

3-3-6. Technical Cooperation

Together with the request for the installation of this Center, another request for the technical cooperation has been submitted from the Government of Indonesia. They intend to fulfill the activities of the Center by use of technical cooperation from Japan. The preliminary study team also confirmed the necessity of the technical cooperation for this Project.

According to the explanation made from Indonesian side, candidates for lecturers of the Center are already found among staff of the Ministry and they confirmed that there were no difficulties in carrying out training of the operator course and the manager course. However, another training course, the instructor course, requires training of higher level and it is considered necessary to have technical cooperation at least in the beginning.

Presently an expert on post harvest processing dispatched from JICA is stationed at the Directorate General of Business Promotion for Cooperative, which is the executing agency of the Project, and he has played a positive role on planning of the Project through advice and guidance. He is expected to perform the function as the key-personnel on execution of the Project also. Adding to him, it is desired to have few more experts for attaining above-mentioned objectives.

As the Directorate General does not have the experience of operating training centers, it is anticipated that cooperation will be organized with PUSLATPENKOP for the management of the Center, recruit of trainees, compiling curricula, etc. However, PUSLATPENKOP itself is cooperating with ILO and the Government of Swiss. In view of such facts, technical guidance would be required not only for the post harvest processing technology but also for the operation and management of the Center.

CHAPTER 4 BASIC DESIGN

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4-1 Basic Principle

The basic design is to be made in consideration of the result of the site survey and discussion held with the officials of the Indonesian Government, etc., based on the following criteria:

(1) The facilities shall be in conformity with the local natural conditions.

A comfortable architectural space shall be secured based upon existing geographical features under the local climatic conditions such as temperature, humidity, rainfalls, etc..

(2) Optimum contents and optimum scale of the facilities shall be designed.

To define the contents and the scale of the facilities correctly, the local conditions are to be researched and studied and the requests from the Government of Indonesia are to be analyzed precisely, with the due consideration of future expansion possibilities.

(3) Easy management and maintenance of the facilities and the equipments shall be considered.

Economical construction, easy maintenance and management, durability shall be taken into consideration for designing of buildings, and easy operation and maintenance of the equipments shall be planned so long as these satisfy the objectives.

(4) Construction systems and materials of the Republic of Indonesia shall be highly adopted.

For the purpose of easy maintenance and management of the buildings and shortening of the construction term, available materials in the local market and customary construction systems are to be adopted.

(5) Suitable safety and security systems shall be planned.

Safety and security systems are to be planned in the overall facilities.

4-2 Basic Design Requirements

4-2-1 Design Requirement for the Building Facilities

(1) Natural conditions

a) In consideration of the natural conditions such as high temperature, high humidity and much rainfall in the rainy season, November through March, the following measures are taken:

- i) Each building to have high pitched roof of the acute angle for smooth as to discharge of surface water.
The sky light from the roof and natural ventilation systems are to be designed.
- ii) All eaves of are projected sufficiently (1.5 meters horizontally), for controlling the sunbeam and rainfall.
- iii) Floor level of each building is elevated by 300mm from the ground level so as to protect the floor from the flooding.
- iv) Large sized drainage pipes are to be used against sudden heavy rain.

b) Since Java Island is in the earthquake zone with many seismic records in the past, the followings are considered:
In respect to the structural calculation of the buildings, a coefficient of $K=0.05$ for one story building and of $K=0.1$ for the elevated water tank structure are used while the coefficient of the local calculation standard is about one-tenth (1/10) of the Japanese standards.

(2) The countermeasuring for existing environment.

The proposed construction site consists of upland fields, paddy field and marsh, against which the followings are proposed:

- i) A new access road from the front road to the Site entrance is to be constructed at the level of 1.5m to 2.0m higher than the existing ground level.
- ii) The elevated water tank structure is to be located at the higher zone of the Site and other buildings are to located around this structure.

- iii) The practical Training Building is to be located at the access road side in the east to emphasize the aesthetic impression with the impressive sky light design on the roof top.
- iv) At the higher zone of the Site, the Administration Building and the Dormitory, which have natural ventilation systems on the roof tops, are located at east to west direction longitudinally.

(3) Construction Method and Materials

a) Customary methods of construction of the Republic of Indonesia are to be adopted in the design.

- i) Reinforced concrete framing structures with steel framing trusses shall be provided for Administration and Dormitory Building, the steel framed structure shall be provided for Practical Training Building which have high building heights and large spans.
- ii) Concerning to the local materials which qualities and durability are not described in the specification, it will be adopted after the examination into the quality and durability.
- iii) Ceiling frame shall be light steel
- iv) Termite proofing shall be provided into the soil around the building and under the ground floor slabs.

b) The local product materials shall be adopted primarily for the building construction

- i) The easy maintenance materials and easy repairing materials shall be selected
- ii) In respect to the import regulation in Indonesia, the building materials shall be procured in local market. Those materials shall be inspected before furnishing, in conjunction with function and durability required.

4-2-2 The Conditions of Equipment Selections

Equipment to be selected should be those satisfy the objectives of the Center, necessary and enough for the execution of practical activities. When financial and/ or institutional restriction or

difficulty exists for the procurement of specific items, those equipment that can best achieve the objectives are selected within such restrictions.

When locally-available products that can perform the objectives equally, these are selected from the view point of maintenance.

Principles of selecting equipment according to their kinds are mentioned in 4-4-1. Equipment Planning (1) Equipment Planning According to their Kinds.

4-3 Basic Design of the Facilities

- Basic Planning for the Training Center

The Post Harvest Training Center consists of three facilities as follows;

- a) The facilities to be used for management of the center, and for operation and maintenance.
- b) The facilities to be used for lodging services of the trainees.
- c) The facilities to be used for training.

4-3-1 Site Layout

The overall project layout consists of an Administration Building, a Practical Training Building, a Dormitory Building, a Guardhouse, etc..

(1) Design requirements for the site layout

- i) One access road from the main road is connected at the side of south-east of the Site.
- ii) The Buildings are to be located at south-east side of the Site, which is of higher level, and north-east side of the Site shall be used for the future extension works.
- iii) Outside zone of the existing wall (paddy field) is 1.5 to 2.0 meters lower than the inside wall (upland field).
In such circumstances, all the buildings shall be located at the inner zone of the existing wall.
Outside zone of the existing wall shall require the filling works of the soil to raise the ground level, and also piling works that requires the higher construction cost, and causes sinking of the ground level after the filling works.

(2) Basic principle for plot planning

The attached site plan shows the concepts as follows;

- i) Only the minimum quantity of excessive soil and sand for the construction shall be allowed to transfer.

- ii) Existing geographical features of the Site are to be taken into consideration in the design to discharge the surface water by the natural gravity.
- iii) All the facilities in the premises shall be arranged functionably in regard to their accesses.
- iv) Drying yard shall be used for parking space.
- v) Visitors' parking area is located close to the Administration building.
- vi) North and north-west zone of the Site is planned to be opened for the future expansion schedule.

The following site plan bases on the above-mentioned conditions.
(see 4-3-7 Schematic design drawing)

4-3-2 Building Plan

Building of this center is classified into several components. The following five functional buildings are well organized each other in the overall premises.

(1) Administration Building

The building is the facilities for the purpose of managing and training, and consists of a director room, a deputy director room, an office for managers and clerks, an instructor room, a training affairs room, classroom (2 rooms), a library, a meeting room, a printing/typing room, a Odd-job room and clinic.

(2) Practical Training Building

The building has the spaces for operating and training of the rice mill. A rice mill training room, a practical training room, a workshop, a lecture room, a control room, stores, etc. are planned.

(3) Dormitory

The building is used as lodging facilities for the trainees, which provides 12 bed rooms (1 room for 4 persons), a dining room, a kitchen and a lounge. The dining room is also used by the personnel of the Administration building.

(4) Guardman house

The building is used for the security purpose of the premises.

(5) Service facilities

A generator room, a pumping room and an elevated water tank structure are provided as servicing facilities.

In respect to the layout, among the above five buildings, the Administration building shall take the priority as a center of overall buildings, and will have easy access to the other buildings. Plot plan shall be well arranged and organized considering the future expansion.

1) Plan and section

a) Administration Building

The right side of the building from the entrance consists of classrooms, a laboratory, a library, a meeting room, etc.. At the left side of the building, an office, an instructor room, training affairs room, a director room, a deputy director room, printing/typing room, etc. are located. Each room which has air conditioning system have 2.7m high ceiling, other rooms have 3.0 - 3.5m ceiling highest with natural ventilation.

b) Practical Training Building

The rice mill room is a primal space which locates on the ground floor. Mezzanine floor shall be furnished, where control room is located.

A practical training room and a workshop are located adjacent to the rice mill room.

Natural ventilation systems and sky light control windows shall be at the top of the pitched roof.

c) Dormitory

The building is prepared for the lodging of the trainees.

Each bed room has 4-beds regularly, and natural ventilation and lighting, one side corridor is supplied.

The capacity of the dining room and the kitchen facilities are not only for trainees but also for all the staff and workers in this premises.

Each room has ceiling height of 3.0-3.5 meters for the good ventilation.

The occupancy and the required floor area are shown as follows;

< Planning design condition >

Mainly, the space programming for each building shall be decided by the occupancy rate in them in accordance to the floor area requirement for each rooms.

The Japanese general standards and floor programming standard of Tsukuba Gakuen Toshi Research Center are referred under the consideration of the required floor area from the government of Indonesia.

- Office space	4.5-7.0m ² /psn (general)
- Meeting space	1.5-3.5m ² /psn (general)
- Training space (classroom)	1.2-2.5m ² /psn (general)
- Library space (reading room)	2.0-4.0m ² /psn
- Dining space	1.2-2.5m ² /psn
- Kitchen space	30-50% of Dining space
- Lodging space	8.0-12.0m ² /psn
- Directors space	20.0-30.0m ² /psn
- Rest space	72.0m ² /no less than 25 psn
- Storage space	20% of office and laboratory space

The special purpose rooms shall be decided by the detail equipments' layout.

Table 4-1

Administration Building:		Unit : m ²	
room:	usage & floor area:	required floor area:	scheduled floor area:
Office	15 office workers 15 x 5m ² /person=75m ²	75	70
Director room	Director room 30m ² reception space 20m ²	50	52.5
Deputy Director rm	Deputy Director rm. 30 m ²	30	35
Instructor room	8 instructors 8 x 8m ² /person	64	70
Training Affairs rm	10 ~ 14 staffs 14 x 7m ² /person=98m ²	98	105
Library	Data reading Study for trainees	50	52.5
Laboratory	20 trainees 20 x 4.5m ² /person=90m ²	90	87.5
Preparation room	20% of the Laboratory=18m ²	18	17.5
Meeting room	10 occupants 10 x 3m ² /person=30m ²	30	35
Classroom	20 trainees (2 rooms) 20 x 2.5m ² /person=50m ² 50m ² x 2 rooms = 100m ²	100	105
Printing/ Typing rm	Copying, filing work space Computer data file storage	35	35
Odd room	Hot water heater, resting room	35	35
Store	Office supplies storage furnishings storage 15m ² x 2 rooms = 30m ²	30	35
Total		735	

Table 4-2

Practical Training Building:		Unit : m ²	
room:	usage & floor area:	required floor area:	scheduled floor area:
Rice mill	Rice mills, Paddy dryers & storage, Training on Rice mill and storage	900	882
Practical training room	Training on maintenance of rice mill component machinery, engines, etc. 20 trainees 20 x 12m ² /person = 240m ²	240	252
Work shop	Training, on basic works	130	126
Lecture room	20 trainees (chairs only) 20 x 1.5m ² /person = 30m ²	30	31.5
Generator room	The average is 30m ² -50m ²	35	35
Pump room	The average is 15m ² -25m ²	20	15
Control room	Control panel of rice mill and primary panel are installed	30	35
Husk storage	4 hours rice milling of 40t paddy makes approx. 100m ³ of chaff	25	22
Total			1,401.5

Table 4-3

Dormitory:		Unit : m ²	
room:	usage & floor area:	required floor area:	scheduled floor area:
Lounge	20 occupants 20 x 2.0m ² /person = 40m ²	40	45
Dining room	40 persons (2 rotation) 40 x 1.5 m ² /person = 60m ²	60	66
Kitchen	40 persons (2 rotation) 40 x 0.7 m ² /person = 28m ²	28	27.5
Bedroom (for 4)	48 persons (1 room for 4) 48/4 persons = 12 rooms 12 rms x 4 persons/8m ² /person = 384m ²	384	381.6
Total			520.1

< Paddy Drying Yard >

Paddy drying yard is used for drying paddy required for rice mill training. About 5,000m² of concrete paved area is required as follow:

600 tons of paddy is used a year. As 2 times of harvest a year, 300 tons of paddy is received by 20 days i.e 15 tons per day. With a safety factor, 20 tons a day(see Note 1). The volume of 20 ton paddy is:

$$20t / 0.5(t/m^3) = 40m^3.$$

When this paddy was spread with the thickness of 5 cm, it occupies 800m² (40m³ / 5cm = 800m²). Average 3 days will be required to dry the paddy, which results in 800m² x 3 days = 2,400m² required floor space.(see Note 2)

As the moisture content and varieties of paddy are different, the area is scheduled to be two times of this figure (see Note 3), which concludes 2,400m² x 2 = 4,800m² (approx. 5,000m²)

2) Elevations

The building elevation shall be designed under the consideration of the followings:

- The local materials are to be matched with the functions of the building.

- The materials shall satisfy the condition of easy maintenance with the low running cost.
- The outside appearance design are to fit with the local buildings and to have a good image of the building based on the Japanese grant aid.

< Note 1 >

When planning required paddy drying capacity, daily variations in paddy collection quantity should be considered. The allowance need to be taken larger than for average daily intake in order to assure a smooth operation. In the cases of the "Country Elevators" in Japan, 1.5 times of average daily intake is the designed intake capacity.

< Note 2 >

In Indonesia, it is assumed that average moisture content of paddy received from farmers range from 22 to 24 %. In order to dry it to 14 %, which is suitable for storage and milling, three days are considered to be required.

< Note 3 >

For drying paddy of different moisture content and different varieties, it is necessary to take space between each different lots of paddy so as not to mix each other and to execute efficient operation. The actual required floor space is about double of the calculated one.

4-3-3 Structural Design

(1) Basic structural design

1) Building structure

- Administration building

Reinforced concrete structure, 1 story bldg.

- Practical training building;

Steel structure, 1 story and mezzanine floor

- Dormitory;

Reinforced concrete structure, 1 story bldg.

- Guardhouse;

Reinforced concrete structure, 1 story bldg.

- Husk store;

Reinforced concrete structure, 1 story bldg.

- Outdoor lavatory;

Reinforced concrete structure, 1 story bldg.

- Garage;

Steel structure, 1 story bldg.

- Elevated water tank structure;

Reinforced concrete structure

2) All the structural frames are designed to resist all the physical design loads and to transmit the force to the ground.

3) The construction of the foundations is to be supported directly by the bearing stratum, since the bearing capacity was estimated 5 ton/m^2 when the investigation was executed at the site.

4) For the good quality and high workability of the construction works, the structural components shall be selected from the traditional local construction methods.

(2) Structural design conditions

1) Codes and standards

Structural design codes and standards which are generally complied in Indonesia are as follows:

- Deraturan Bangunan Nasional
- Peraturan Pembebanan Indonesia untuk gudung
- Peraturan Buton Bertulang Indonesia
- Codes and standards in the U.S.A. and the U.K.
- Codes and standards in Japan (JIS, JAS)

For this Project, JIS and JAS are complied for the structural design codes and standards.

2) Superstructure

Framed reinforced concrete structure which is a popular construction method in Indonesia, is adopted for Administration building, Dormitory and Elevated water tank structure.

Steel framed structure is adopted for Practical training building, as the building requires the high building heights and large spans.

3) Foundation construction

The direct foundation systems which are supported by bearing stratum directly shall be adopted for all the buildings and structures.

4) The design loads are assumed to be as follows:

a) Dead loads

The weight per formula volume of main materials are as follows:

Reinforced concrete	2.4t/m^3
Red brick masonry	1.9t/m^3

b) Live loads

Live loads for main rooms are as follows:

Table 4-4 Live loads

Unit : kg/m²

Room:	Floor:	Girder, Column Foundation:	Seismic Force:
Office Meeting rm. Classroom	300	180	80
Library	500	350	150
Bedroom Dining rm	180	130	80
Corridor	350	320	60
R. M. Training room	500 (1000)	350 (700)	150 (300)
P. Training room	500	350	150
Workshop	500	350	150
Generator room	350	320	100
Control rm.	350	320	100

c) Seismic force

Indonesia is a Seismic zone, but no large earthquake was experienced in the past. As the seismic coefficient is one tenth (1/10) of the Japanese one. $K=0.1$ for Elevated water tank structures and $K=0.05$ for all the other buildings are adopted as the seismic coefficient.

d) Wind load

$v=20\text{m/sec.}$ for wind velocity and $q = 20 h \text{ kg/m}^2$ (h :height) for wind pressure are assumed, based on the data of the highest wind velocity experienced in each area in Indonesia.

5) Main structural material

The allowable stress of the followings shall be adopted based on the JIS standards of Japan.

a) Concrete $F_c=210\text{kg/cm}^2$

Slump 15-17cm

b) Steel bar

Table 4-5 Allowable stress of steel bar
unit: kg/cm^2

item:	permanent:	temporary:	JIS material:
Round bar	1600	2400	SR24
Deformed bar	2000	3000	SD30
Ditto	2200	3500	SD35

c) Structural steel for frame

Table 4-6 Allowable unit stress of
Structural steel for framed
unit: kg/cm^2

item:	permanent:	temporary:	JIS material:
H shaped steel	1600	2400	SS41
Steel plate	1600	2400	SS41

4-3-4 Building Facilities

(1) Design Concept

The following items shall be considered for the building service equipment design.

- 1) The above said equipments shall be scheduled under the considerations of the sociality, customs, natural features and infrastructures at the Site, and the decision shall be carefully defined not to be overequipped.
- 2) For the easy maintenance management, the said equipments shall be as those of Indonesian standard systems.
- 3) The machines and equipments shall be of local standards which are available in the local market for the easy maintenance and repair.
- 4) In advance to the decision of the capacity and specification, every running condition shall be examined for economical running and maintenance costs.
- 5) Regarding to the codes and standards for the said equipments, local codes and standards shall be applied. In case the suitable codes and standards do not exist, reference shall be made on the Japanese codes and standards concerning to them.

(2) Electrical Installations

1) Calculation of the electrical capacity

4 tons/hour rice mill in the premises have the loads of 120kW which occupy 60% of the total load in the premises.

To reduce the peak loads of the electric power at the Site and to reduce the contracted capacity with PLN, a power generator shall be installed to supply the power to the rice mill.

By this concept, the contract with PLN shall be approximately 100kW.

The followings show the approximate power capacities in the premises:

Table 4-7 The approximate capacity of electrical services

Building:	Floor area m ²	Load:	Ref:*1	Load Cap. kW
Administration bldg.	880	electric lights	960x30x0.8x0.8	18.4
		receptacles	330x125x0.9x0.9	33.4
		air conditioners		
Practical training bldg.	1,897	electric lights	2,067x20x0.8x0.8	26.4
		receptacles	2,067x20x0.8x0.5	16.5
		training equipmt.	150kWx0.8 (*2)	(120)
		rice mill		
Dormitory	844.5	electric lights	661x20x0.8x0.7	7.4
		receptacles		
		pumps, motors	10kWx0.3	3.0
Total:				105.1

*1: objected floor area x equipment capacity(VA/m²) x
power factor x demand factor

*2: supplied from power generator

2) Electrical receiving system

The primal electrical supply to the first pole in the premises shall be served by Indonesian government property works. Service lateral to the low voltage distribution section located in the control room of the Practical Training building shall be underground.

From the low voltage distribution section, 380v/220v power shall be served to the distribution panels located in each building by 3 phase 4 wire.

