ELEVATION  
MULTI-PURPOSE HALL





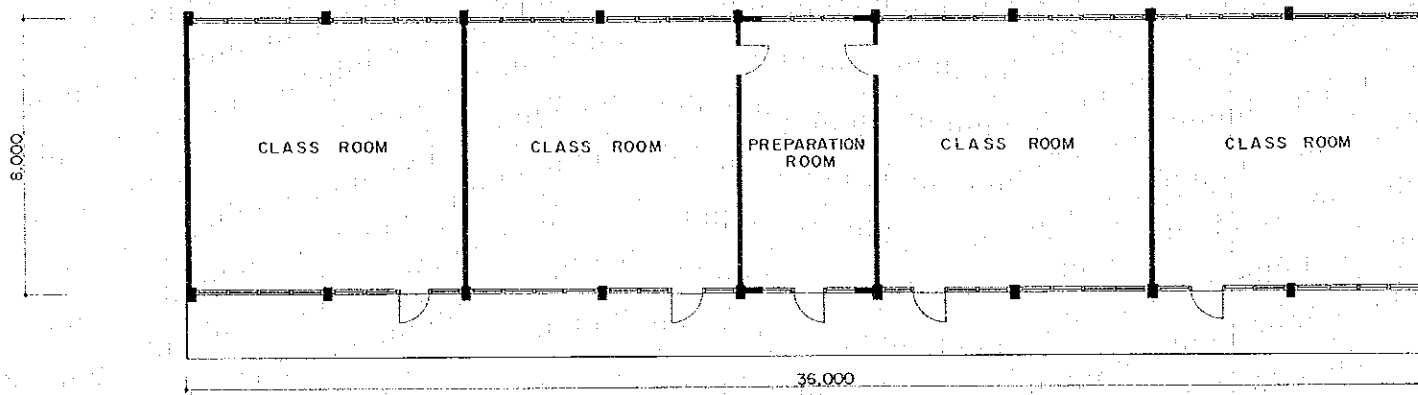


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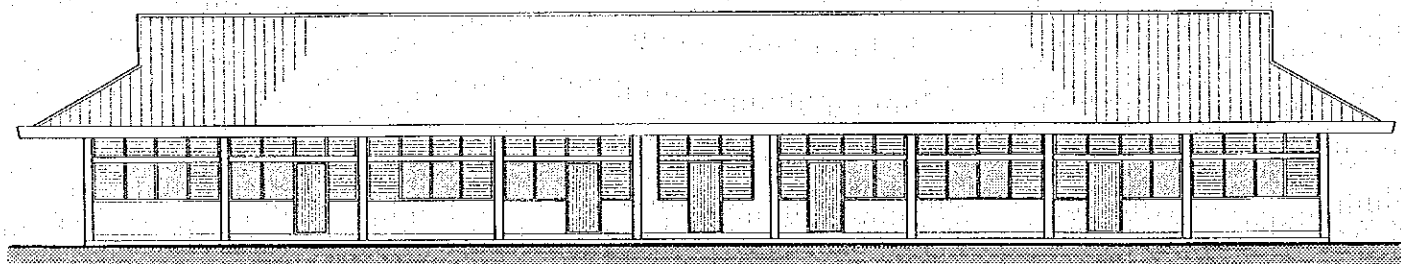


