

No. 08

**BASIC DESIGN STUDY  
ON  
THE ESTABLISHMENT PROJECT  
OF  
THE TRADE TRAINING CENTER  
IN THE KINGDOM OF THAILAND**

**MARCH 1982**

**JAPAN INTERNATIONAL COOPERATION AGENCY**

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No. 13873

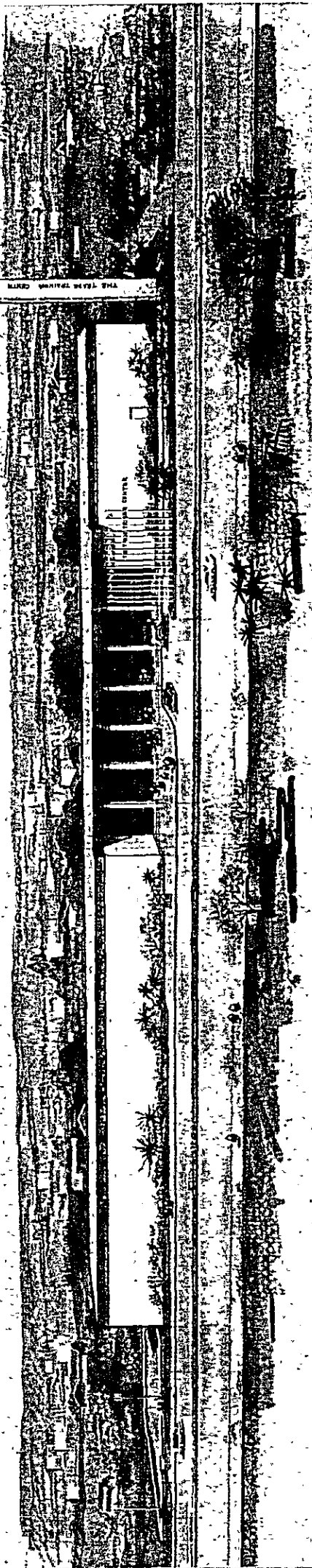
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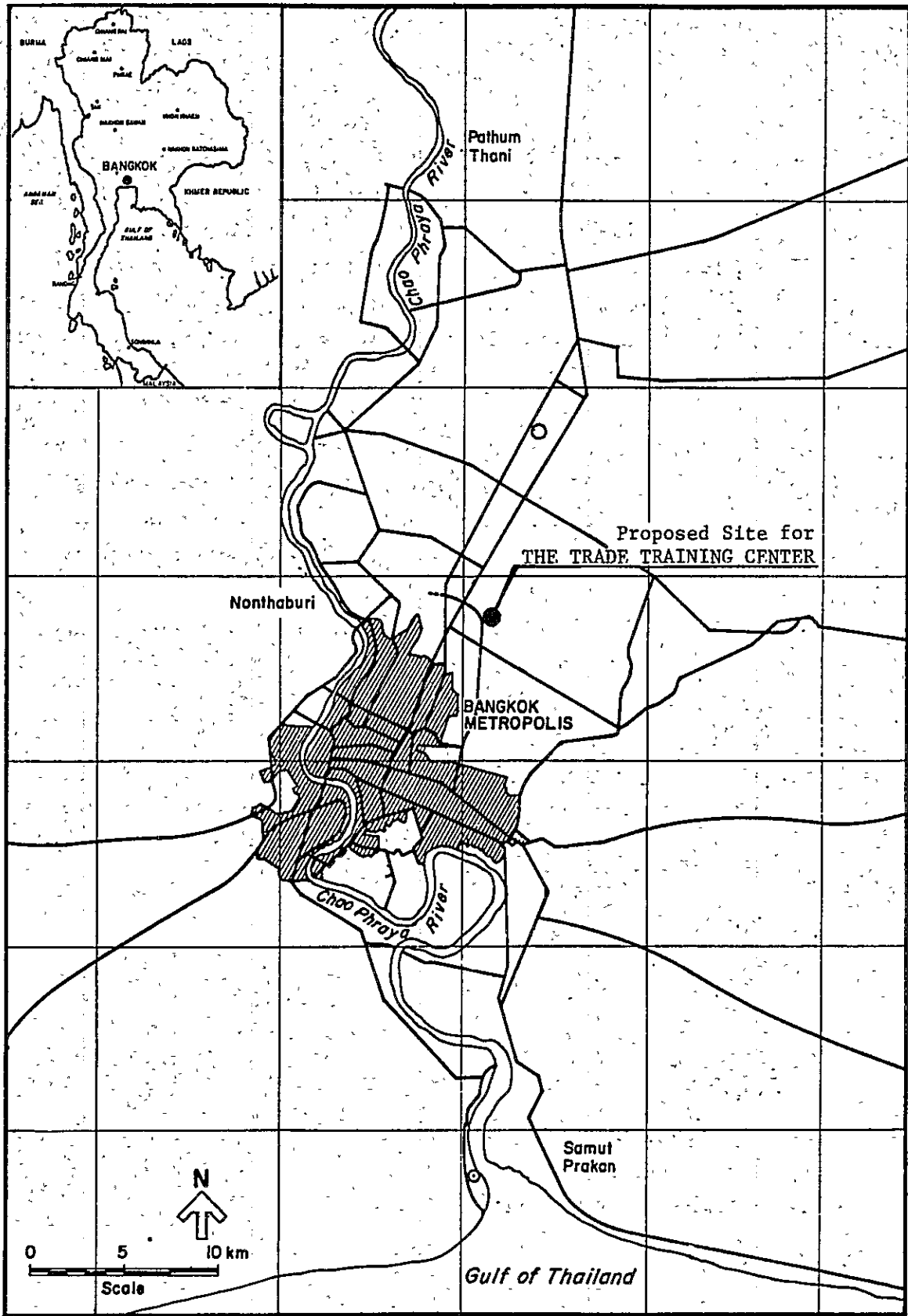
THE TRADE TRAINING CENTER