Service receiving system, 3 phase 4 wire, 380/220v, 50Hz,
Contracted capacity demand, 100kW

The following shows the electrical receiving diagram;

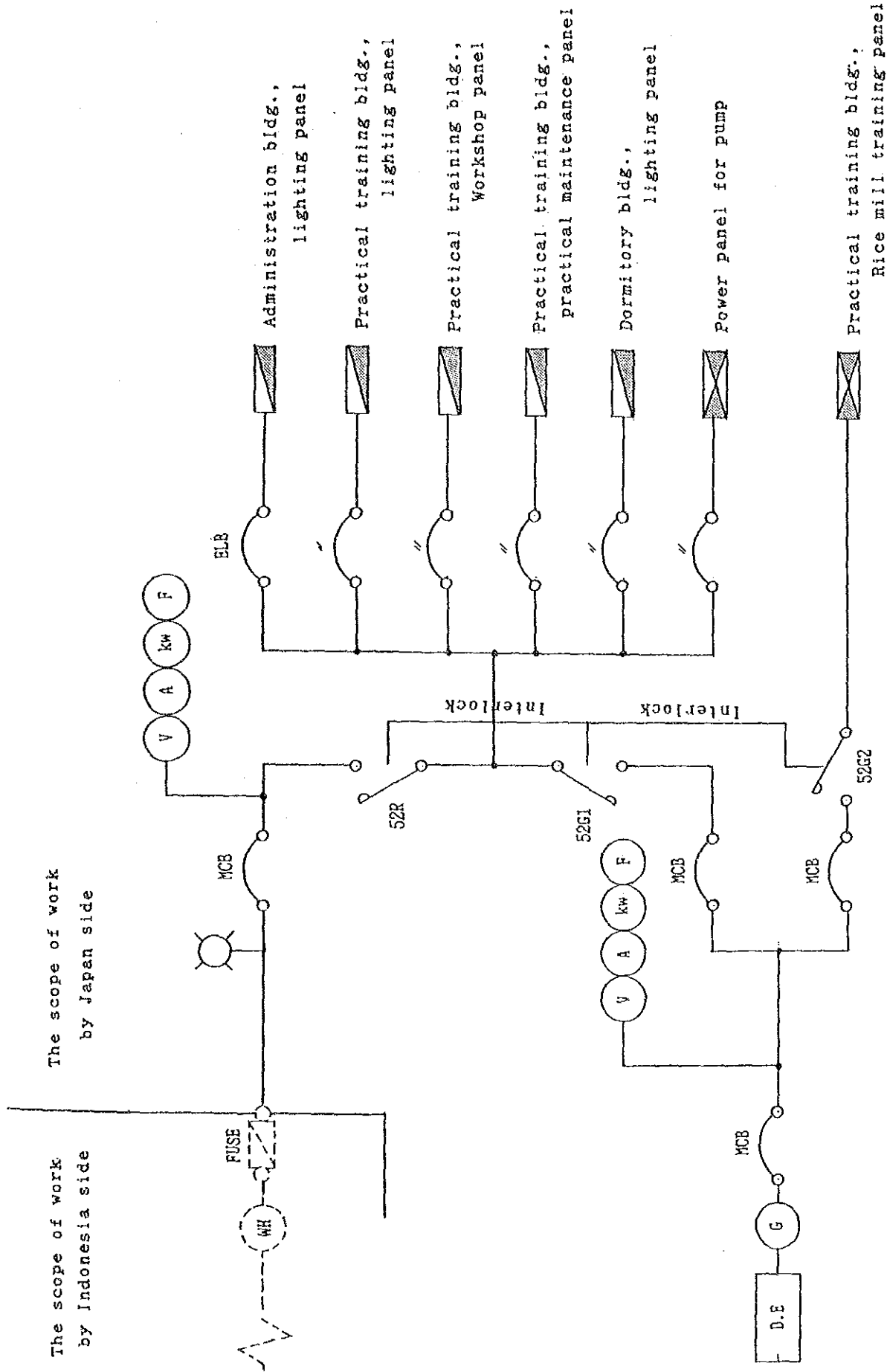


Figure 4-8 Electrical service wiring diagram

3) Generator service

As for the power resources of the 4 tons/hr rice mill in the rice mill room of the Practical training building, a power generator shall be provided. The generator is also to be used for emergency power during power stoppage.

The outline of the power generator is as follows:

Rated output	200kVA (160kW), continuing
Voltage	3 phase 4 wire, 380/220v, 50Hz
Engine	Diesel engine
Cooling	Radiator cooling system
Fuel tank	1 kl (20 hours, appx.)

4) Lighting and receptacle service

- Voltage is 220v with single phase 2 wire
- Lighting level is standard level of Indonesia
- Lighting fixtures are recessed type for high class room and ceiling mounted type for the other rooms
- The light source is fluorescent lamp as for basic lamp. Mercury lamps are to be used for 3 training rooms in Practical training building which has a high ceiling.
- Two receptacles are to be provided for each room as standard. Where required, more to be added. The receptacle with earthing is provided where required.

The average illumination intensity is as follows:

Table 4-9 Average illumination intensity for each room
Administration bldg.:

room:	average intensity:	lighting fixtures:
Office, Directors Rm. Instructor Room Training Affairs Rm.	300 Lx	Fluorescent with recessed
Library, Laboratory Meeting Room Classroom	300 Lx	Fluorescent with direct ceiling mounted
Corridor, Lavatory	100 Lx	Ditto

Practical training bldg.:

Rice mill training rm. Practical training rm. Workshop	200 Lx	Mercury lamp hanging
Control rm.lecture rm. Store	300 Lx 100 Lx	Fluorescent with direct ceiling mounted

Dormitory:

Bed room	100 Lx	Ditto
Dining room	200 Lx	Ditto
Kitchen	300 Lx	Ditto
Others	100 Lx	Ditto

5) Power supply system

The standard voltage is 380v with 3 phase 3 wire. The power supply for the air condition of Administration building is used together with the lighting panels. Panels in Workshop and in the Practical training room are used with receptacle panels for training use. For protection of the motors on voltage drop safety devices shall be provided.

6) Speaker system

For use of paging, a speaker system shall be provided. An amplifier is equipped in the office of Administration building, and zoning of the speaker system is 4 zoning, Administration building, Practical Training building, Dormitory and Outdoors.

7) Telephone

Telephone systems shall be provided for the communication with outside of the premises.

The telephone systems also function as an intercom system in between buildings. Telephone receives are installed in the following places:

Administration Building;

Office, Director's Room, Deputy Director's Room,
Instructor's Room, Training Affairs Room, Library,
Laboratory, Meeting Room, 2-Classrooms, Printing/Typing
Room, Odd Job Room
Total: 12 sets

Practical Training Building;

Rice Mill Training Room, Practical Training Room
Workshop, Control Room, Lecture Room
Total: 5 sets

Dormitory;

Dining Room, Kitchen
Total: 2 sets

Outdoors;

Guardman Room 1 set

8) T.V. antenna system

Grand Total: 20 sets

At the top of the Elevated Water Tank structure, a T.V. antenna is installed and it is connected distributed to the outlets in the Office, Director's Room, Deputy Director's Room through an amplified booster.

9) Lightning protection system

For the lightning protection, a lightning rod shall be installed above each building and Elevated Water Tank Structure.

10) Fire alarm system

Automatic fire alarm system shall be installed in the 3 buildings, Administration Building, Practical Training Building and Dormitory for early detection and warning.

Fire alarm supervising panel shall be installed at the office in the Administration Building.

(3) Air Conditioning and Ventilation Plan

Louvers and jalousie windows for natural ventilation are planned with higher ceiling.

1) Air conditioning system

A separate type of air conditioner which is available to operate individually shall be installed for each room for easy maintenance and operation.

The designed temperature is 27°C in the room when the outside is 33°C.

Air conditioners shall be installed in the following rooms:

Administration Building:

Office, Director Room, Deputy Director Room,
Instructor Room, Training Affairs Room

Total: 5 rooms

2) Ventilation system

Ceiling fans of 1,300mm in diameter shall be installed for large rooms where there are no air conditioning system.

Administration Bldg.;

Library, Laboratory, Meeting Room,
2-Classrooms, Printing/Typing Room

Total: 6 rooms

Practical Training Bldg.;

Control Room, Lecture Room

Total: 2 rooms

Dormitory;

Kitchen

Total: 1 room

Grand total: 9 rooms

The rooms where fire is used, smokes, smells and raising dusts are to be ventilated by fans.

(4) Plumbing service equipments

1) Water supply system

A deep well shall be provided to supply the water since there is no city water supply. The water supplying system is equipped with natural gravity system for easy maintenance and operation.

The pumped up water shall be stored in water receiving tank, from where pumped up again to the Elevated water tank after the sand separator.

The water shall be supplied to each building from the elevated tank.

a) Calculation of the water supply

- Occupancy

$$N = N_1 + N_2$$

N₁:33, Director and others
N₂:47, Trainees

- Quantity per day

$$\begin{aligned} Q_d &= N_1 \cdot q_1 + N_2 \cdot q_2 \\ Q_d &= 33 \times 100 + 47 \times 120 \\ &= 3,300 + 5,640 \\ &= 9\text{m}^3/\text{day} \end{aligned}$$

q₁: 100 liters per day/person
q₂: 120 liters per day/person

- Estimated quantity of water supply per hour

$$\begin{aligned} Q_h &= Q_d / t \quad t: \text{supplying time: 8 hrs per day} \\ Q_h &= 9/8 \\ &= 1.1 \text{ m}^3/\text{H} \end{aligned}$$

- Estimated maximum quantity of water supply

$$\begin{aligned} Q_{hm} &= K_2 \cdot Q_h \quad K_2: \text{Coefficient for maximum} \\ Q_{hm} &= 2 \times 1.1 \quad \text{quantity per hour} \\ &= 2.2\text{m}^3/\text{H} \end{aligned}$$

b) Capacity of water receiving tank

The quantity for one day shall be stored in the receiving tank. The tank is to be constructed half basement level with concrete structure.

$$2\text{m wide} \times 4\text{m long} \times 2\text{m deep} = 16\text{m}^3 \\ (\text{effective } 10\text{m}^3)$$

c) Capacity of elevated water tank

The elevated water tank shall be made of stainless steel considering the durability and the capacity shall be 2 hours of the estimated maximum usage of water per hour ($2.2\text{m}^3/\text{H}$).

$$1.5\text{m wide} \times 2\text{m long} \times 1.5\text{m deep} = 4.5\text{m}^3 \\ (4\text{m}^3 \text{ effective})$$

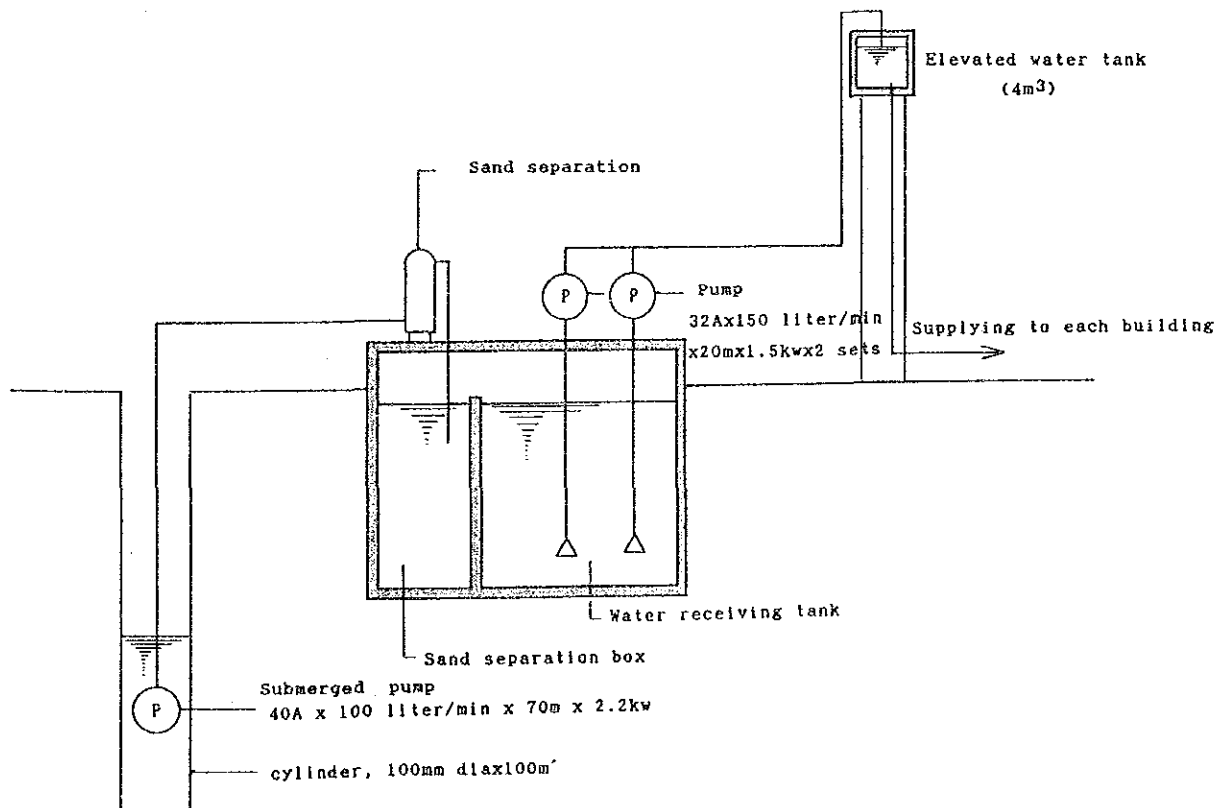
d) Deep well

A deep well shall be provided as the following specifications considering the existing features of the deep wells in Indonesia.

Casing: 100mm in diameter, 100m in depth

Pump: 40A , 100 liter/min , 70m , 2.2kW

The water supplying diagram is as follows:



2) Drainage system

The waste pipe and sanitary pipe from each building are separately installed, the waste pipe shall be jointed with rain water pipe.

The sewer pipes are connected to the septic tank separately and treated as permeating system into the ground.

The drainage diagram is shown as follows:

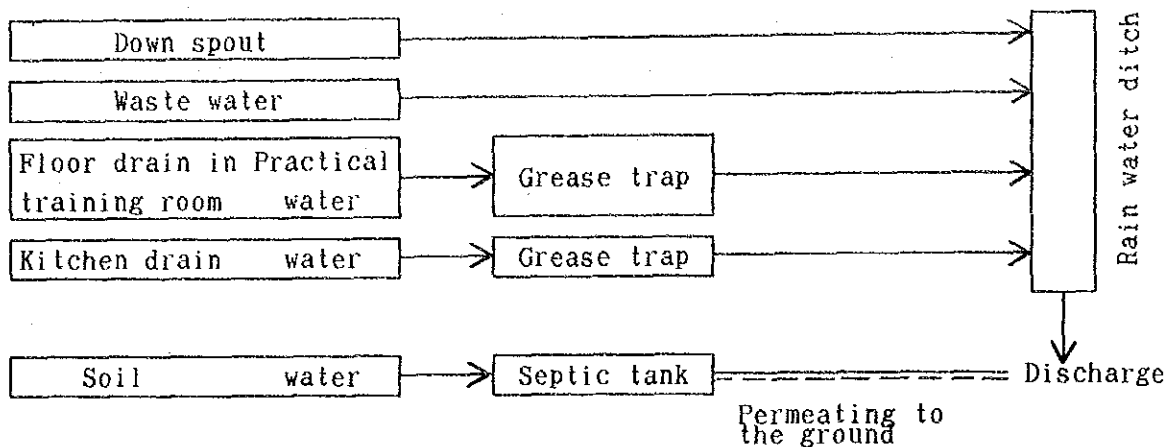


Figure 4-11 Drainage diagram

3) Sanitary fixture

All the equipments are to be local made of porcelain as a general. The water closets shall be of local style except the ones for officers in Administration building.

4) Septic tank system

The septic tank shall be installed at 3 places, Administration building/Practical training building, Dormitory and Outdoor lavatory. The system of the septic tank is decomposition type without motor driven which is the standard in Indonesia.

5) Gas service equipment

A gas cylinder house shall be provided to serve gas to the kitchen in Dormitory and other required places.

6) Kitchen equipments

A kitchen in Dormitory is planned for serving the food for trainees and some staffs. The capacity of the kitchen equipments

shall be for approximately 60 persons. The equipments are as follows:

A set of cooking stove, refrigerator, fryer, gas rice cooker, sink, working table, food closet and quick water boiler

7) Fire fighting system

For the early phase of fire fighting in case of the fire, portable fire extinguishers and fire hydrants shall be installed in 3 buildings; Administration building, Practical training building and Dormitory.

4-3-5 Building Material Components

(1) External finishing schedules

1) Roof components

Roof structures of the Administration building, Dormitory and Guardhouse shall be constructed with steel trusses, and the roofs shall be cement slates. Practical training building shall be steel sheet on the steel structure roof.

2) Exterior wall components

Exterior wall components for Administration building, Dormitory, Guardhouse shall be constructed with reinforced concrete frames and brick masonry with cement mortar rendering works on their surfaces, and spray paint shall be applied for finishing.

For Practical training building, framed steel structures and metal sheets' siding with required girt shall be applied.

3) Floor components

Terrazzo floor shall be provided for the buildings of Administration, Dormitory and Guardhouse. Cement mortar screening floor shall be provided for Practical training building. Concrete pavers with control joints around those buildings shall be provided.

4) Ceiling components

The wooden narrow boards ceiling with oil stain finishing shall be provided for entrance areas and soffits for Administration building, Dormitory and Guardhouse.

The Practical training building has no soffits but exposed roof components with painting finish shall be provided.

5) Opening of wall

Aluminum sashes with clear plate glasses or obscure glasses or partially jalousie windows and partially aluminum awning louvers shall be provided for Administration building, Dormitory, Guardhouse and Practical training building.

(2) Internal finishing schedules

1) Floor finish

Terrazzo tiles of 30cm x 30cm shall be supplied for Administration building, Dormitory building and Guardhouse. Mosaic tiles for lavatory and bathroom, clinker tiles for kitchen, troweled concrete for Practical training building shall be supplied.

2) Wall finish

Basically, cement mortar rendering and painting finish on the concrete and concrete block walls, and partially cement asbestos sheets siding and painting finishes on the wooden framing shall be supplied.

Half ceramic tiles finishes of 10cm square for lavatory, bathroom and kitchen shall be supplied.

3) Ceiling finishes

Acoustical mineral fiber ceiling tiles for each room of Administration building, Dormitory building and Guardhouse shall be supplied.

There is no ceiling in the Practical training building except for the control room, lecture room and lavatory.

Asbestos cement board with painting finish shall be supplied for lavatory, bathroom and kitchen of the buildings as above.

FINISHING SCHEDULE

Abbreviations:

FLOOR

TB	Terrazzo Block
MT	Mosaic Tile
TZO	Terrazzo
CT	Clinker Tile
CM	Cement Mortar
VS	Vinyl Sheet
RC	Reinforced Concrete

INTERNAL WALL

CM. P	Cement Mortar, Painting
TL	100 sq. Tile
CM. RS.	Cement Mortar, Resin Spray
RC	Reinforced Concrete
PMS	Profiled Metal Sheet

CEILING

A. MFB	Acoustical Mineral Fiber Board
MFB	Mineral Fiber Board
W. P.	Wood, Painting

ROOF

S. P.	Slate, Painting
PMS.I	Profiled Metal Sheet with Insulation
PMS	Profiled Metal Sheet

EXTERNAL WALL

CM. SP	Cement Mortar, Spray Paint
PMS	Profiled Metal Sheet

FINISHING SCHEDULE

Table 4-12-1 Finishing schedule

Room:	Floor:	Internal wall:	Ceiling:	Roof:	External wall:
ADMINISTRATION BLDG.				S.P	CM.SP
Entrance	TB	CM.P	A.MFB		
Office	TB	CM.P	A.MFB		
Director Rm.	TB	CM.P	A.MFB		
Deputy Director Rm.	TB	CM.P	A.MFB		
Instructor Rm	TB	CM.P	A.MFB		
Training Affairs Rm.	TB	CM.P	A.MFB		
Library	TB	CM.P	A.MFB		
Laboratory	TB	CM.P	A.MFB		
Preparation Rm.	TB	CM.P	A.MFB		
Meeting Rm.	TB	CM.P	A.MFB		
2-Classrooms	TB	CM.P	A.MFB		
Typing/Printing Room	TB	CM.P	A.MFB		
Odd Job Room	TB	CM.P	A.MFB		
Store	TB	CM.P	A.MFB		
Lavatory	MT	TL	MFB		
Corridor	TB	CM.P	A.MFB		
Entrance (Exterior)	TZO	-	W.P		

Table 4-12-2 Finishing schedule

Room:	Floor:	Internal wall:	Ceiling:	Roof:	External wall:
PRACTICAL TRAINING BLDG				PMS. I	PMS
Rice Mill Training Rm.	CM	PMS			
Practical Training Rm.	CM	PMS			
Workshop	CM	PMS			
Storage	CM	PMS			
Control Room	VS	MFB.P	A.MFB		
Lecture Room	VS	MFB.P	A.MFB		
Fan Room	CM	PMS			
Bran Room	CM	PMS			
Dust Room	CM	PMS			
Generator Rm.	CM	RC		PMS	
Pump Room	CM	RC			
Lavatory	MT	TL	MFB		
Corridor	CT			PMS. I	

Table 4-12-3 Finishing schedule

Room:	Floor:	Internal wall:	Ceiling:	Roof:	External wall:
DORMITORY BLDG.				S.P	CM.SP
Entrance	TB	CM.P	A.MFB		
Lounge	TB	CM.P	A.MFB		
Dining	TB	CM.P	A.MFB		
Kitchen	CT	TL	MFB.P		
Storage	CM	CM.P	MFB.P		
Bedroom	TB	CM.P	A.MFB		
Bathroom	MT	TL	MFB.P		
External Corridor	TB	CM.RS	MFB.P		
GUARDHOUSE				S.P	CM.SP
Guardman's Rm.	TB	CM	A.MFB		
Outdoor Corridor	CM		W.P	S.P	
Elevated water Structure	CM	RC		S.P	CM.SP
Outdoor Lavatory	MT	TL	MFB.P	S.P	CM.SP
Husk Store	MT	RC	MFB.P	S.P	CM.SP
Garage	RC	CM.P			

4-3-6 Schedule of Site Works

(1) Roads in the premises

Roads in the premises shall be designated under the consideration of safety driving for the micro-bus and paddy conveyer trucks. The width of the main roads shall be 10 meters, where 8 meter width of the roads shall be paved. The height of the roads shall be 0.25 meter higher at the center part than the existing ground level.