ELEVATION

WORKSHOP, STORAGE, TRACTOR AND VEHICLE SHED

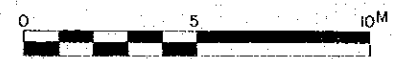


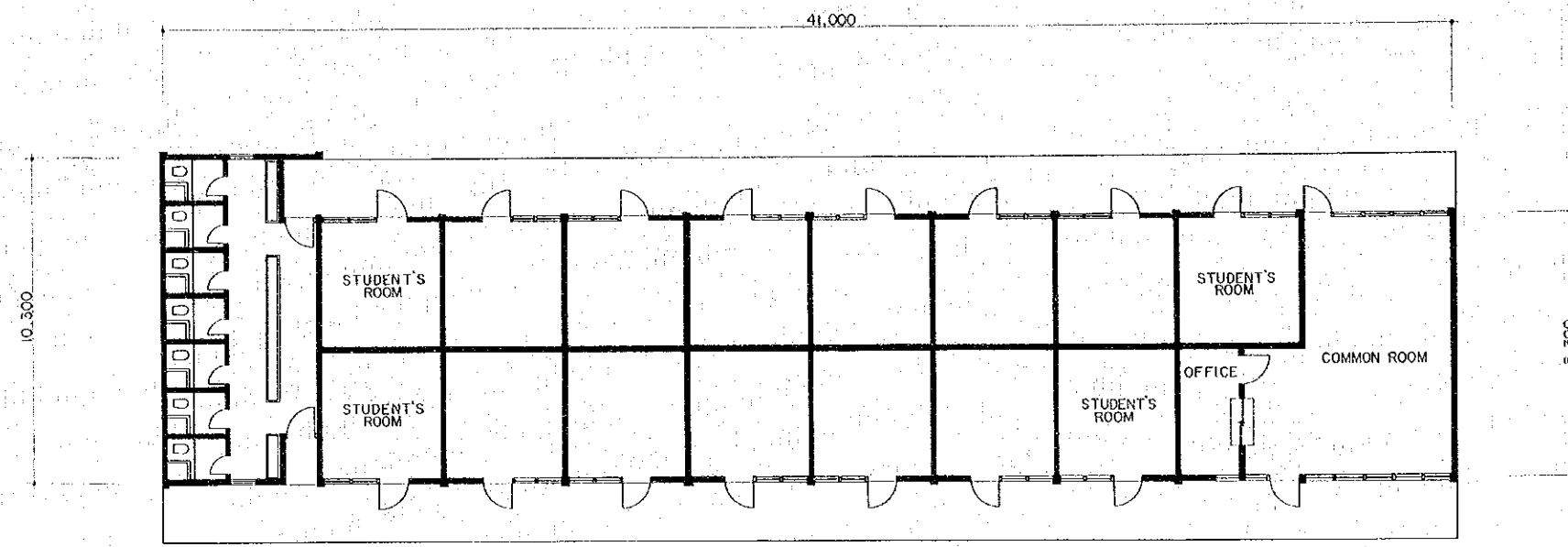
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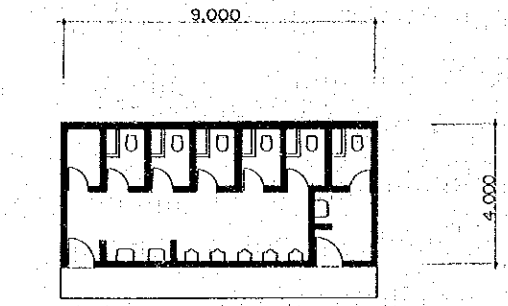
ELEVATION

CLASS ROOM

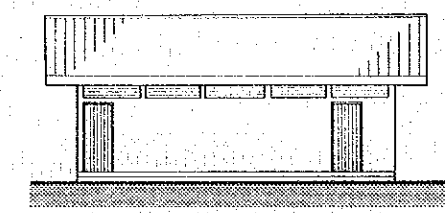




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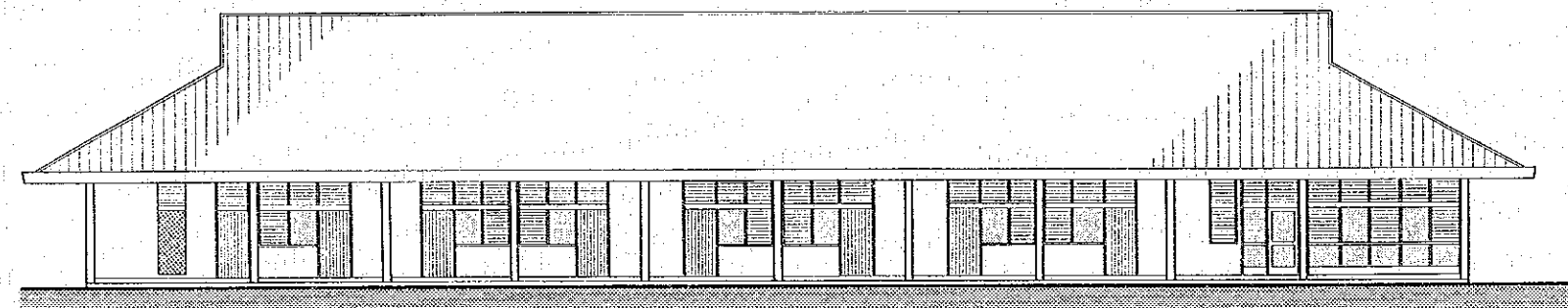