THE TRADE TRAINING CENTER  
IN THE KINGDOM OF THAILAND











## PREFACE

In response to the request of the Government of the Kingdom of Thailand, the Government of Japan decided to conduct a Basic Design Study for the Establishment Project of the Trade Training Center and entrusted the survey to the Japan International Cooperation Agency. The J I C A sent to Thailand a survey team headed by Mr. Hideki Abe, Head, Basic Design Division, Grant Aid Department, JICA, from February 8 to 21, 1982.

The team had discussions with the officials concerned of the Government of Thailand and conducted a field survey in Bangkaen area. After the team returned to Japan, further studies were made and the present report has been prepared.

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

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

March, 1982



Keisuke Arita

President

Japan International Cooperation Agency

## SUMMARY

Thailand's main exports comprise of primary products such as rice, tapioca, maize, crude rubber, sugar, and tin, and Thailand's main imports are industrial raw material, consumption and capital goods, such as iron and steel, chemicals, petroleum and machine. Both exports and imports have been rapidly increasing these years.

Increase of import, accompanied by development of domestic industry and expansion of consumption demand, indicates a tendency of constant red figures in the overall balance of Thailand's international payment. Especially import of crude oil, which occupies 85% of energy consumption of Thailand, is the main cause of unfavorable balance of trade, partially caused by unexpected rise of the cost, and it has a considerable influence on economical management of Thailand.

Under such circumstances, Thailand's Fifth National Economic and Social Development Plan for 1982-1986, which was enforced from October, 1981, sets stabilization of national economy as a primary subject, and it places an emphasis on normalization of trade balance, in particular, by helping growth of export oriented industry. Then, financial incentive plan for export industry and reform of export taxation system were planned to control import and to promote export.

While the Plan sets the trade promotion policy, Thailand lacks in competent persons who has knowledge and experiences to promote trade business. Because quality control is not sufficiently applied due to lack of ability and experience of technical experts in inspection, export products of Thailand tends to lose foreign buyer's confidence. On the other hand, at present, there is no facility for exchanging information to expand new markets in Thailand and abroad.

Under these background and circumstances, the Government of Thailand has schemed to establish the Trade Training Center, which will be the base for trade promotion by the activities such as short term trade training, standardization of export products, improvement of quality control inspection technique, and exhibition of products and exchanging information to develop new market. Thus, the government of Thailand requested assistance to the Government of Japan the construction of facilities and supply of equipment.

The purpose of the Basic Design Study is to prepare preliminary design for the Trade Training Center by creation of adequate layout and scales of facilities in consistent with the functions of its activities based on the confirmation of the substance of the request of Thai Government, and based on the field survey of the project site and its related infrastructure.

Based on the results of the survey, the Center is designed as an united complex facility consisted of trade training section, standard and quality control section, exhibition section and administrative section. The most feasible scheme for implementation of the project was finalized.

By the implementation of the Project, the trade training section will provide training courses such as basic trade business, marketing, functions of products, and commercial foreign languages for approximately 2,400 trainees annually from the government officials of trade promotion field and executives and middle managers of private trade business sectors. The standard and quality control section will facilitate the improvement of skills of the government inspection officers and provide new techniques for inspection technicians of private sectors. Also the section will contribute to unify system for standardizing of export products. The exhibition section is expected to realize opportunities to provide domestic and international information by displaying import and export products.

The project site of the Center is located about 5 km North East from the center of the city of Bangkok and the surrounding area is under rapid progress of urbanization. The site is owned by the Department of Commercial Relations, Ministry of Commerce. The site has a rectangular shape lying South to North, and its area is approximately 8,800m<sup>2</sup>. The new office building of the Department of Commercial Relations and its parking area are under construction at the adjacent lot to south.

The reclamation of the project site and construction of its perimeter fence have been completed already. The trunk lines of infrastructure necessary for the project are completely equipped. Because the site is adjacent to an artery road running across the city from South to North, the transportation of the construction materials is quite convenient, thus, the execution of the construction might be easy.