The core soil shall be used for banking fill of the road from the neighboring mining place or remainders of the excavation works shall be used. Asphalt paving works shall be provided for the main roads. The thickness of the asphalts is 0.10 meter on the compacted sand and soil mixtures of 0.30 meter in thickness. The vehicle roads shall be paved with concrete, 0.15 in thickness, with control joints. The drying yard shall be paved with 0.10 meter thick concrete with control joints on the compacted sand and soil mixtures of 0.27 meter in thickness.

The walkaway shall be paved with block pavers basically. The 1.5 meter curb cut of crossing roads shall be provided for the smooth traffics.

(2) Gate and fence

Gate and fence are to be planned and provided by the Indonesian government. However, the existing wall of concrete masonry units are to be preserved as far as possible, and additional fences are to be provided with see-through design, from outside to inside.

(3) Plantation

Trees on the north side and bushes on the south side shall be planted considering the local weather conditions. All the plantation works are to be provided by the Indonesian government.

(4) Outdoor lights

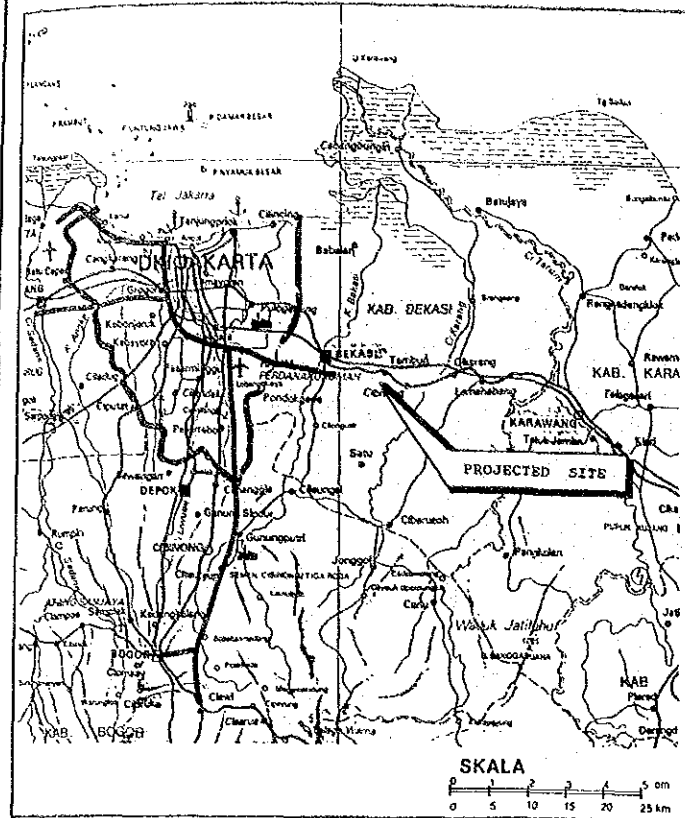
The outdoor lights with automatic switching systems shall be installed at the required places for security purpose.

(5) Flag poles

Three aluminum flag poles of 11 meters height shall be installed.

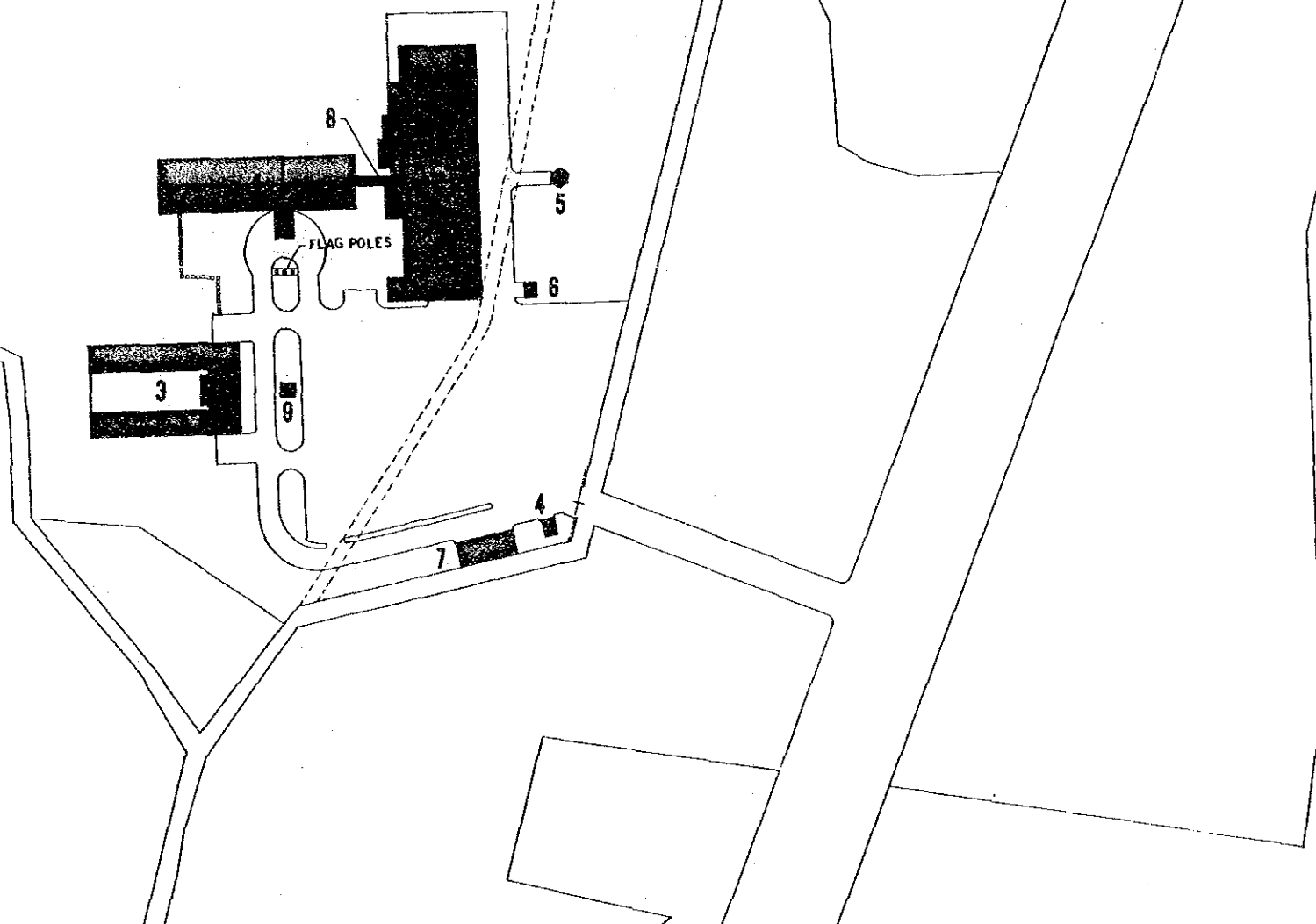
4-3-7 Schematic Design Drawings

1. Guide map, Plot plan
2. Administration building - 1 (Floor Plan)
3. Administration building - 2 (Elevation, Section)
4. Practical training building - 1 (Floor Plan)
5. Practical training building - 2 (Elevation)
6. Practical training building - 3 (Section)
7. Dormitory - 1 (Floor Plan)
8. Dormitory - 2 (Elevation)
9. Dormitory - 3 (Section)
10. Guardman house, Elevated water tank structure,
Husk store (Floor Plan, Elevation, Section)
11. Garage (Floor Plan, Elevation, Section)
12. Electrical power and telephone diagram
13. Water supply, Storm drainage, Soil water diagram

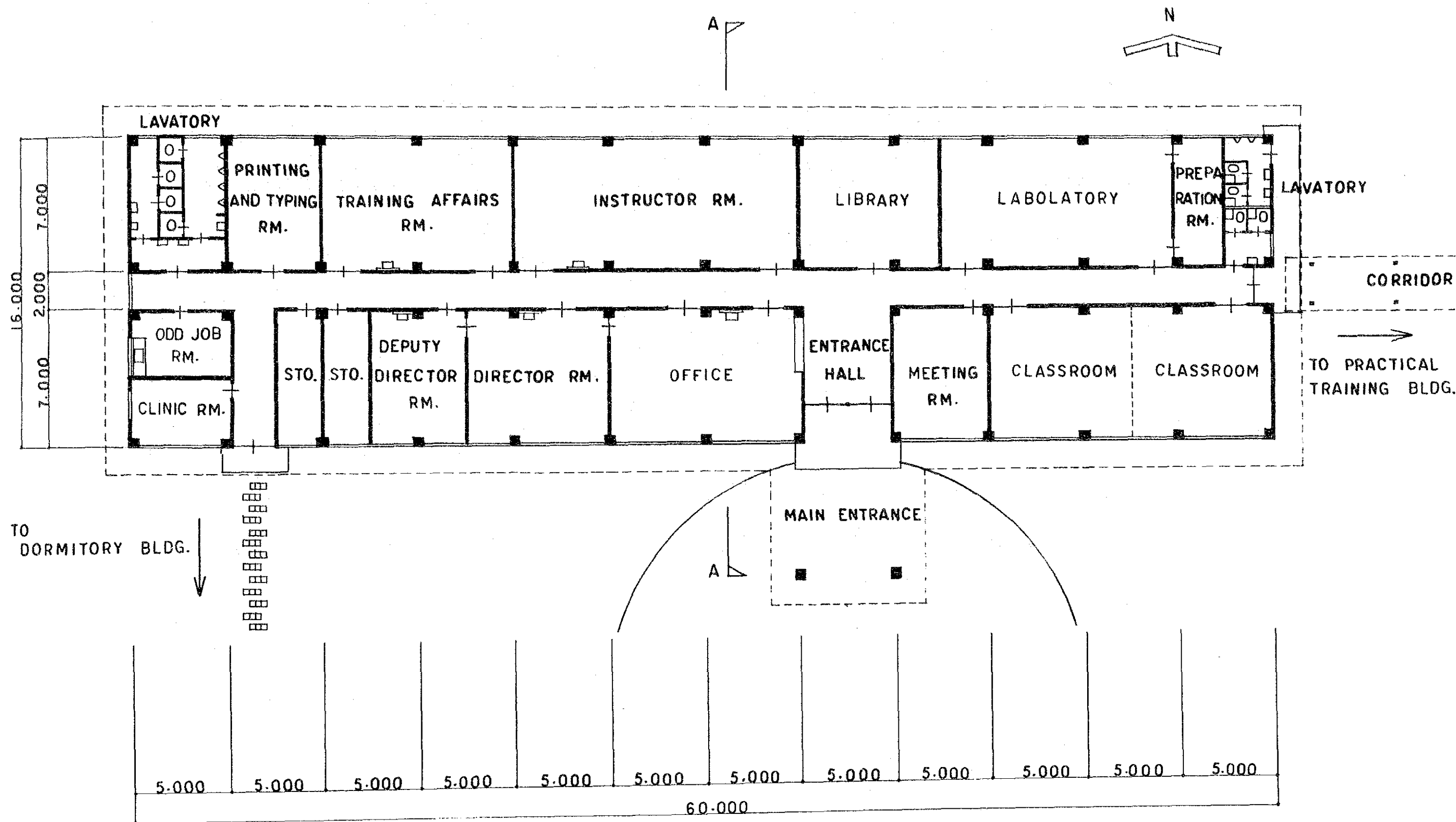


GUIDE MAP S=1:1000000

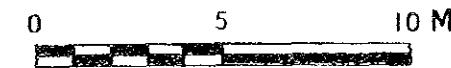
NO.	BUILDING
1	ADMINISTRATION BLDG.
2	PRACTICAL TRAINING BLDG.
3	DORMITORY
4	GUARDHOUSE
5	HUSK STORE
6	OUTDOOR LAVATORY
7	GARAGE
8	PASSAGE CORRIDOR
9	ELEVATED WATER TANK

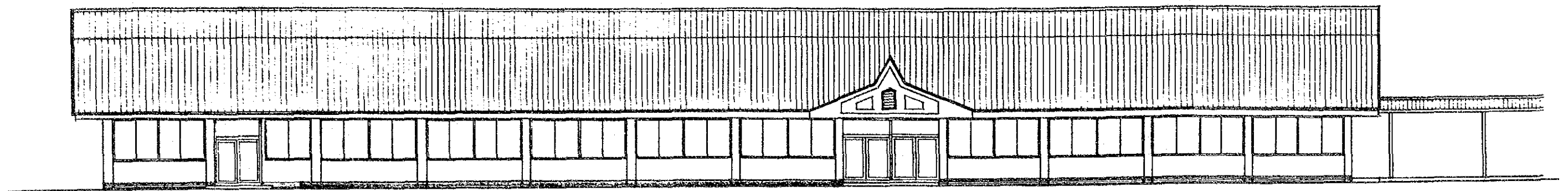


PLOT PLAN S = 1:2000

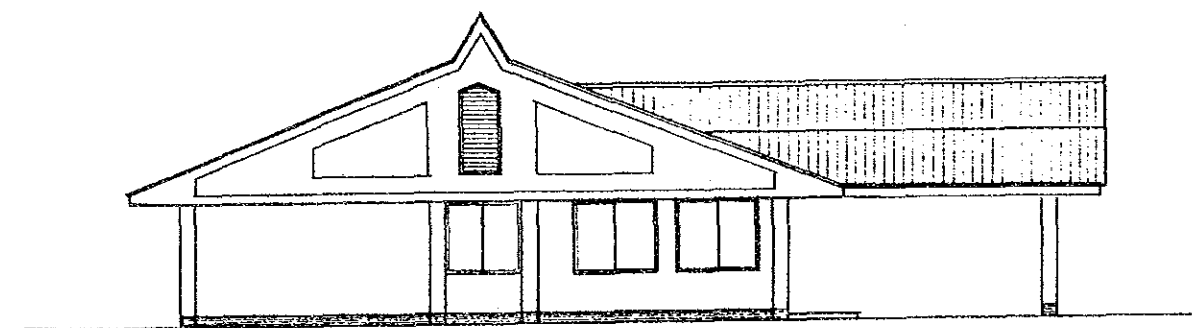


FLOOR PLAN S=1:200

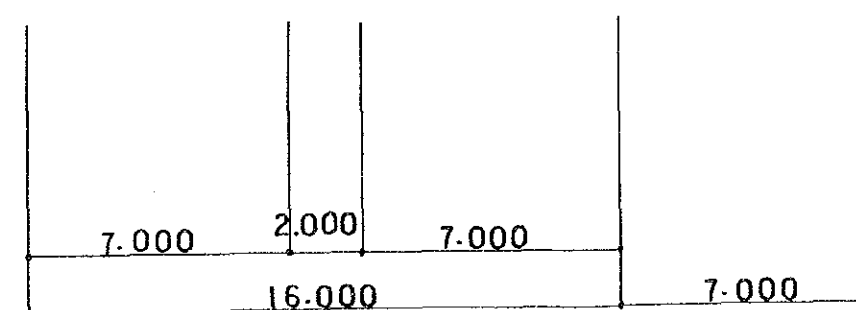
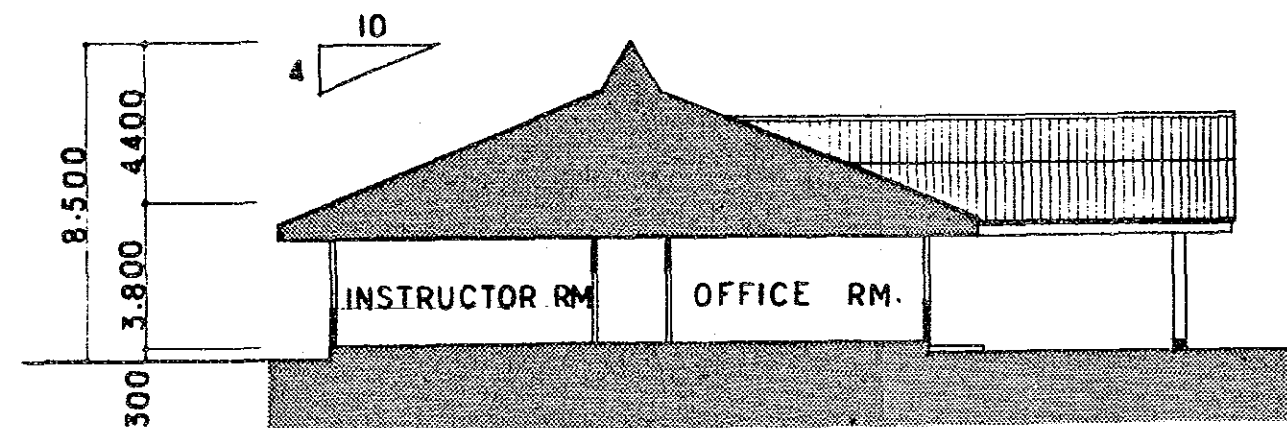




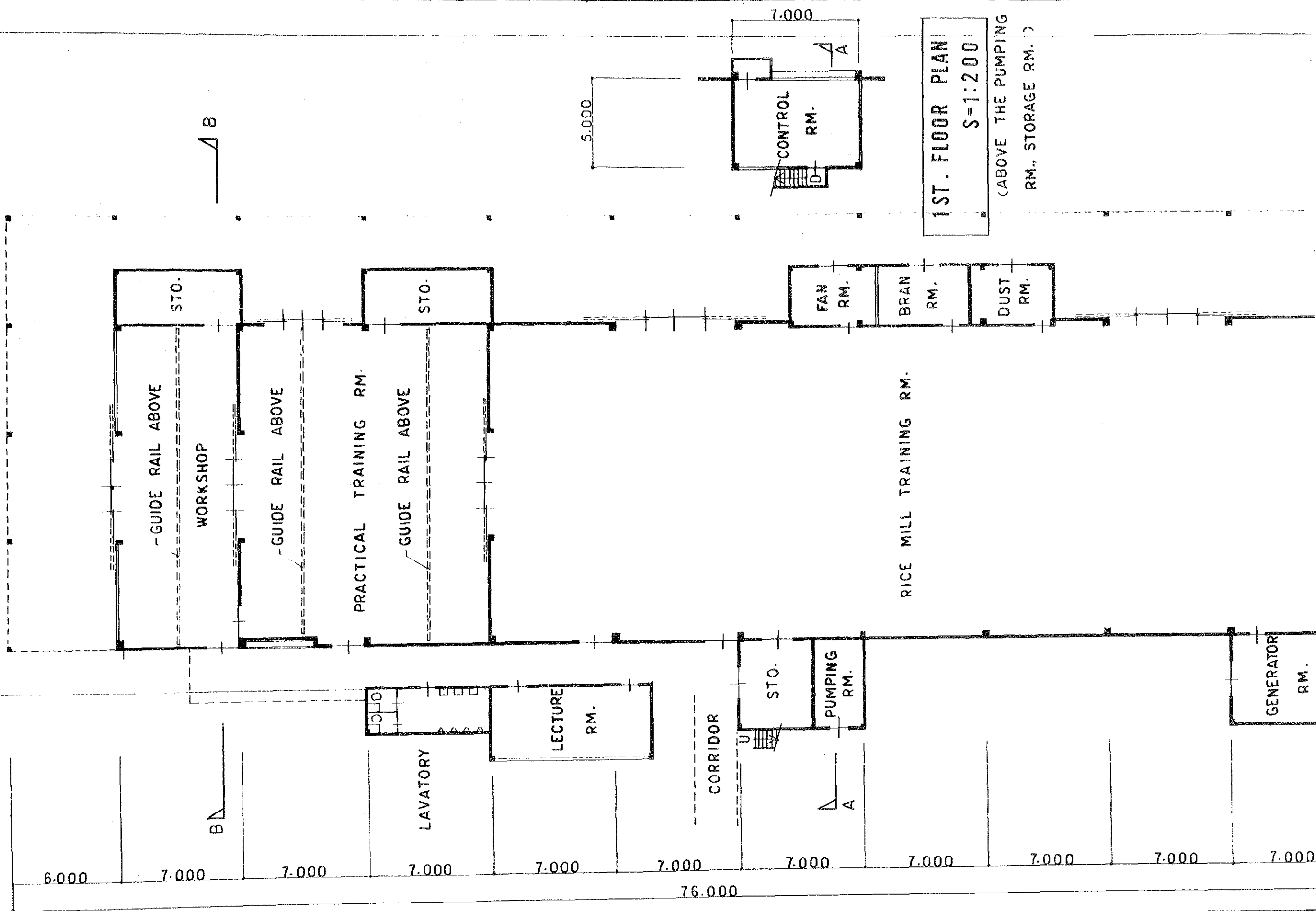
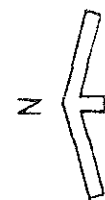
SOUTH ELEVATION S=1:200