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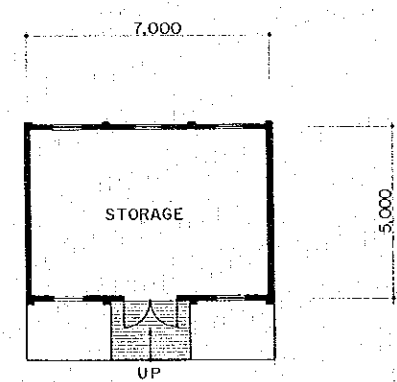
ELEVATION

ABLUTION BLOCK



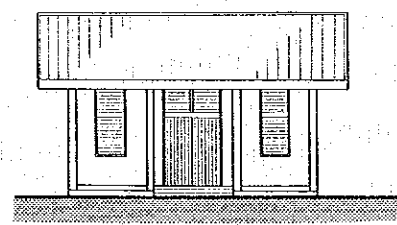
ELEVATION

MEN'S DORMITORY

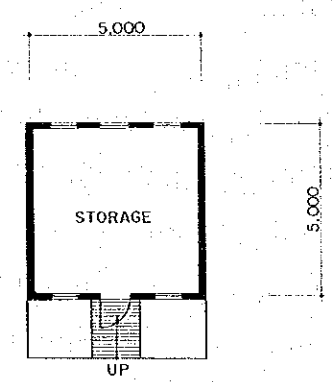


PLAN

STORAGE FOR ANIMAL FEED

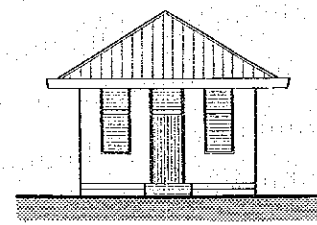


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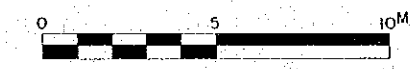