WEST ELEVATION S=1:200



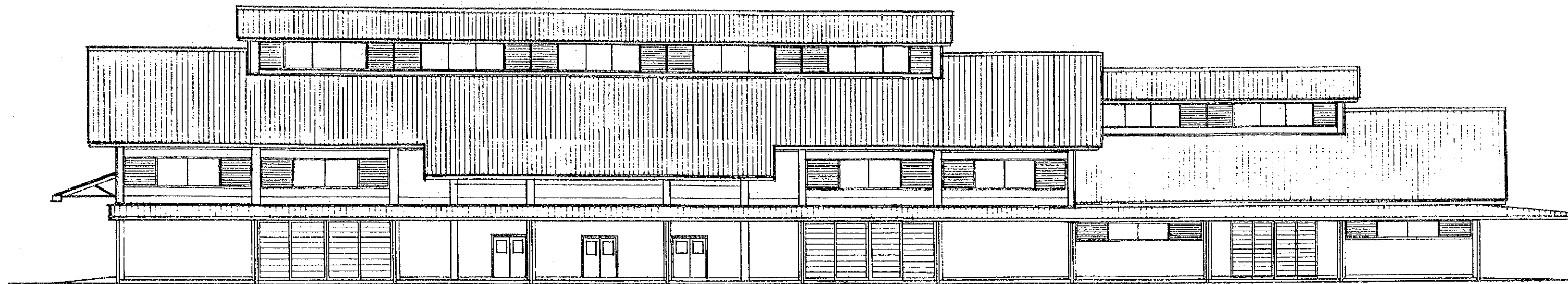
A - A SECTION S=1:200



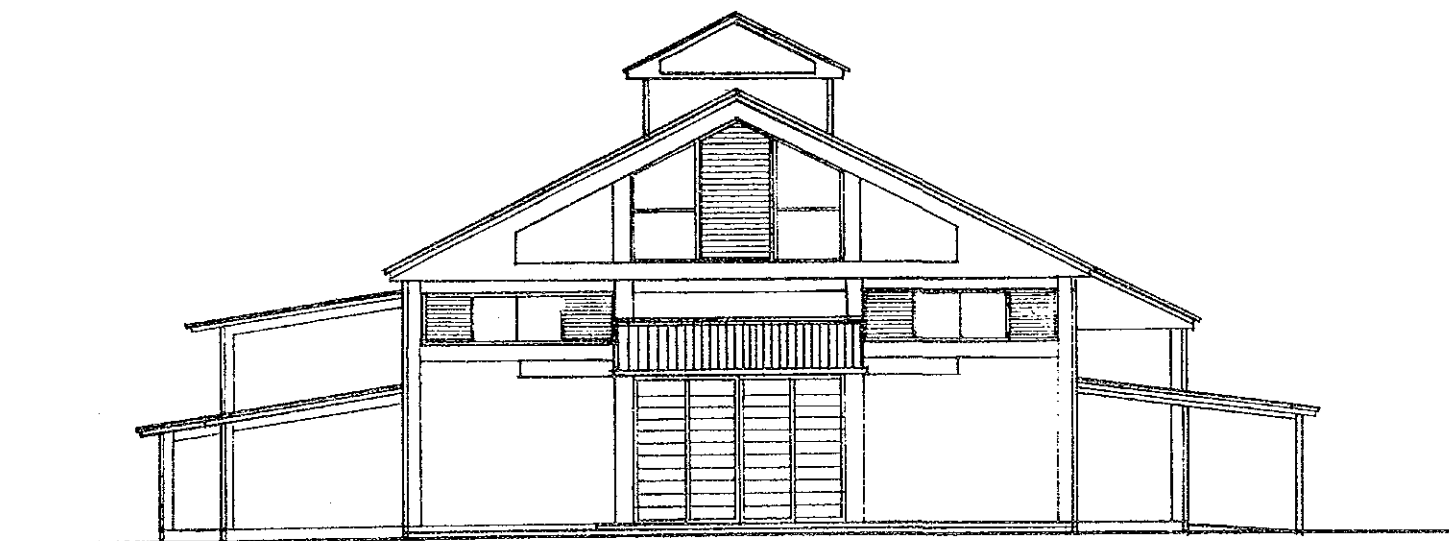
ESTABLISHMENT OF TRAINING FACILITY FOR INTEGRATED IMPROVEMENT
OF POST HARVEST TECHNOLOGY AND QUALITY OF RICE

PRACTICAL TRAINING BLDG. 1

FLOOR



EAST ELEVATION S-1:200

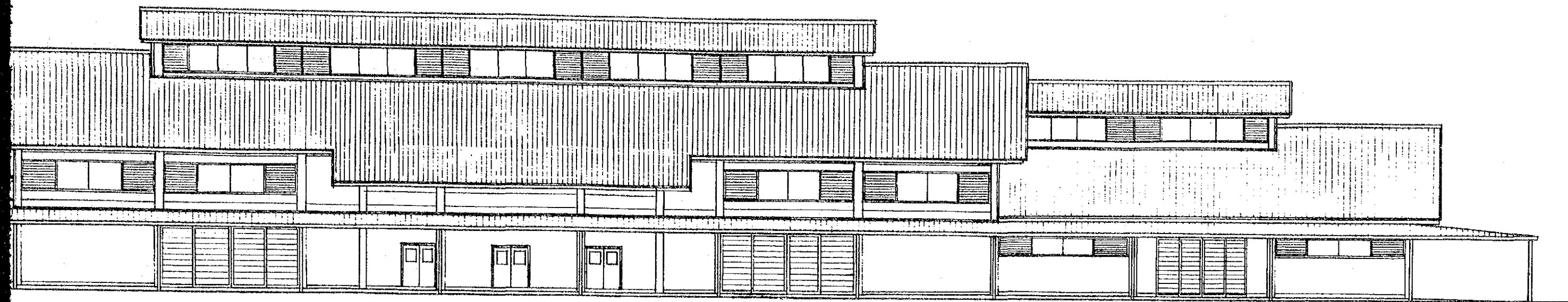


SOUTH ELEVATION S-1:200

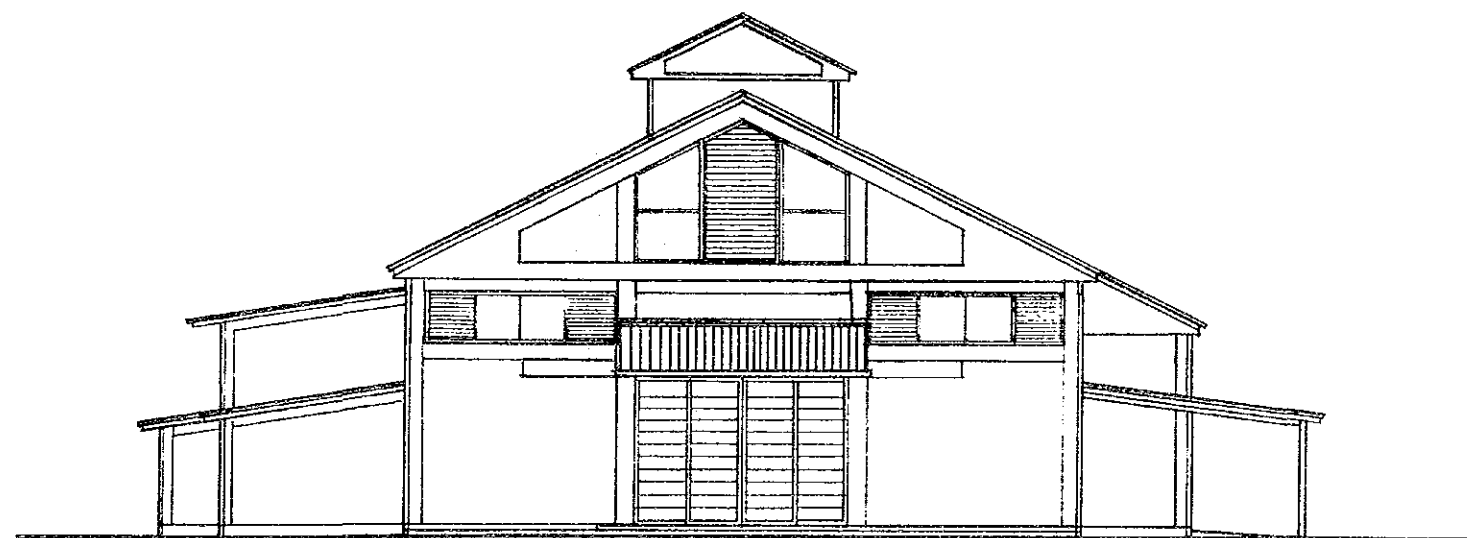
ESTABLISHMENT OF TRAINING FACILITY FOR INTEGRATED IMPROVEMENT
OF POST HARVEST TECHNOLOGY AND QUALITY OF RICE

PRACTICAL TRAINING BLDG. 2

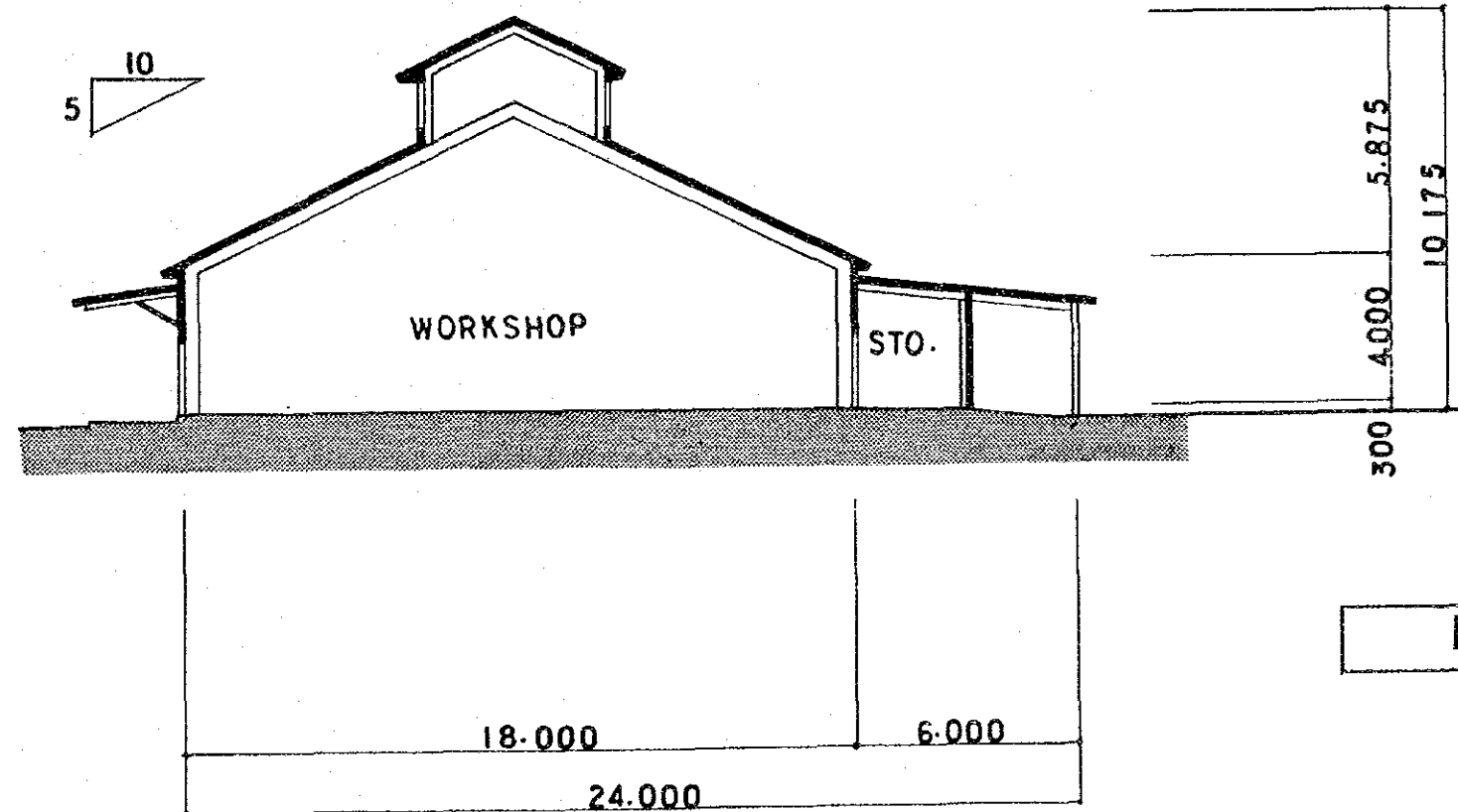
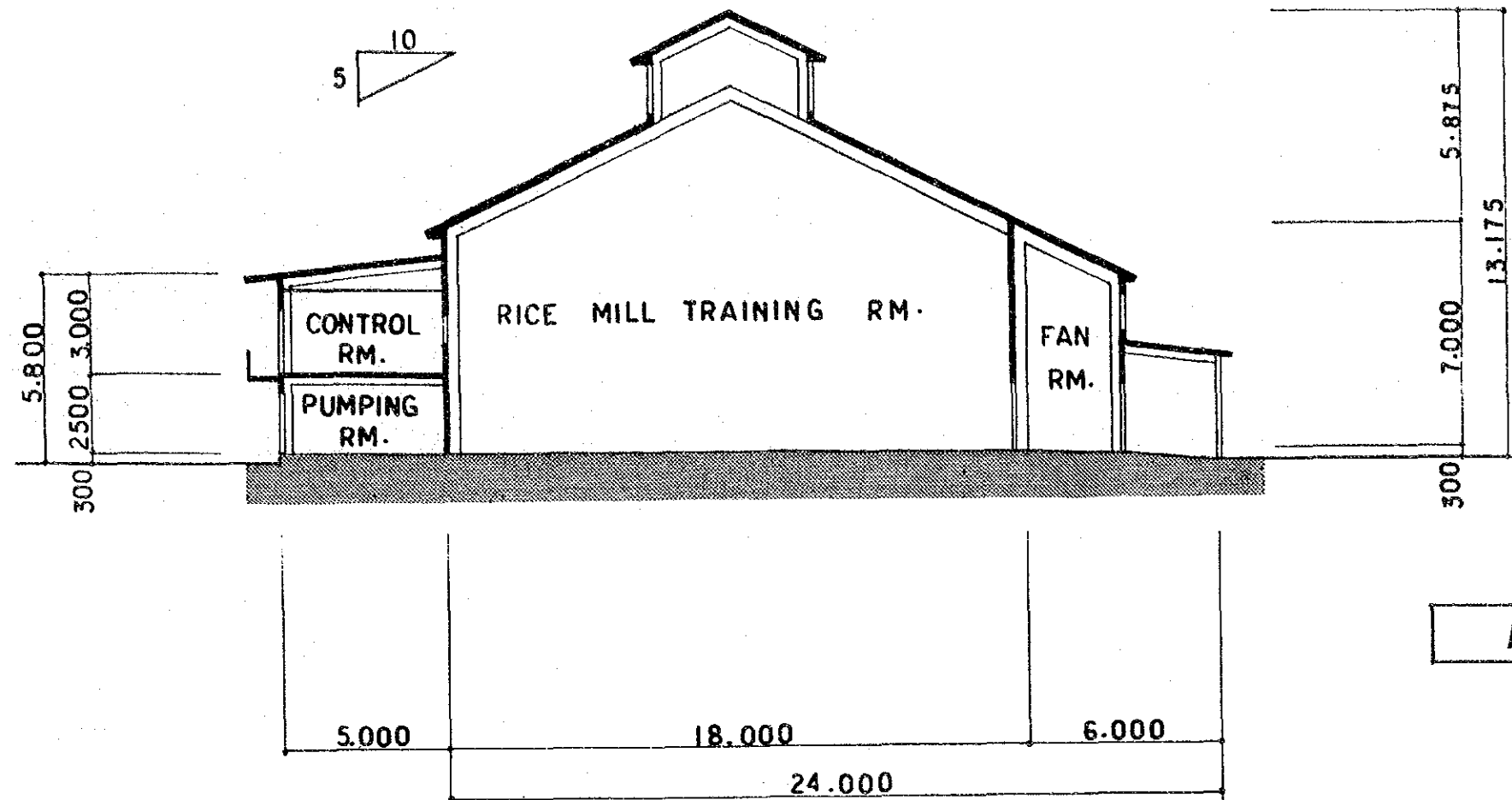
ELEVATION

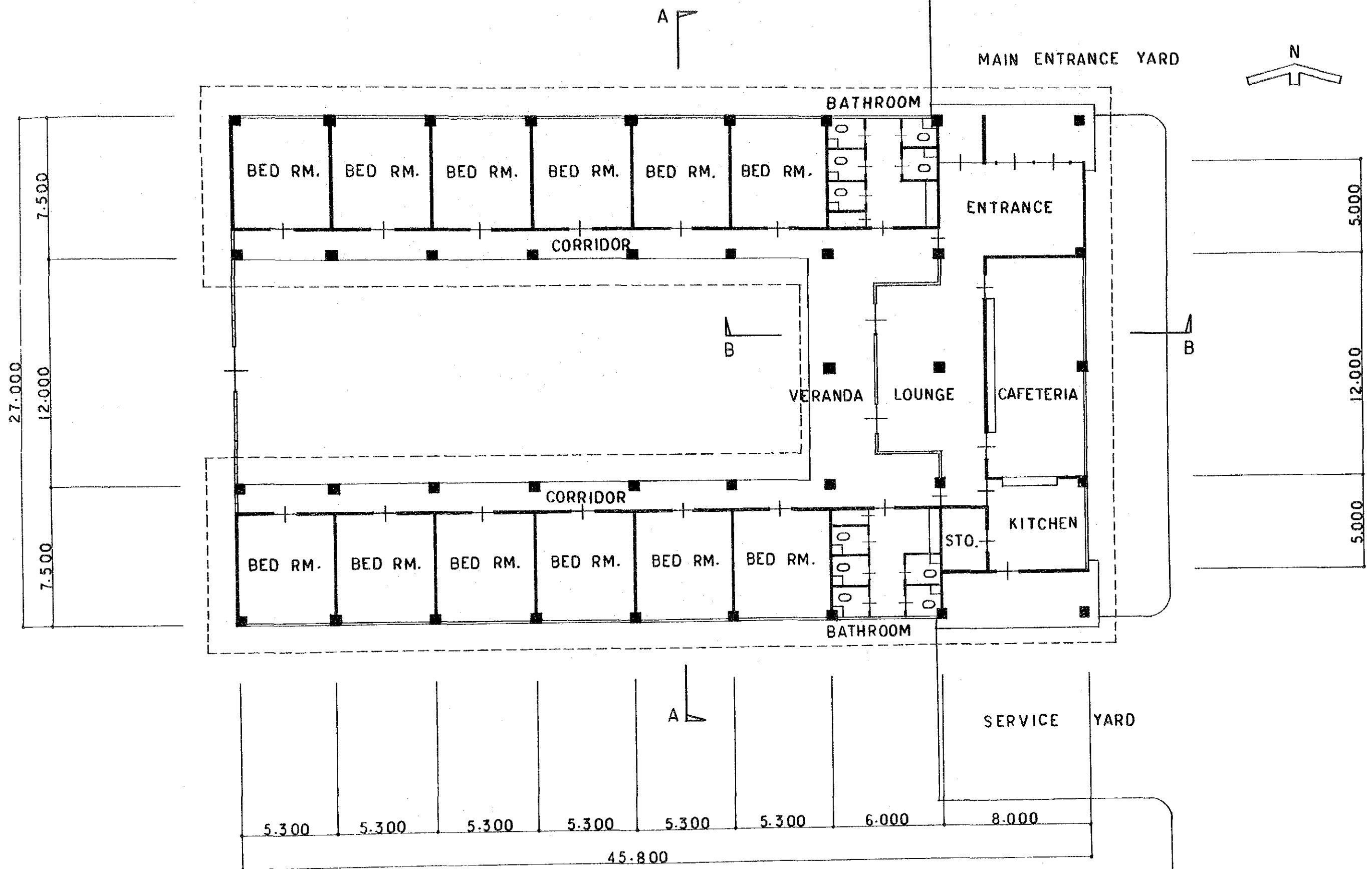


EAST ELEVATION S=1:200

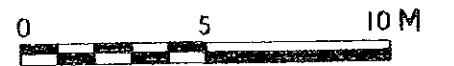


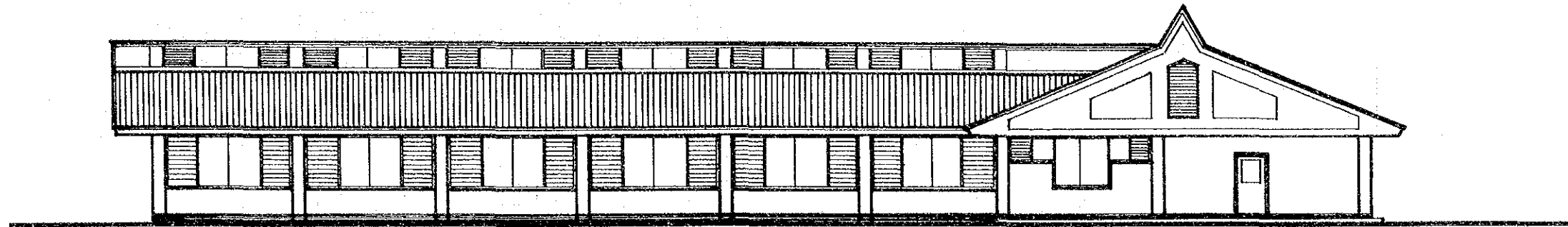
SOUTH ELEVATION S=1:200



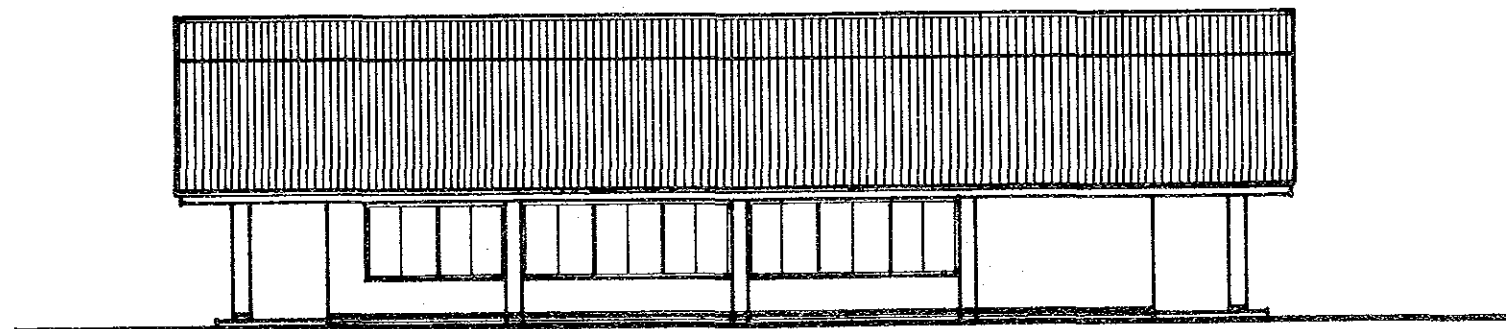


FLOOR PLAN S=1:200

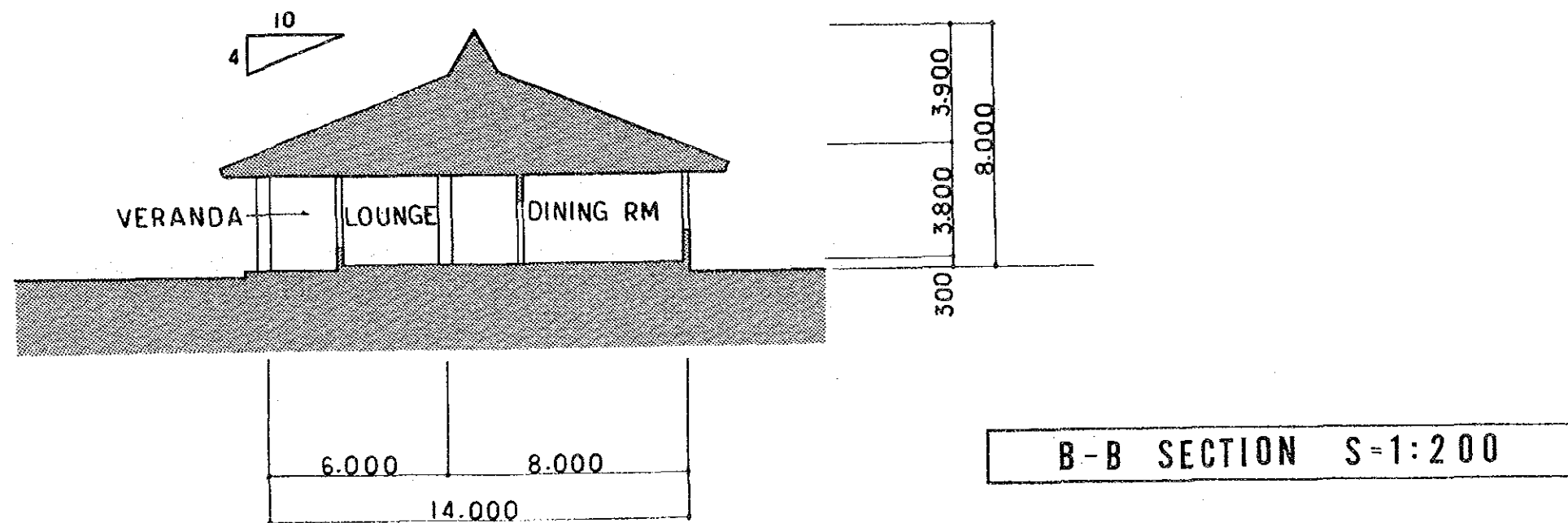
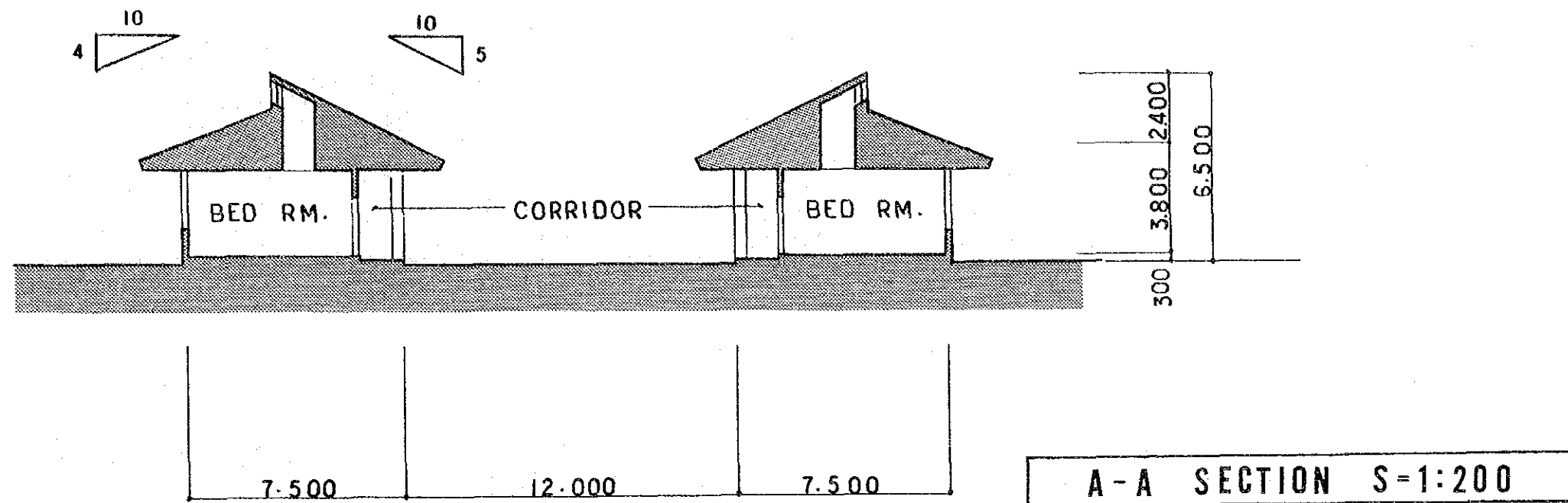