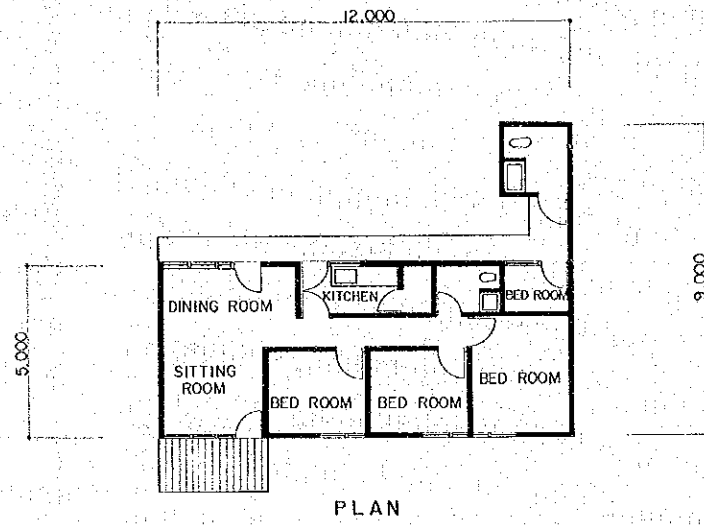
PLAN

MILK ROOM

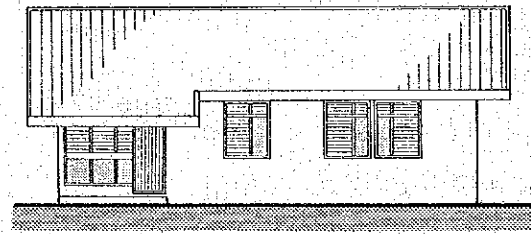


ELEVATION



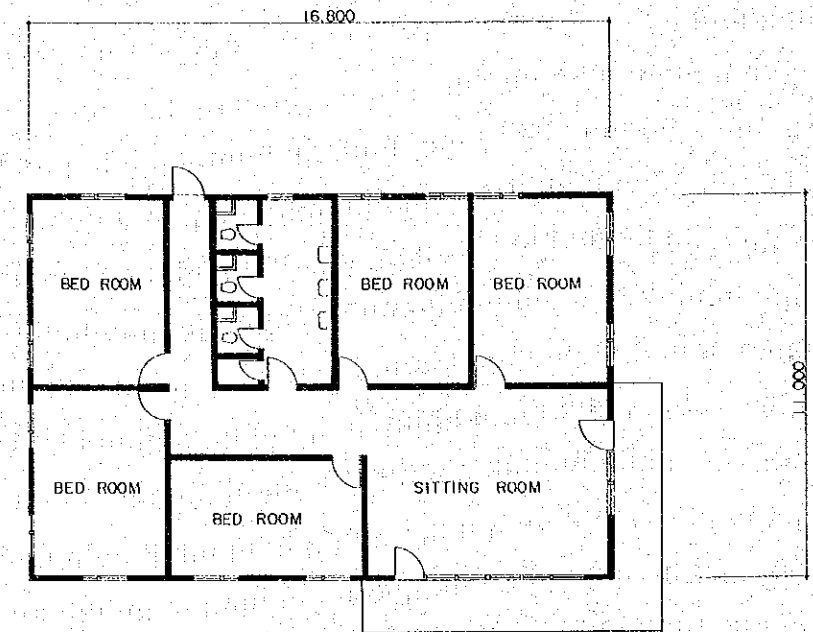


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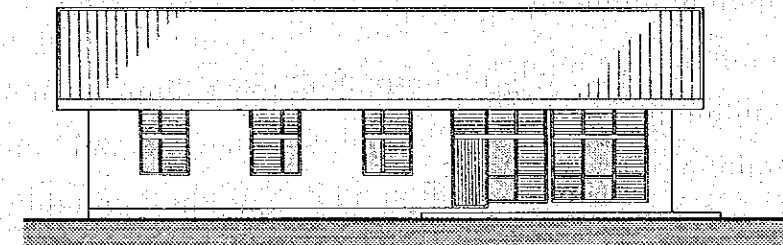


ELEVATION

INSTRUCTOR'S HOUSE

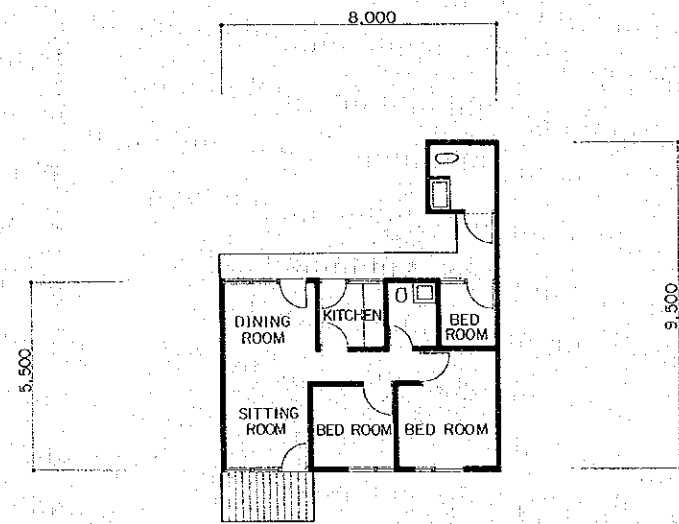


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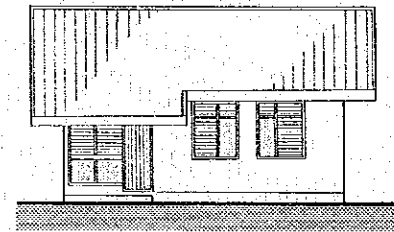


ELEVATION

WOMEN'S DORMITORY

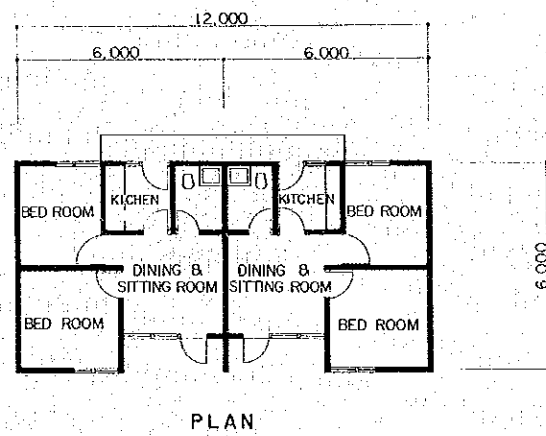


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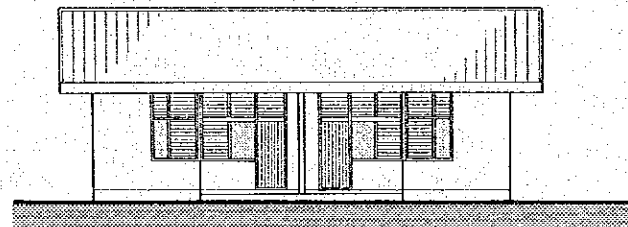


ELEVATION

ASST. INSTRUCTOR'S HOUSE



PLAN



ELEVATION

EMPLOYEE'S HOUSE