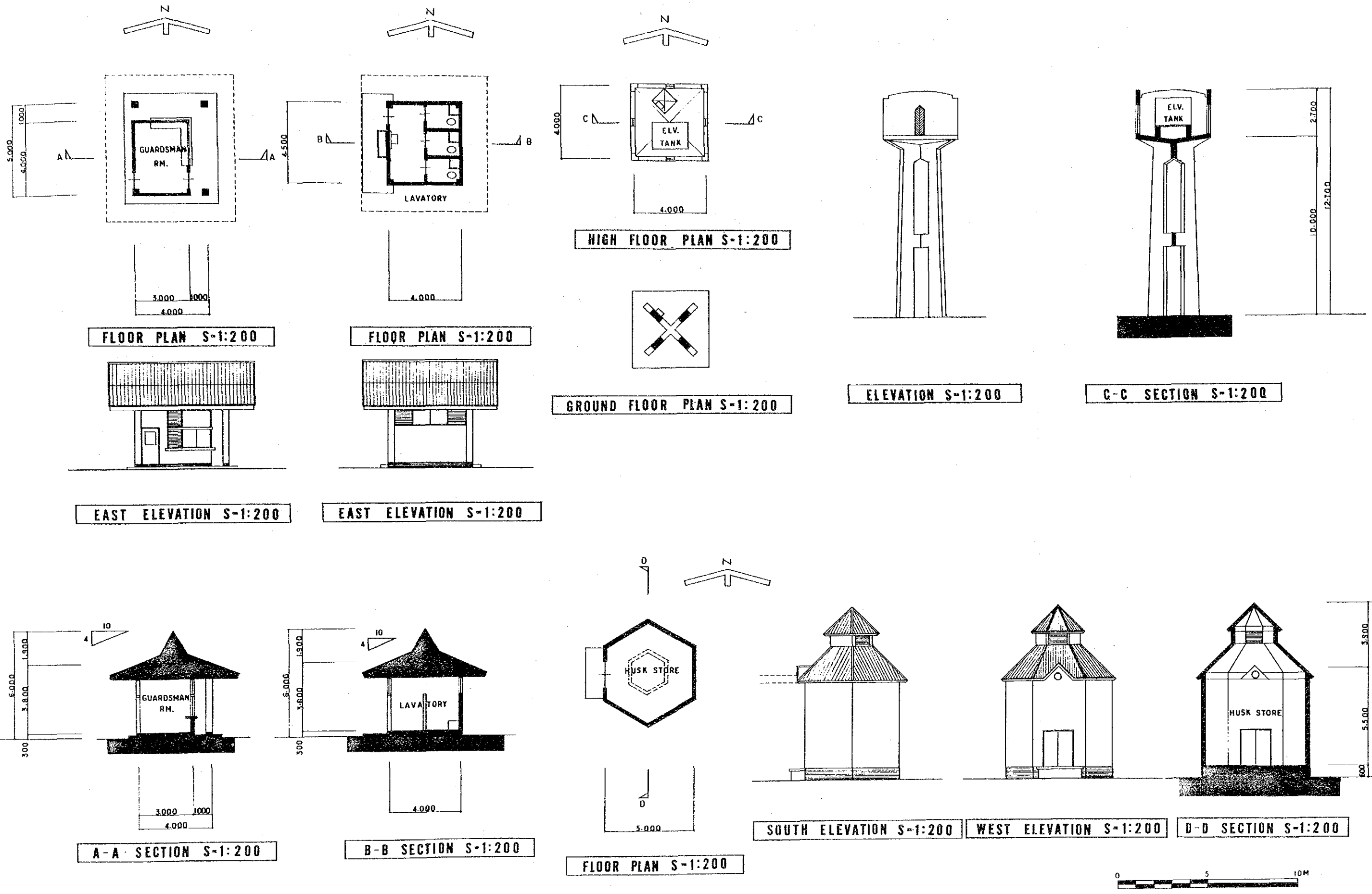


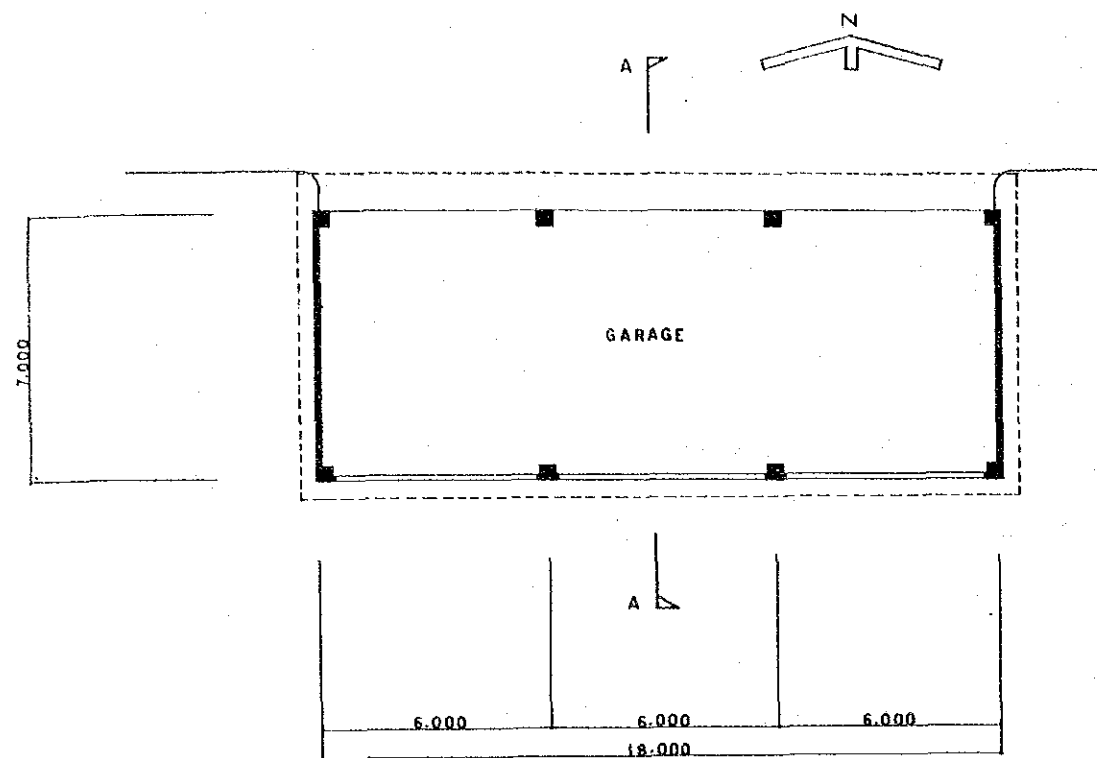
SOUTH ELEVATION S-1:200



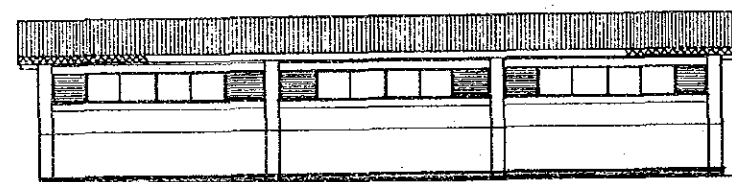
EAST ELEVATION S-1:200



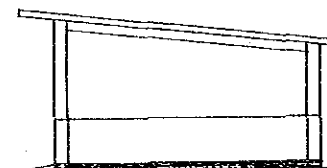




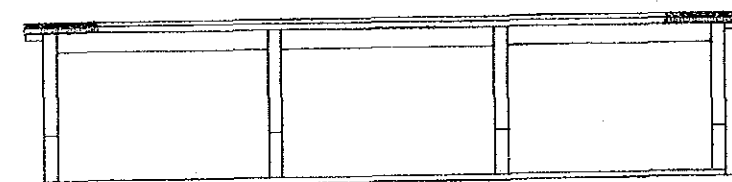
FLOOR PLAN S-1:200



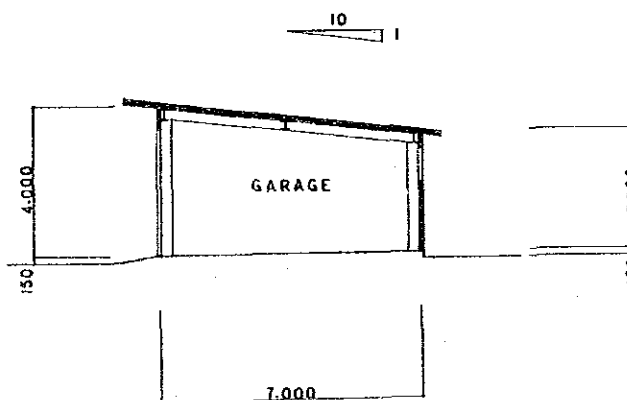
SOUTH ELEVATION S-1:200



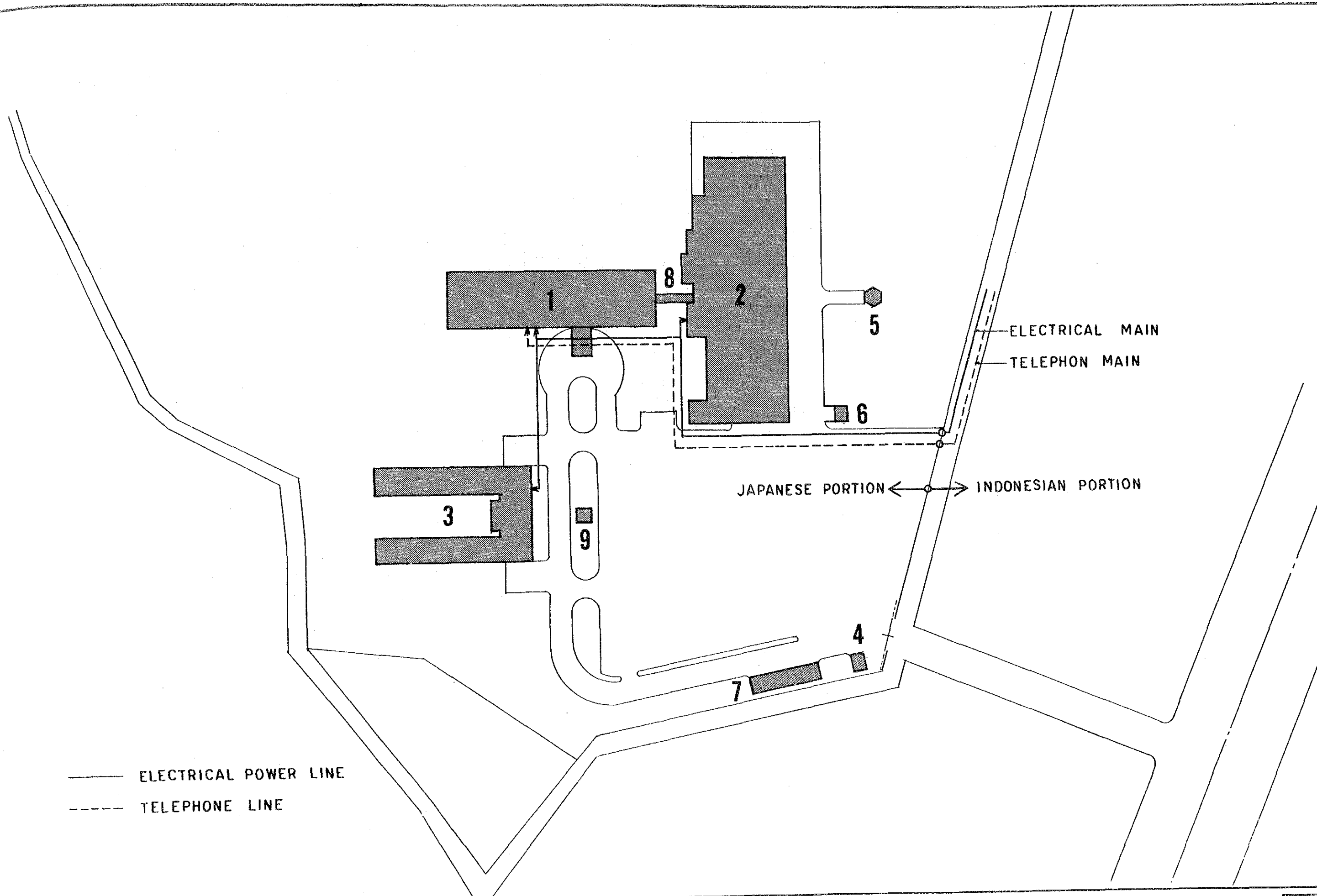
WEST ELEVATION S-1:200

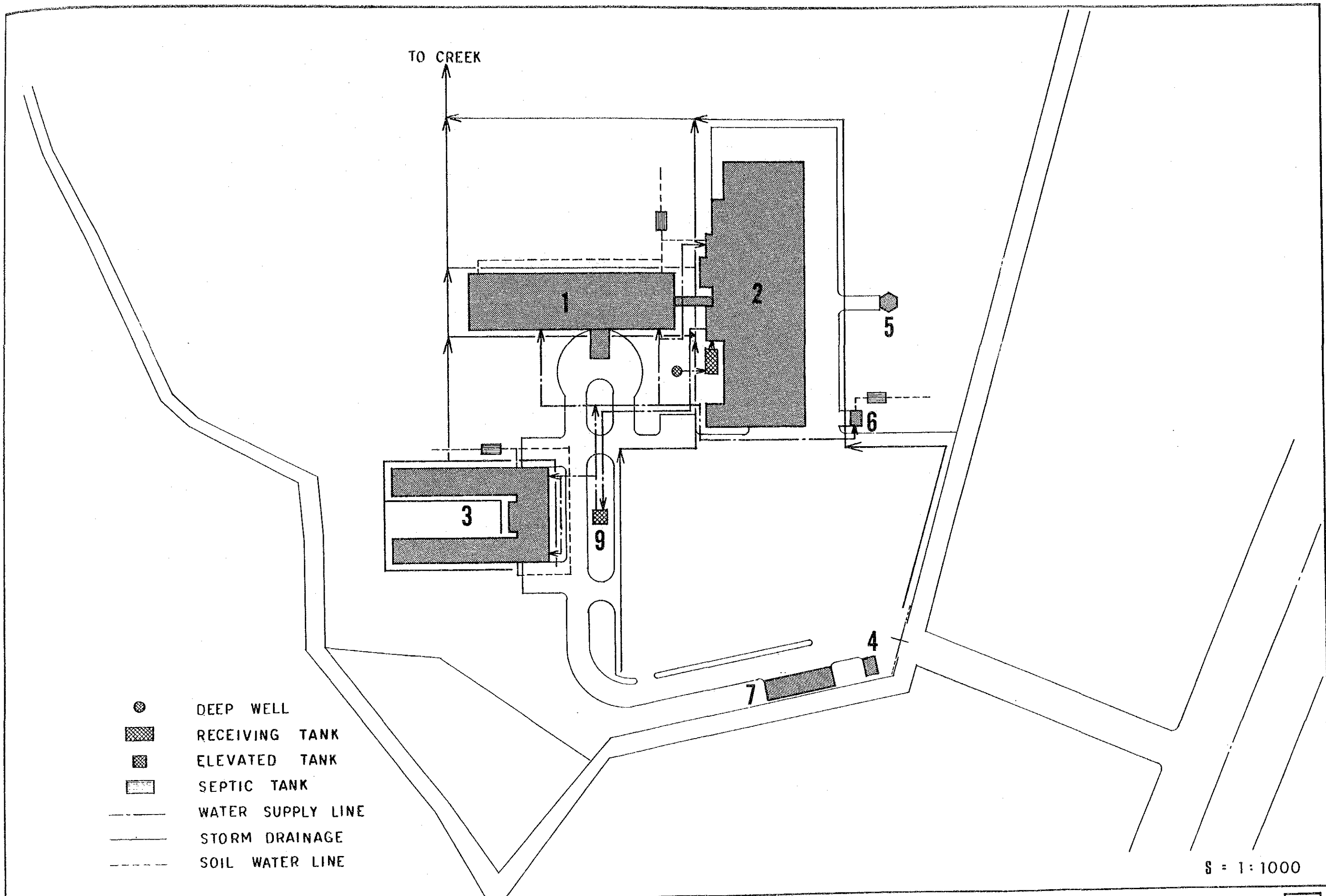


NORTH ELEVATION S-1:200



A-A SECTION S-1:200





ESTABLISHMENT OF TRAINING FACILITY FOR INTEGRATED IMPROVEMENT
OF POST HARVEST TECHNOLOGY AND QUALITY OF RICE

WATER SUPPLY · STORM DRAINAGE · SOIL WATER DIAGRAM

4-4. Basic Planning for Equipment

4-4-1. Equipment Planning

(1) Equipment Planning According to their Kinds

Equipment to be supplied to the Center are composed of following kinds :

- 1) Equipment required for execution of training,
- 2) Equipment for making training materials and information processing, etc.,
- 3) Vehicles.

Other than these, it is necessary to have books for training and office utensils and materials for management of the Center. However, these are not supplied from Japan.

1) Equipment required for execution of training

Equipment selected are those required for carrying out such training that would be necessary for solving the problems faced by KUDs at present or the problems that will arise in near future. Therefore, in order to select the items, existing situations in Indonesia need to be put into consideration sufficiently and attention should be paid so as not to be biased against academic or technical interest.

Training is composed of lecture, practice, observation, etc..

Lecture delivered should be understood easily even by those who have insufficient basic knowledge. For that purpose, audio-visual aids should be employed on lecture. Equipment selected should be easy to use and maintain.

For the practical training, those equipment which are required for carrying out such practice as to make sufficient use of existing KUDs facilities and to improve them, should be selected. Equipment in this category will occupy the majority of training equipment.

For carrying out observations, a bus is required. It should be of capacity to transport all the members of a class.

- 2) Equipment for making training materials and information processing, etc.,

Equipment to be selected should be those for the activities undertaken by the Center itself among the works of material preparation etc.. In other words, those works that could be better done by ordering outside are not covered.

Required works to be done at the Center are :
compilation and edition of training materials, mimeographing and binding, copying of documents and drawings, making of slide films and videotapes, compilation of practice/experiments, data-base making, data retrieval, etc..

Equipment to be supplied should be effective and easy to use and maintain.

3) Vehicles

Vehicles may be classified as a part of 1) equipment for executing training mentioned above. However, vehicles were classified in a separate group from the view point of convenience.

As mentioned above, a bus is used for transport of trainees for field observation, etc.. A truck, fork-lift and a tractor are used for training.

(2) Major Particulars of Planned Equipment

Equipment used for practical training are as follows :

1. Rice milling units,
2. Paddy dryers,
3. Component machinery of rice milling units,
4. Workshop tools and gauges, and
5. Laboratory implements.

Other than these, there are followings :

6. Audio-visual apparatus,
7. Training material making and information processing equipment,
8. Vehicles.

Major points to be considered for selecting these items are mentioned below :

1. Rice Milling Units

It is clear that rice milling units are required for the Center from the very objective of the Center.

As mentioned above, the Project chiefly aims at improving the capacity of commercial milling of KUDs by use of existing rice milling facilities. For that purpose, operational performance of KUDs which have rice milling units of more than 1 tph should be improved. Though existing rice mills of about 1 tph are, including those supplied by overseas assistance, made for commercial milling, they are not necessarily suitable for milling high quality white rice.

Therefore, not only existing KUDs mills are operated sufficiently as they are, but they should be improved further. From this point of view, the Center should have a 1 tph rice mill which is identical with those of KUDs and another mill whose each processing stage have been improved, i.e. 4 tph mill.

The 4 tph mill should be equipped with an operation control panel with graphic indications. It will be used advantageously for giving clear concept of each stage of rice processing and for training operational skills both for beginners and advanced trainees.

Since KUDs undertake custom milling and this operation is considered to be the most active operation of KUDs, technical improvement should be made on this subject also. Therefore, similar rice milling units as now used by KUDs should be furnished.

2. Paddy Dryers

Most of paddy drying is made by the sun in KUDs at present. However, the necessity of paddy dryers are strongly argued. Therefore, each one unit of a flat-bed dryer which is most likely to be used in KUDs and a continuous circulating type dryer which can produce better quality paddy are supplied.

3. Component Machinery of Rice Milling Units

In order to train on operational skill and maintenance technique on most important component machinery of rice mill, paddy huskers, paddy separators and rice whiteners are introduced. As five trainees are to handle one machine, each four units are required.

Further, as almost all of rice mills in Indonesia are driven by Diesel engines and the majority of mechanical troubles in mills are of engines, much of practical training need to be devoted for engine maintenance. Four units of small engines and two units of larger types are furnished.

In order to perform assembly and disassembly of these, tools and gauges are required. Four sets of hand tools and fewer number of lessfrequently used tools are supplied.

4. Workshop Tools and Gauges

For the proper operation of rice mills, it is necessary to have skill on wood working and metal working either operation and maintenance of machinery or maintenance of buildings. In order to train on such skills that can be done by KUDs, workshop tools and gauges are required. Even when KUDs order such works outside, KUDs' staff need to understand the nature of the work at least. For that purpose, minimum basic equipment should be selected.

5. Laboratory Implements for Grain Quality Inspection

Equipment supplied for the purpose are chiefly those for visual inspection of physical characteristics of paddy and white rice grains.

6. Audio-visual Training Equipment

There would be no room for the argument on the necessity of slide projector or overhead projector, etc.. Regarding to video projector, it is necessary for understanding the principles and conditions of fast-moving or rotating machinery and the related situations of other areas, etc.. Therefore this was selected.

7. Training Materials Making and Information Processing Equipment

It is indispensable to have personal computers for compilation and editing training materials, printing, compilation of results of practical training, evaluation of training, data-base for KUDs activities, etc.. In order to use for word-processing, various data processing, data entry, data retrieval, figures and graph drawing, etc. at least five units are required.

Other than these, equipment for copying, typing, printing, slide/video tape making are to be furnished.

8. Vehicles

A bus is required for transport of trainees for field observation and survey, etc.. A truck is required for paddy collection, white rice delivery, transport of by-products, etc.. A fork-lift is essential for movement of materials, products, by-products, etc. in the campus. A tractor is used for mixing of sun-dried paddy, movement of paddy, etc.. Each one of these are to be supplied.

4-4-2. Equipment List

1. Rice Milling Units

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| (1) Paddy Supply System (40 tons) | one lot |
| 4 units of 10 ton paddy bins with paddy cleaners and conveyers | |
| (2) Rice Milling Units 4 tph | one unit |
| Composed of paddy cleaner, paddy weigher, paddy huskers, paddy separators, stoner, rice whiteners, vibrating sieves, length grader, white rice tanks, blended rice tank, white rice weigher/packer, graphic operation control panel, conveying equipment, bran collecting equipment, dust collecting equipment, etc. | |
| (3) Rice Milling Unit 1 tph | one unit |
| Composed of paddy cleaner, paddy husker, rice whiteners, vibrating sieves, white rice tank, Diesel engine, etc. | |
| (4) Unit-body Rice Milling Unit 0.5 tph | three units |
| Main body and Diesel engine | |

2. Paddy Dryers

- | | |
|---------------------------------------------------------|---|
| (1) Flat-bed Paddy Dryer (2ton holding capacity) | 1 |
| (2) Circulation Type Paddy Dryer(3ton holding capacity) | 1 |

3. Component Machinery of Rice Milling Units

- | | |
|----------------------------------------------------|--------|
| (1) Paddy husker with paddy separator(paddy 1 tph) | 4 |
| (2) Air-jet friction type rice whitener (ditto) | 4 |
| (3) Abrasion type rice whitener (ditto) | 4 |
| (4) Diesel engine 30-40ps | 2 |
| (5) ditto 12-15ps | 4 |
| (6) Tools and gauges for assembly and disassembly | |
| 1)surface plate w/ blocks | 1 |
| 2)levels large & small | 2 |
| 3)mechanical tachometer | 4 |
| 4)nozzle tester | 1 |
| 5)compression gauge | 1 |
| 6)hand tool set in carrying box | 4 sets |
| 7)parallel vice | 4 |
| 8)torque wrench various kinds | 3 |
| 9)valve lifter | 4 |
| 10)gear/wheel puller set | 2 sets |
| 11)upper-plate balance | 1 |
| 12)hand-held spring balance various kinds | 4 |
| 13)anvil | 1 |
| 14)forger's anvil | 1 |
| 15)air compressor 3.7kW | 1 |
| 16)washing dish | 4 |
| 17)chain block | 1 |
| 18)hand hoist with trolley | 2 |
| 19)garage jack | 1 |
| 20)oil jack | 4 |
| 21)iron lever | 4 |
| 22)mallet | 1 |
| 23)pipe wrench | 1 |
| 24)chain tongue | 1 |
| 25)oiler | 4 |

26)grease gun	1
27)rubber hardness tester	1

4. Workshop Tools and Gauges

(1) Wood Working Tools

1)carpenters' tool set	1 set
2)electric table disk saw	1
3)electric hand-held disk saw	1
4)bench drill press	1
5)portable electric drill	1
6)portable belt sander	1
7)wood vice	2
8)industrial-use vacuum cleaner	1
9)tool cabinet	1

(2)Metal Working Tools

1)6' lathe	1
2)vertical drill press	1
3)universal milling machine	1
4)table band saw	1
5)machine saw	1
6)shearing machine	1
7)sheet bending machine	1
8>manual hydraulic pipe bender	1
9)AC arc welder	1
10)DC arc welder	1
11)spot welder	1
12)gas welder set	1
13)portable electric drill	1
14)portable electric shear	1
15)bench drill press	1
16)hand-held electric grinder	2
17)bench belt sander	1
18)forging tool set	1
19>manual hydraulic press	1
20)hand tool set in carrying box	2

21)hand tools and gauges on the rack	1 set
22>manual hoist with trolley	1
23)parts cleaner	1
24)portable tool rack	2
25)tool and gauge cabinet	2
26)parts cabinet	2
27>manual pallet carrier	1
28)hand cart	1
29)barrow	2
30)aluminum steps	2
31)aluminum ladder	1
32)platform scale	2
33)multi-purpose circuit tester	4
34)clamp meter	1
35)megger	1

5. Laboratory Implements for Grain Quality Inspection

1)sample dryer	1
2)testing husker	4
3)testing whitener two kinds	8
4)testing length grader	4
5)testing thickness/ width grader	4
6)constant temp. dryer	1
7)power winnower	1
8)grain divider	4
9)upper-plate electronic balance	1
10)upper-plate weightless balance	4
11)upper-plate balance 100g	4
12)upper-plate spring balance	1
13)grain weight-volume tester	1
14)grain moisture meter resistance type	4
15)ditto capacitance type	4
16)ditto infrared ray type	4
17)whiteness meter reflection type	1
18)grain crack inspector	20
19)grain rigidity tester	1
20)hand-held counter	20
21)thermo-hygrometer	2
22)mercury thermometer	4
23)grain plate	300
24)grain trier individual use	20
25) ditto for bulk	1
26)grain vernier caliper	20
27)mirror plate	20
28)magnifier	20
29)grain sieves	8 sets
30)seed weighing can	100
31)glassware	1 lot
32)microscope with photo attachment	1

6. Training Material Making and Information Processing Equipment

(1) Personal computer set (IBM compatible 16bit CPU, EGA color display, dot printer, etc.)	5sets
(2) Plotter	1
(3) Digitizer	1
(4) Software (word-processor, spreadsheet, database, CAD)	5sets
(5) Electronic typewriter	3
(6) Copying machine PPC type	1
(7) Printing machine set	1
(8) Single-eye reflex camera with wide/macro lens	1
(9) Slide film maker	1
(10) Video camera	1

7. Audio-visual Training Equipment

(1) Slide projector with stand	1
(2) Overhead projector with stand	1
(3) Screen	2
(4) Video deck/ monitor	1 set
(5) Hand microphone	1

8. Vehicles

(1) Bus 25passengers with Diesel engine	1
(2) Truck 2tons with Diesel engine	1
(3) Fork-lift 2tons with Diesel engine	1
(4) Agricultural tractor 30ps with dozerblade, front loader, trailer	1

CHAPTER 5 PROJECT IMPLEMENTATION PLAN

CHAPTER 5. PROJECT IMPLEMENTATION PLAN

5-1 Project Implementation System

The execution agency of this Project on the Indonesian side is the Directorate General of Business Promotion for Cooperatives, the Ministry for Cooperatives.

In advance of the construction of the proposed training center, the Exchange of Notes shall be signed by the Japanese and Indonesian Governments. After that, a consultancy agreement shall be entered into between a consulting firm that is a Japanese corporation, and the Government of Indonesia. The design development shall be started after obtaining approval of the design and supervision contract from the Government of Japan.

Bidding of the contractors shall be executed after all the necessary design drawings, specifications, equipment/material specifications and documents required for the works are completed, and the design documents are to be approved by the Government of Indonesia. The public notification shall be announced on newspapers and explanation meetings are to be held.

After the contract has been signed by the successful bidder and the Government of Indonesia, the work shall be commenced following approval of the contract by the Government of Japan.

5-2 Undertakings by The Both Governments

(1) Undertakings of the Government of Japan

1) Facilities

a) Administration building	1 buld.	960m ²
b) Practical training building	do.	2,067m ²
c) Dormitory	do.	661m ²
d) Guarhouse	do.	20m ²
e) Husk store	do.	22m ²
f) Outdoor lavatory	do.	18m ²
g) Garage	do.	126m ²
h) Connecting corridor	do.	28m ²
i) Elevated water tank systems	1 lot	
Total		3,902m ²

2) Work Items

- a) Building Work: foundation, framework and finish
- b) Electrical Equipment Work : intra-work and building lead-in work
- c) Water Supply/Drainage and Sanitation Work:
intra-building work, deep well system work, septic tank work, piping or gutter work up to drain ditch.
- d) Airconditioning/Ventilation Work : intra-building work
- e) Site Work : intra-premises roadways, paddy drying yard and outdoor lights

3) Equipment

For the equipment to be furnished for the Project, installation, adjustment and delivery thereof shall be included in the scope of work.

a) Equipment

- 1: Equipment for rice-milling training
- 2: Equipment for paddy drying
- 3: Unit machinery and tools for maintenance training
- 4: Woodwork and metalwork equipment
- 5: Equipment for paddy rice quality inspection training
- 6: Equipment to prepare training materials and for information processing
- 7: Audio-visual equipment for training

8: Vehicles for training and for working

The equipment are detailed in the equipment list in 4-4-2.

(2) Undertaking's of the Government of Indonesia

1) Facility-associated Work:

- a) Site preparation works for the Project
 - b) Banking and reclaiming the land
 - c) Access road
- 2) Leading in power and telephone lines required for the facilities
 - 3) Supplying power and water for the construction work
 - 4) Site works, gates, fences and planing
 - 5) Furniture furnishing and fixtures

(3) Providing Convenience by the Government of Indonesia

- 1) Provide every convenience for those organizations and individuals of Japanese national who are to be engaged in the work under the proposed Project, to keep them exempt from taxes, to allow them to enter and leave the country, and to stay there.
- 2) Provide every convenience for tax exemption and customs clearance of those building materials, machinery and training/experimental equipment and materials, which may be brought in Indonesia for the proposed Project.
- 3) Properly maintain and control those facilities constructed under the proposed Project, including the training/ experimental equipment and materials and others.
- 4) Obtain a construction permits prior to the commencement of the construction.
- 5) Secure the space to construct those temporary offices, workshops, material storages, etc. which shall be required upon execution of the construction work.

5-3 Construction Programs

The proposed facilities are scheduled to be constructed on the basis of grant aid of the Government of Japan.

After deciding to construct the facilities, the Government of Indonesia shall sign an agreement with an authorized foreign exchange bank in the country to receive the fund financed by the Government of Japan. At the same time, the Government of Indonesia is to sign a contract with a Japanese design/supervision consultant. Then, a contractor is to be selected through bidding. After signing a contract with the contractor, the work shall be commenced.

5-3-1 Basic Policy of the Construction

(1) Characteristics for Execution of Works

The proposed facilities have a key point at the connection with the rice milling equipment to be installed in the practical training building. Relations among height, width and underground construction are significantly affected by the connection. It is necessary, therefore, to relate the connection closely with the equipment/materials works.

(2) Basic Policy upon Execution of the Construction

- 1) The persons responsible for the buildings, equipment/materials shall have their respective responsibilities and obligations, and shall perform their respective duties and recognize the systematic fitness of the work.
- 2) Every building shall be of good quality.
- 3) Both facilities and building techniques shall be provided.
- 4) As for the equipment, their functions and capabilities shall be fully understood on installation.
- 5) All works shall be executed keeping in contact with those concerned of the Government of Japan and the Government of Indonesia. They shall be kept informed.
- 6) A collaborative system shall be maintained among the owner, consultant and contractor to execute the work smoothly.

- 7) The relationship between the staff from Japan, the local staff and subcontractors shall be well-organized to expedite the construction work.
 - 8) The work shall be completed within the contracted term of work.
- (3) Attention to be paid in executing the works
- 1) The allocation of the work shall be clearly defined between the Government of Indonesia and the Government of Japan. They shall strive to cooperate in proceeding the works.
 - 2) The site shall be deforested and reclaimed as early as possible.
 - 3) Adjustment shall be made at the connections between equipment foundations and building floor works.
 - 4) Adjustment shall be made at the connections between electrical equipment and building wall/floor works.
 - 5) Adjustment shall be made at the connections between water supply/drainage works and building wall/floor works.
 - 6) Arrangements and adjustment shall be made concerning installation of equipment, and concerning those portions at which the works must be completed timely in relation to the building works.
 - 7) Concerning the power cable and telephone line lead-in, prior arrangements shall be made by the authorities concerned so as not to delay the work.

5-3-2 Construction and Supervising Plan

(1) Construction Supervising System

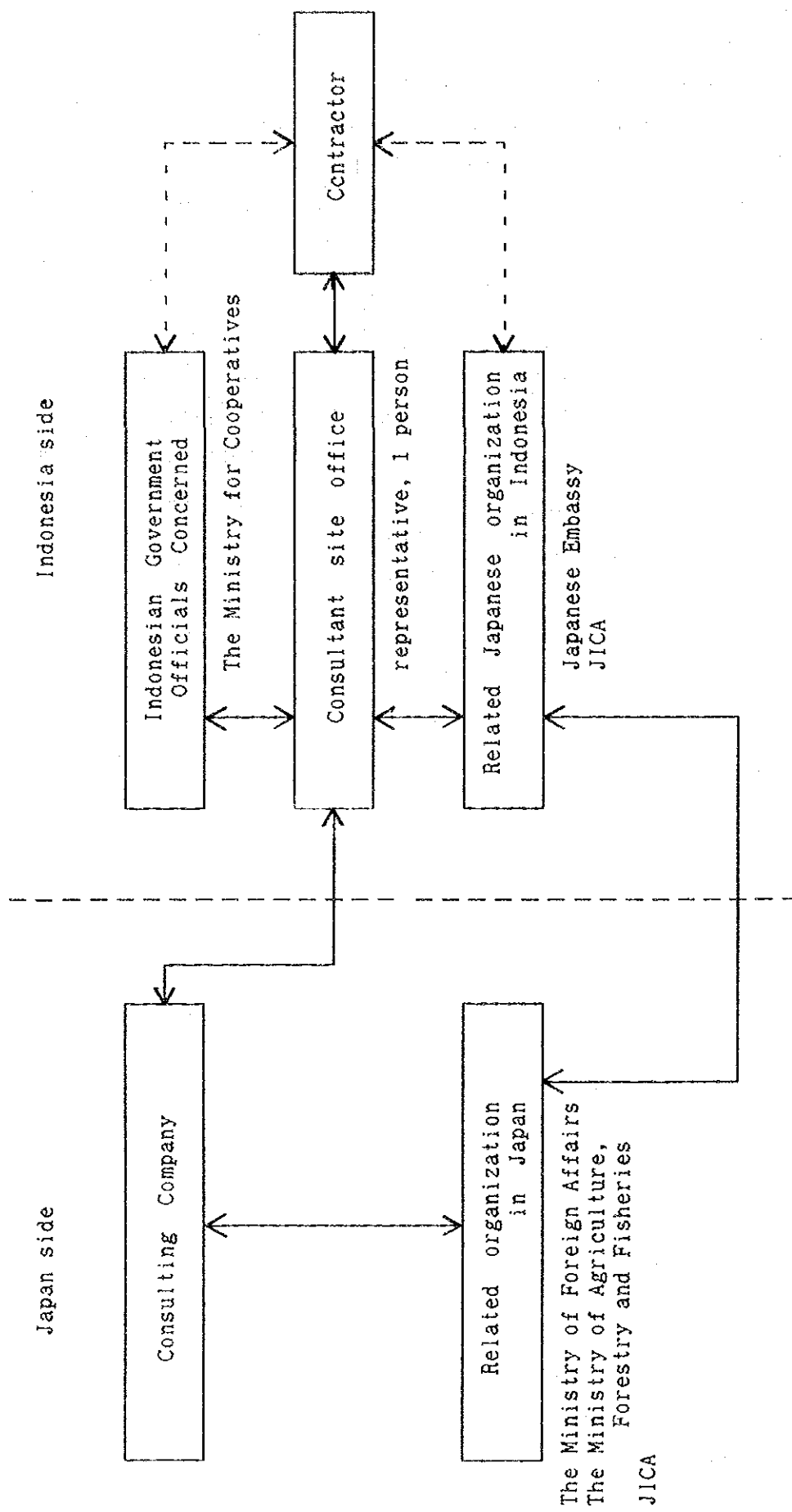
In regard to supervision, important points are cooperation in technical and office works, and arrangements and adjustment of the construction process. It is necessary, therefore, to dispatch a representative supervisor who is satisfactorily able to supervise and manage technical matters at the site throughout the duration of the work.

- 1) The representative supervisor shall be selected from among those who have ample experience in supervising at construction sites. He must be able to judge the situation properly at the Site. And he shall be able to make decision in various situations.
- 2) The representative supervisor shall fully grasp the situation at the construction site and strive to make arrangements between the Government of Indonesia and the contractors in both countries. At the same time, he shall keep close contact with and report to the Indonesian Government Agency concerned, the Japanese Embassy and the JICA Office so as to expedite the construction work.
- 3) The representatives supervisor shall pay special attention to the connections between buildings and equipment/materials. At the same time, his important duties are to get contractors to construct buildings of good quality, and to observe the contracted term of the work, as well as to give the technical guidance to them.
- 4) The representative supervisor is to perform the following duties:
 - Prepare a periodic report (once a month).
 - Determine the location and level of the building.
 - Inspect the determination of a bearing capacity of the soil.
 - Review and approve the work execution drawing.
Inspect the arrangement of reinforcement bars and supervise concrete placing.
 - Inspect the local materials and equipment.
 - Review and approve the detail drawings for finishing and supervise the finishing work.
 - Hold periodic meetings for arrangements and supervise every process of work.
 - Inspect the work upon completion.
(consultant inspection in the owner's presence)
 - Prepare an overall report.
- 5) A chief service engineer and designers in charge are to cooperate, in Japan, with the representative supervisor performing his duties. And they shall visit the Site, when required, to make arrangements and give technical guidance in

terms of design to construct quality buildings. At the same time, the chief service engineer and designers in charge shall hold technical meetings and make arrangements with the local governmental agencies and contractors, striving to proceed smoothly with the work.

6) Supervising plan

Throughout the term of the construction work, the project managing shall be executed under the supervising representative consultant. An office and a lodging for representative consultant are to be located in Indonesia to supervise smoothly and give proper guidance to the work in every process. The representative consultant shall report to every organs concerned and to the Japanese organs concerned.



5-3-3 Equipment/Materials Procurement Plan

The plan is based on the basic principles of reducing the construction costs and to adopt local construction methods and materials as much as possible for the socioeconomic development of Indonesia.

This, however, shall not be applied to those materials and equipment locally available which do not satisfy the precision and function requirements and/or which are higher-priced than those in Japan.

Those materials and equipment, which the Government of Indonesia has banned to import, shall be locally procured.

Local construction materials shall be procured in around the proposed construction site as far as practicable. However, and finishing materials will be transported by truck from Jakarta.

Most of the materials and equipment procured from Japan shall be transported on land to the proposed construction site after unloaded at the port of Tanjungpriok.

(1) Materials to be procured in Indonesia

1) Civil works:

cement, sand, gravel, concrete masonry blocks, structural steel, reinforcing bars, form material, corrugated slates, tile, aluminum sash, aluminum jalousie windows, plate glass, lumber for finishing carpentry work, paint, terrazzo blocks, caulking material, gypsum boards and vinyl sheets

2) Electrical works:

electric wires, cables, conduits, switches, plug receptacles, lighting fixtures and a telephone switchboard

3) Water supplying/drainage and sanitation works:

Hume pipes, vinyl pipes, sanitary fixtures and faucets

4) Airconditioning/ventilation works:

ventilating fans and separate type airconditioners

(2) Main equipment and materials to be procured in Japan:

1) Civil works:

accessory and hardware for fixtures, profiled steel sheets, acoustical mineral fiberboards

2) Electrical works:

a power-generator, a broadcasting system,
fire prevention equipment

3) Water supplying, drainage and sanitation works:

a elevated water tank(made of SUS), pumps, kitchen equipment

4) Training Equipment:

rice milling facilities, paddy dryers, component machinery
of rice mills work shop tools, lavatory implements

5-3-4 Scope of the Works to be Undertaken by Indonesia

The works to be undertaken mainly by the Government of Indonesia shall be lot reclamation and leveling, gate and fence construction, planing, furnishing of furniture and equipment.

- (1) The site reclamation, leveling and access road are essential to an earlier commencement of the work which shall be started at the same time when the Exchange of Notes is signed. The first priority shall be placed on deforestation and roots excavation.
- (2) For gates and fences, a minimum requirement of the facilities shall be planned for preventing thefts and for future maintenance and control. The work shall be executed at the earliest possible stage.
- (3) Planting is to be executed as the last work in the construction schedule. Planting shall be executed in good timing based on a fully elaborated plan.
- (4) Furniture, furnishings and equipment shall be durable.
The functions of the furniture and equipment shall have priority over the aesthetic design, and they shall be easy to maintain.
- (5) Electric power and water supplies for the construction works and electric power supply and telephone wiring to the training center shall be provided so as to execute the work without delay beyond the work schedule.
- (6) Process of the work shall be deliberately planned, and periodic discussions shall be held to prevent any problems from taking place with Japanese contractors and to shorten the term of the work.

5-4 Implementation Schedule

In advance of the construction of the proposed training center, the Exchange of Notes shall be signed by the Government of Japan and the Government of Indonesia in accordance with the Japan's grant aid procedure. Then, the consulting firm shall sign the contract with the Government of Indonesia, and the design development service shall be carried out.

A period of approximately three months is estimated as the time required to carry out the design development service. After the completion of the design development service, a period of two months is considered to be necessary to appoint a contractor who executes the work. A term of the work subsequently required is estimated to be 10 months. Approximately 15 months, therefore, are required to complete the work after signing the Exchange of Notes.

5-5 Estimated Project Cost borne by the Government of Indonesia (in Rp.)

Probable construction cost for the Indonesian side work as classified in 5-2 is estimated as follows:

(1) Soil inspection cost (boring 10m x 2 locations)	10,000,000
(2) Survey cost (plane and level surveys, 150 points)	10,000,000
(3) Lot reclamation and leveling cost	130,000,000
(4) Fence and gate construction cost	40,000,000
(5) Access road construction cost	15,000,000
(6) Power leading in wiring	20,000,000
(7) Telephone line wiring	5,000,000
(8) Guarantee money for the gas cylinders	500,000
(9) Planting	15,000,000
(10) Furniture, furnishings, equipment and utensils	180,000,000
(11) Banking arrangement	12,000,000
(12) Tax exemption, duties, custom clearance, etc.	75,000,000
(13) Commissions relating to application for a building permit, etc.	20,000,000
Total	532,500,000

CHAPTER 6 MAINTENACE AND MANAGEMENT PLAN

CHAPTER 6 MAINTENANCE AND MANAGEMENT

6-1 Maintenance and Management System

The facility maintenance and management system is as shown in Fig 3-1. The buildings and equipment/materials shall be manage by the Management Section and the Training Section.

6-2 Maintenance and Management

(1) To maintain the equipment and materials, a list of provisions shall be prepared for main equipment units. All of the specifications, instruction manuals, parts lists, repair/maintenance manuals and others of each equipment shall be stored at the office and are the copies distributed to every related sections.

Parts replacement, supply and modification shall be recorded according to a specified form. Consumables, wearable parts, materials and others shall be controlled in general by the Management Section and in detail by each section in charge.

(2) Maintenance Plan of Equipment

Maintenance of the equipment mentioned in 4-4-2 are made at the responsibility of the training division.

Maintenance and management of training equipment are one of the most important subjects of training. Therefore these operations should be carried out by trainees themselves and the result should be evaluated as one of performance of training activities.

Among the machinery composing rice milling units, rubber rolls of paddy huskers need replacement about every 200 hours operation, whitening rolls of rice whiteners every 2,000-3,000 hours, belts whenever necessary according to the condition of wear, tear, etc.. Normally, practical training made in each training course will not reach such intervals of the maintenance, therefore trainees will remove them and fix them again as before. If the practice happen to meet such time of replacement, then they will replace those worn parts with new ones.

Some can be said for Diesel engines, power tools, ancillary equipment of rice mills, etc..

Therefore, it is not necessary to determine specific time of regular inspection and/or maintenance.

However, conditions of the equipment should always be checked by the staff of the training execution section to confirm that they are suitable for continuation of practical training. Further, among training equipment, those parts whose maintenance are not the subjects of training such as a graphic control panel should be maintained by the staff of the Center prior to the beginning of each course.

Maintenance and management of equipment for training material making and information processing are to be executed by the training planning & elevation section, the training division.

Vehicles are a part of training equipment, but maintenance of them need to be done by both the training execution section of the training division and the general affairs section of the management division.

6-3 Maintenance Costs

Those expenses required to manage and maintain the training center are provisionally summarized as shown below. Calculations thereof were made based on the fiscal year 1990 when the Post harvest Training Center will be put into fullfledged operation, with the proposed Project accomplished.

(1) Fuel and light expenses of the Center

1) Electric Power Rates

An electric power supply of 100 kVA is contracted with PLN, with office power rates applied.

Electric power unit rate :

basic rate	3,680 Rp./kVA
working rate	97.75 Rp./kWh (including a common expense of 1.75 Rp./kW)

Electric power consumption :

- Administration bldg.

$$70\text{kVA} \times 0.7 \times 10 \text{ hr.} \times 25 \text{ dy} = 12,250 \text{ kW.H/month}$$

- Practical training center bldg.

$$83\text{kVA} \times 0.5 \times 8 \text{ hr.} \times 20 \text{ dy} = 6,640 \text{ kW.H/month}$$

- Dormitory bldg.

$$14\text{kVA} \times 0.5 \times 12 \text{ hr.} \times 25 \text{ dy} = 2,100 \text{ kW.H/month}$$

$$\text{Total} = 21,000 \text{ kW.H/month}$$

Basic rate per 100kVA/

$$100\text{kVA} \times 3,680 \text{ Rp./kVA} \times 12 \text{ mo} = \text{Rp.}4,416,000$$

Total rates per year

$$21,000 \text{ kWh} \times 97.75 \text{ Rp./kW} \times 12 \text{ mo.} = \text{Rp.}24,633,000$$

$$\text{Total:} = \text{Rp.}29,049,000$$

2) Telephone rates

Estimated telephone calls :

- City call rate (3 minutes/time)

$$3 \text{ min/time} \times 10 \text{ time/dy} \times 25 \text{ days} = 750 \text{ min/mo.}$$

- long distance call (6 minutes/time)

$$6 \text{ min/time} \times 5 \text{ time/dy} \times 25 \text{ days} = 750 \text{ min/mo}$$

Telephone see per year :

- City call

750 min.x75Rp./3min.x12mo.= Rp.225,000

- Long-distance call

750 min.x80Rp./min.x12mo.= Rp.720,000

Total = Rp.945,000

3) Gas rates

Gas consumption per year :

45 kg cylinder x 3 unit/mo.x 12 mo.= 36 units

Gas rate per year :

36 units x 20,000 Rp./unit = Rp.720,000

Total = Rp.720,000

(2) Training and equipment/materials maintenance expenses (2% of the equipment cost = Rp.39,260,000)

Total Rp.69,974,000

6-4 Training Cost

With the reference to the actual costs (for 1986/1987) spent by a similar facility, PUSLATPENKOP of the Ministry for Cooperatives, the annual training cost for the Center was calculated on a trial basis subject to the training program shown in 3-3-3. The breakdown is given below.

(1) Expenses for office supplies and consumable purchased (actual cost of PUSLATPENKOP)	Rp.36,960,000
(2) Personnel's traveling expenses (actual cost of PUSLATPENKOP)	Rp.10,500,000
(3) Training expenses	Rp.219,615,000
1) Training allowance	
a) Instructors 2,016 period/yr x Rp.5,000/period	Rp.10,108,000
b) Examiner (psn=person) 494 psn/yr x Rp.5,000/psn	Rp.2,470,000
c) Trainees' daily allowance 7,980 psn.dy/yr x Rp.500/psn.dy	Rp.3,990,000
d) Reserves (5% of a through c)	Rp.827,000
1) Total	Rp.17,367,000

2) Food and welfare expenses	
a) Stationary expenses	
494 psn/yr x Rp.10,000/psn	Rp.4,940,000
b) Food expenses	
7,980 psn.dy/yr x Rp.7,000/psn.dy	Rp.55,860,000
c) Cleaning/laundry expenses	
7,980 psn.dy/yr x Rp.2,500/psn.dy	Rp.19,950,000
d) Medical expenses (crs=course)	
26 crs/yr x Rp.100,000/crs	Rp.2,600,000
2) Total:	Rp.83,350,000
3) Trainees' traveling expenses	
494 psn/yr x Rp.123,000/psn	Rp.60,762,000
4) Miscellaneous expenses	
a) Data/document preparation expenses	
250 item/crs x 26 crs/yr x Rp.3,000/item	Rp.19,500,000
b) Certificate issuance expenses	
494 psn/yr x Rp.2,000/psn	Rp.988,000
c) Medicine expenses	
494 psn/yr x Rp.5,000/psn	Rp.2,470,000
d) Trainees' transportation expenses	
26 crs/yr x Rp.150,000/crs	Rp.3,900,000
e) Guest instructors' traveling expenses	
9 psn/crs x 26 crs/yr x Rp.7,000/psn	Rp.1,638,000
f) Observation expenses	
494 psn/yr x 3 dy/psn x Rp.20,000/psn	Rp.29,640,000
4) Total:	Rp.58,136,000

(4) Machinery fuel expenses Rp.3,280,000

1) Diesel light oil

9,000 liter/yr x Rp.200/liter Rp.1,800,000

2) Kerosene

8,000 liter/yr x Rp.185/liter Rp.1,480,000

Grand Total: Rp.270,355,000

(1)+(2)+(3)+(4)

CHAPTER 7 EVALUATION OF THE PROJECT

CHAPTER 7. EVALUATION OF THE PROJECT

In accordance with the concept that development of the cooperatives can contribute to increase agricultural productivity and farmers' income, much emphasis has been placed on strengthening of Koperasi Unit Desa (KUDs), which have their foundation in rural areas where the majority of the population dwell, in Indonesia.

The basic policies of agricultural development in Indonesia are:

- * To attain self-sufficiency of agricultural products and to make qualitative improvement of diet of the people,
- * To increase farm income through the increased food production and to attain more equal distribution of wealth among people.

Strengthening of KUDs is considered to conform to these policies also, specifically to the latter of the above.

Along with such policies of Indonesia, various international assistance, including that of Japan, have been made for the replenishment of KUDs' commercial milling facilities. At present, however, the commercial milling operations of KUDs are inactive and the facilities for the purpose are not utilized sufficiently. White rice produced by them is low in quality. These are ascribed to the fact that managerial and technical capability of KUDs' staff and operators is insufficient for the purpose.

Under such background as above, it is considered to be useful to establish a Post Harvest Technology Training Center, with the objectives of training KUDs' staff and operators and upgrading their managerial and technical capabilities, for the improvement of KUDs milling operations. It will ultimately open the possibility for improving welfare of farmers.

7-1. Effects of the Project

The Project is considered to have following effects:

(1) Direct Effect

Annually about 480 manager and operators of KUDs' rice mills are trained in the Center, and this will contribute to improving their managerial and technical standards.

Further, annually 14 instructors are trained in the Center and they are supposed to make similar training as done in the Center in the major rice-growing provinces for KUDs' manager and operators. This will amplify the effect of the training.

(2) Indirect Effect

Through the effect of training, the following are expected:

- 1) The quality of white rice produced by KUDs' rice mills and the milling recovery of them are improved,
- 2) Profit of KUDs increases by the quality improvement of white rice and the milling recovery improvement,
- 3) Availability of high quality white rice for consumers is improved by the quality improvement of white rice,
- 4) Management and maintenance of KUDs' milling facilities are made more properly,
- 5) The possibility of rationalizing rice marketing increases by the use of KUDs' mills and
- 6) All of above will contribute to the development of rice processing industry in Indonesia.

7-2. Appropriateness of the Project

The objectives, scale and activities in the Project are planned as follows in order to conform and to be appropriate to the actual and technical situations in Indonesia:

The activities aim at the full operation and the improvement of the existing KUDs' facilities and do not pursue any unrealistic objectives.

The scale of activities is confined to the scale conforming to the limited financial condition and personnel availability.

The executing agency is the Ministry for Cooperatives which is responsible for the guidance of KUDs. The Ministry clearly stated that the Project was one of the high priority projects and all the required organizational, financial and personnel measures would be taken.

When the training is effectively executed at the Center and contributes to the improvement of KUDs' mill operations, the resultant increased profit of KUDs will ultimately open the possibility of increasing farm income. It will play an important role in the national development program.

In addition to the existing JICA expert, who is working actively, if the requested technical cooperation from Japan is made effectively, the training in the Center will be more effective as well.

CHAPTER 8 CONCLUSION AND RECOMMENDATIONS

CHAPTER 8. CONCLUSION AND RECOMMENDATIONS

8-1. Conclusion

Indonesia has been trying to develop and strengthen KUDs with the aim of improving welfare of farmers. In order to achieve the objective, it has planned to strengthen and improve KUDs' commercial milling capability. International assistance, including that of Japan, has been extended along with this line.

In spite of the fact that KUDs' commercial milling capacity has been expanded considerably through financial and physical assistance hitherto, the facilities do not necessarily function satisfactorily. The Project was proposed to make them work to the full extent and be improved further.

The Project is possible to contribute the purpose and it is considered to be appropriate for Japan's grant aid cooperation program.

8-2. Recommendations

The following are recommended to the Government of Indonesia in order to make the effective operation of the Center:

(1) A reply of the Government of Indonesia was sent as mentioned in the Minutes of Discussions with the basic design study team.

The reply is concerned with the important subjects such as confirmation of legitimacy of the Directorate General of Business Promotion for Cooperatives as the executing agency of the Project; establishment of a coordinating system with the Directorate General of Institution Promotion for Cooperatives; allocation of personnel to the proposed center, etc. These are prerequisites for the execution of the Project.

Early execution on these points are requested.

In Addition to the above, it is desired to strengthen the administrative coordination ability of the Directorate General of Business Promotion for Cooperatives as the executing agency of the Project.

(2) On Managerial Agency;

The managerial agency of the Center is supposed to be the Directorate General of Business Promotion for Cooperatives, the Ministry for Cooperatives. As suggested in the Minutes of Discussions with the basic design study team, the following are to be made:

- * Authorization of the Directorate General's undertaking of training for KUDs in the Ministry, and
- * Establishment of a cooperation system with the Directorate General of Institution Improvement for cooperatives of the same Ministry, which now undertakes similar training.

(3) On Allocation of Personnel;

To assign an adequate person for the director of the proposed Center, as suggested in the Minutes of Discussions. And to allocate personnel of sufficient qualifications for the staff of the Center.

(4) On Operation Budget;

To secure a sufficient budget required for the operation of the Center.

(5) To make use of the effects of training, preferential supply of spare parts to KUDs to which graduates of the Center belong.

The following are recommended as to preparation of conditions for the effective operation of the Center:

- (1) On executing commercial milling and rice marketing, entrepreneurship of KUDs' staff should be enhanced so as to rationalize and make effective the operation and to upgrade the morale.
- (2) Production of high quality rice by KUDs' rice mills cannot be realized simply by improving the milling technology but it is required

to collect high quality paddy. For the rice produced to be competitive in the common market, the cost need to be low. However, in consideration of the basic principle that KUDs are for the improvement of welfare of farmers, KUDs should be trusted by farmers and be able to get paddy of high quality with a reasonable price.

(3) Reflecting the reasons KUDs failed to reach the common market in the past, the required conditions for the development of KUDs' operations should be sought for.

(4) In consideration that the Project is an aid for solving the mountainous difficulties faced by KUDs, it is recommended that overall measures be taken by the Ministry for Cooperatives to improve KUD operations that will enhance the Project's effects.

Further more, in advance to the execution of the construction of the Center, the followings are required to be done by the Government of Indonesia:

(1) Prompt authorization services

The Japanese grant aid is scheduled to be furnished in a limited time. Prompt action should be taken after the Exchange of Notes, on consultant contract, construction contract, and other required contracts.

(2) Smooth execution of the works to be expenses are born by the Government of Indonesia

The works such as cutting down the trees with the excavation of roots, leveling the ground and filling up the soil, which are to be born by the Government of Indonesia shall be executed perfectly in advance to the construction works by the Japanese site.

Power supply and telephone installation shall be executed three months before the inspections of every facility, equipment/materials, and operation test of those.

(3) Enforcement of the managing cooperation is requested for the promotion of the Project

The smooth communication with concerned government authorities and every office procedure for building construction permission, customs

clearance, transportation of equipment/materials and bank service shall be carried out promptly. For that purpose, it is desired to establish an effective project implementing body with sufficient managing capability in the Government of Indonesia.

(4) Ensuring the budget for furnishing furnitures and equipment

The budget to furnish the furnitures, utensils and equipment which are required for the facility operation shall be ensured by the Government of Indonesia.

(5) Securing the employment for the facility maintenance

During the construction works, the charged personal who will maintain all the equipment and the building facility shall be selected, employed and trained.

The following is recommended to the Government of Japan :

In order to execute this Project effectively and efficiently, it is most desirable to execute Japanese technical cooperation on rice post harvest technology together with the start of the Project.

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Appendix 1

1- 1 List of the Members of the Basic Design Study Mission

Name:	In charge of:	Organization:
Mr.Tomonari Ohsumi	Team Leader (Manager)	Deputy Director, Okayama Food Office, Food Agency, Ministry of Agriculture, Forestry & Fishery, Govt. of Japan
Mr.Norio Nishihata	Project Coordinator	Deputy Head, First Basic Design Study Div., Grant Aid Planning and Survey Dept., JICA
Mr.Ryosuke Akasaka	Architectural Planning	E. Niwa Architects & Engineers Co., Ltd.
Mr.Masataka Kuramochi	Architectural Design	E. Niwa Architects & Engineers Co., Ltd.
Mr.Kenji Ando	Utility Planning	E. Niwa Architects & Engineers Co., LTD
Dr.Yasumasa Koga	Equipment Planning	E. Niwa Architects & Engineers Co., LTD
Mr.Harunobu Yoshino	Post harvest Processing	E. Niwa Architects & Engineers Co., LTD

1- 2 List of the Members of the Basic Design Report Mission

Name:	In charge of:	Organization:
Mr.Tomonari Ohsumi	Team Leader (Manager)	Director, Shizuoka Local Food Office, Food Agency, Ministry of Agriculture, Forestry & Fishery, Govt. of Japan
Mr.Tsutomu Iwasaki	Project Coordinator	First Basic Design Study Div., Grant Aid Planning and Survey Dept., JICA
Mr.Ryosuke Akasaka	Architectural Planning	E. Niwa Architects & Engineers Co., LTD
Dr.Yasumasa Koga	Equipment Planning	E. Niwa Architects & Engineers Co., LTD
Mr.Harunobu Yoshino	Post harvest Processing	E. Niwa Architects & Engineers Co., LTD

1- 3 The Itinerary of the Basic Design Study Mission
in Indonesia

	Date:	Schedule:	Study & Discussion:
1	May 24 Tues.	Departed Narita 11:00 (flight no.873) Arr. Jakarta 16:15	
2	May 25 Wed.	Jakarta	Visited JICA Jakarta office & Japanese Embassy. The Ministry for Cooperatives Inception report was, explained & discussed.
3	May 26 Thur.	Jakarta	Discussion with the Ministry for Cooperatives. Observation of the Site & adjacent area.
4	May 27 Fri.	Jakarta	Observation of Food Technical Researching Training Center & Karawang Post Harvest Technicl Lab.
5	May 28 Sat.	Jakarta	Observation of PUSLATPENKOP. Discussion with the Ministry for Cooperatives.
6	May 29 Sun.	Jakarta	Discussion in the Mission. Drafting the minutes of discussion.
7	May 30 Mon	Jakarta	Report & discussion at JICA Jakarta Office & Japanese Embassy. Discussion with the Ministry for Cooperatives.
8	May 31 Tues. (Ind. holiday)	Jakarta	Discussion in the Mission. Drafting the minutes of discussion.

	Date:	Schedule:	Study & Discussion:
9	June 1 Wed.	Jakarta	Greeting to the Minister Bustanil. Discussion with the Ministry for Cooperatives. The minutes of discussion was signed.
10	June 2 Thur.	Jakarta	Mr. Ohsumi & Mr. Nishihata left Jakarta. Discussion with the Ministry for Cooperatives. Observation of PUSLATPENKOP. Discussion with PLN.
11	June 3 Fri.	Jakarta	Discussion with the Ministry for Cooperatives on the building, management & curriculum.
12	June 4 Sat.	Jakarta	Discussion with the Ministry for Cooperatives on the building, equipments, materials and finance.
13	June 5 Sun.	Jakarta	Survey of the local market. Compilation of data.
14	June 6 Mon.	Serubong	Observation of a KUD.
15	June 7 Tues.	Jakarta	Discussion with the Ministry for Cooperatives on the building plan & management. Discussion at PUSLATPENKOP.
16	June 8 Wed.	Jakarta Bekasi	Discussion with the Ministry for Cooperatives. Discussion with Building Department, Electric Co. and Telephone Co. in Bekasi. Survey at the site.

	Date:	Schedule:	Study & Discussion:
17	June 9 Thur.	Jakarta	Discussion with the Ministry for Cooperatives on the operation funds. Discussion with Radio Regulatory Center.
18	June 18 Fri.	Jakarta	Discussion with the Ministry for Cooperatives. Responded to the inquiries on the funds, building data & materials.
19	June 19 Sat.	Dept. Jakarta 19:00 (Flight No. JAL-722)	Greeting & report to JICA Jakarta Office and Japanese Embassy.
20	June 20 Sun.	Arrived Narita 6:45	Return to Japan.

1- 4 The Itinerary of the Basic Design Report Mission
in Indonesia

	Date:	Schedule:	Study & Discussion:
1	Aug 9 Tues.	Departed Narita Arr. Jakarta	Departed to Japan Discussion in the Mission
2	Aug 10 Wed.	Jakarta	Visited JICA Jakarta office & Japanese Embassy. The Ministry for Cooperatives Draft report was, explained & discussed.
3	Aug 11 Thur.	Jakarta Bogor	Survey of the Bogor Agricultural University. Survey at the Site.
4	Aug 12 Fri.	Jakarta	Discussion with the Ministry for Cooperatives.
5	Aug 13 Sat.	Jakarta	Discussion in the Mission Drafting the Minutes of discussion. Mr. Ohsumi arrived at Jakarta.
6	Aug 14 Sun.	Jakarta	Discussion in the Mission. Compilation of data.
7	Aug 15 Tues.	Jakarta	Discussion with the Ministry for Cooperatives. Drafting the Minutes of discussion. The Minutes of discussion was signed.
8	Aug 16 Mon	Jakarta	Discussion with the Ministry for Cooperatives. Survey of the Bogor Agricultural University. Greeting report JICA Jakarta Office and Japanese Embassy.
9	Aug 17 Wed.	Jakarta	Survey of the Local market. Compilation of data. Discussion in the Mission.
10	Aug 18 Thur.	Dept. Jakarta Arrived Narita	Return to Japan.

1- 5 List of the Persons Contacted

Japanese Embassy in Indonesia

Mr. Makoto Asami	Counsellor
Mr. Koro Bessho	First Secretary
Mr. Goichiro Yukawa	First Secretary

JICA Jakarta Office, Indonesia

Mr. Yasuo Kitano	Resident Representative
Mr. Mikiharu Sato	Deputy Resident Representative
Mr. Manabu Aiba	Assistant Resident Representative

JICA Expert

Mr. Yoshisuke Yoshizumi	The Ministry for Cooperatives
Mr. Etsuro Kagai	The Ministry of Agriculture
Mr. Yasuhiro Kimura	The Ministry of Agriculture
Mr. Mitsuo Suzuki	The Ministry of Agriculture
Mr. Tadashi Watahiki	The Ministry of Agriculture
Mr. Tadakazu Yamaoka	The Ministry of Posts and Telecommunications
Dr. Mikio Satoh	Team Leader : Post Harvest Technology
Dr. Yasuyuki Sagara	Food and Post Harvest Technology
Mr. Noriyuki Yamashita	JICA Coordinator

The Ministry for Cooperatives

Minister Bustanil Ariffin S.H.

Directorate General of Business Promotion for Cooperative

Drs. Subiakto Tjakrawerdaya
Director General for Cooperative Business Promotion

Mr. Mamiet Marjono
Secretary for Directorate General of Coop.
Business Promotion/Coordinator, Foreign Aid Project

Ir. Irawan
Head of Sub-Directorate Industry

Ir. Masfadjar
Head of Electricity Section

Ir. Jusuf Oesman
Head of Section, Rice Commodity

Ir. Syachputra
Head of Foreign Aid Project

Ir. Zuharlis
Head of Planning Section for Agriculture

Ir. Rathoyo Pasdan
Project Implementation Unit

Mr. A. Chatib
Coordinator of Loan Project

Ir. Mardjoko
Foreign Aid Project

Mr. Sambodo Widjokonko Bsc
Coordinator of Technical Assistant

Secretariate General

Ir. O. L. Gaol
Planning Bureau of Dep. Coop.

Drs. Ikhwan Asrin
Foreign Aid Project

Mr. Budi Santoso
Planning Bureau of Dep. of Coop.

PUSLATPENKOP

Ir. Asnawi Hassan Msc
Principal of PUSLATPENKOP

Drs. Ali Azhar
Head of Training Implementation Section

Drs. Sjamsuri
Head of Training Program

PUSDIKLAT

Mr. Baehaki
Training Executor

Mr. Sudarjono
Report & Evaluation Division

Post Harvest Laboratory KARAWANG (Branch of Sukamandi Research
Institute for Food Crops, the Ministry of Agriculture)

Mr. Ridwan Thahir
Head of Agric. Eng. Dept.

Mr. Sigit Nugraha
Researcher of Postharvest Laboratory KARAWANG

Mr. Soeharmadi
ditto

Mr. Setyona
ditto

Mr. Sudaryona
ditto

Food Technology Research and Development Center (BULOG)

Mr. Slamet Jubaidi
Head of R. & D. Food Technology of BULOG TAMBUN

Mr. Djoko
Staff of BULOG TAMBUN

KUD Sasekar, Kab. Tangerang, WEST JAVA

Mr. Ely Suhaely
Manager

Mr. Solihin
Supervisor

PLN (Perusahaan Umum Listrik Negara)

Mr. Muzuwar Lukman
Head of Sub-directorate

Mr. Mumu Muchtar
Head of Testing Section (PLN branch BEKASI)

Dinas Pekerjaan Umum BEKASI

Mr. Joni Hariadi
Head of Building Supervising

Mr. Dede Satibi
Head of Bappeda (City Planning Section)

Sentral Telepon Otomat BEKASI

Mr. H. Mustofa
Head of Local Network Section

MINUTES OF DISCUSSIONS
ON
THE PROJECT
FOR
ESTABLISHMENT OF TRAINING FACILITY FOR INTEGRATED
IMPROVEMENT
OF POST HARVEST AND QUALITY OF RICE
IN
THE REPUBLIC OF INDONESIA

In response to the request of the Government of the Republic of Indonesia, the Government of Japan decided to conduct a basic design study on the Project for Establishment of Training Facility for Integrated Improvement of Post Harvest and Quality of Rice (hereinafter referred to as "the Project"), and entrusted the study to the Japan International Cooperation Agency (JICA). JICA sent to Indonesia the Basic Design Study Team headed by Mr. Tomonari Ohsumi, Deputy Director, Okayama Food Office, Food Agency, Ministry of Agriculture, Forestry and Fisheries (hereinafter referred to as "the Team") from May 24 to June 12, 1988.

The Team had a series of discussions on the Project with the officials concerned of the Government of Indonesia headed by Mr. Subiakto, Director-General of Business Promotion for Cooperatives, Ministry for Cooperatives, and conducted a field survey in the relevant areas to the Project.

As a result of the study, both parties agreed to recommend to their respective Governments that the major points of understanding reached between them, attached herewith, should be examined towards the realization of the Project.

Jakarta, June 1, 1988



Mr. Tomonari Ohsumi
Team Leader
Basic Design Study Team
Japan International
Cooperation Agency



Mr. Subiakto
Director-General
of Business
Promotion for Cooperatives
Ministry for Cooperatives

ANNEX-I

1. The Japanese side explained the inception report on the Basic Design Study and the Indonesian side understood it.

2. Both parties confirmed the followings:

- 1) The major objective: to execute training on postharvest operations for strengthening KUD activities.
- 2) The Project site: Desa Gandasari, Kecamatan Cibitung, Kabupaten Bekasi, Province West Jawa. The area is about 4 ha.
- 3) The Executing body: Directorate General of Business Promotion for Cooperatives, Ministry for Cooperatives

4) Project Components:

Buildings for;

- Administration
- Lecture and practice
- Accommodation for trainees
- Other related facilities

Equipment for:

- Rice processing
- Paddy drying
- Paddy storage
- Laboratory
- Workshop
- Lecture
- Other training activities

3. The Team will convey to the Government of Japan the request of the Government of the Republic of Indonesia that the former takes necessary measures to cooperate by implementing the Project within the scope of Japanese economic cooperation program in grant form.

4. The Government of Indonesia will take necessary measures as listed in Annex-II on condition that grant assistance by the Government of Japan is extended to the Project.

5. The Team confirmed the other intention of the Indonesian side who will issue the Minister's Decision letter regarding to the legislative status (the Team expects to appoint a person who has responsible and functions as Eselon II-B as a special director for the Project), functions, activities and etc. of the Project.

The reply to the above is requested to send to JICA office in Jakarta within a month.

6. The Team suggested the followings in order to ensure satisfactory operations of the Project:

- 1) To assign a person as a special director as the Manager (head) on operation of the Project.

2) To establish an effective coordination body for executing of harmonized training both in Directorate General of Business Promotion for Cooperatives and Directorate General for Cooperative Institution Promotion, such as the Training Coordination Joint Committee in the Ministry.

3) To secure necessary budget and capable training/ administration staff for the effective operation of the proposed facilities.

The team requested the Ministry for Cooperatives to express the views on these matters to JICA office in Jakarta in writing within a month.

Annex- II

Required arrangements to be undertaken by the Government of the Republic of Indonesia.

1. To secure land necessary for the construction of the facilities and to clear, fill and level the site as needed before the start of construction.
2. To provide facilities for distribution of electricity, telephone, water supply and drainage and other incidental facilities outside the building.
3. To construct and prepare the access road to the Project site.
4. To ensure prompt unloading, tax exemption and customs clearance at ports of disembarkation in Indonesia and proper internal transportation therein of construction materials and equipment purchased under the grant.
5. To exempt or bear Value Added Tax(VAT) which will be imposed with respect to procuring products and services necessary for the implementation of the Project in the following cases:
 - 1)When Japanese nationals sign contracts with the Government of Indonesia.
 - 2)When Japanese nationals purchase products and services necessary for the construction of the proposed facilities, or equipment to be installed in the proposed facilities.
 - 3)When Japanese nationals sign contracts with Indonesian sub-contractors with respects to the execution of duties under the contracts mentioned above.
6. To bear all expenses including commissions for Authorization to Pay other than those to be borne by the Grant.
7. To exempt Japanese nationals engaged in the Project from custom duties, internal taxes and other fiscal levies which may be imposed in Indonesia with respect to the supply of the products and services under the verified contracts.

8. To accord without delay to Japanese nationals whose services may be required in connection with the Project under the verified contracts such facilities as may be necessary for their entry into Indonesia and their stay therein for the performance of their work.
9. To maintain and use properly and effectively the facilities constructed and equipment purchased under the grant aid.
10. To bear all the expenses, other than those to be borne by the grant, necessary for the construction of the facilities.
11. To undertake incidental civil works such as planting and fencing, if needed.
12. To provide the space necessary for such construction as temporary office, working areas, stock yards and others.
13. To ensure that temporary electric power and water supply are made available for the construction and incidental activities relative to the Project.
14. To provide required articles such as carpets, curtain, tables and chairs, etc.