The planned scale of the Center is a two story reinforced concrete structure with total floor area of approximately 4,600 m<sup>2</sup>. The trade training section consists of an auditorium, seminar rooms, a language laboratory, an office for lecturers and a training material production room. Instantaneous interpretation system, audio-visual equipment, language laboratory system, printing machine etc. will be installed in this section. The standard and quality control section consists of laboratories for physical and chemical analyses, inspection rooms of the trade product and a reference library. Laboratory equipment for analysis of agricultural and industrial products are major equipment in this section. The exhibition section consists of a multi-purpose hall, where more than 110 classifications of products can be displayed by setting up display booths, and an office of display planning. Major equipments in this section are display booths that will be used in various exhibitions being planned over twelve times per year. The administrative section consists of offices for operation and maintenance of the Center, and a cafeteria open to visitors as well as staffs and trainees.

The Trade Training Center Project is indispensable from the viewpoint of the policy of the Government of Thailand for trade promotion by training governmental and private experts in trade business. Since the Center will be the only one establishment in Thailand, its prompt realization is expected. The Center is planned to be open widely to government officials, private enterprises, citizens and trade business experts from foreign countries. Therefore, it is expected to stimulate trade promotion extensively in Thailand and abroad. The implementation of the project by Japan's grant aid cooperation has a great meaning in itself, and considerable effects will be expected.

With a proper planning of technical cooperation, if realized, by dispatch of experts to teach trade business and technical skills for standard and quality control, it is expected that the activities of the Center will achieve their purposes more effectively.

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PERSPECTIVE VIEW OF THE CENTER

LOCATION MAP

PREFACE

SUMMARY

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## CHAPTER 1 OUTLINE OF THE SURVEY

At the request of the Government of the Kingdom of Thailand for the grant cooperation in order to contribute to the establishment of the Trade Training Center, the Government of Japan had dispatched the preliminary survey team for this project, for 9 days from 6th to 14th of January, 1982, to plan effective implementation of technical cooperation and grant assistance.

The preliminary survey team fully discussed the basic concept of the Center, its functions, substance of activities, and operation and maintenance systems of the Center with Thai officials concerned to confirm the request of the Government of Thailand. The preliminary survey team has made an inspection of existing facilities related to the project to understand the Thailand's current realities of standard and quality control of export products, trade training, and exhibition activities. Furthermore, prior to dispatch of the basic design survey team, the preliminary survey team had discussed Japan's grant aid cooperation, outline of the demarcation of responsible works by both parties, basic concept for architectural planning, and had conducted the survey to record suggestions for the basic design study and clarify the orientation of technical cooperation. (The organization of the preliminary survey team is shown in the appendix 1.)

Based on the result of the preliminary survey, the Government of Japan dispatched the basic design survey team for 14 days from 8th to 21st of February, 1982. The team has discussed with government officials of Thailand and collected necessary information for the basic design. The team has conducted the following studies according to the inception report prepared beforehand.

- 1) Confirmation of the substance of request by the Government of Thailand and its background.
- 2) Related organizations for the project.
- 3) Confirmation of the purposes of activities of the Center.
- 4) Field survey of the project site and related infrastructure.

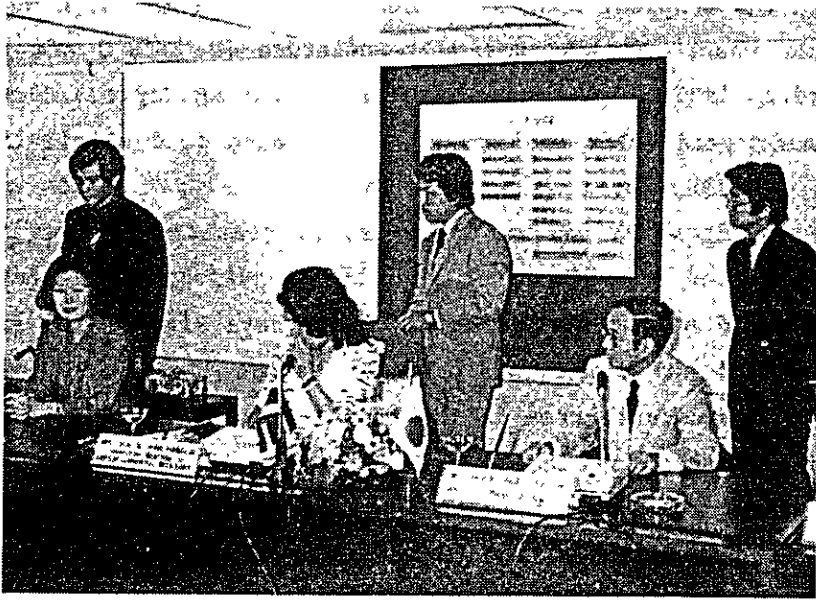
- 5) Study of functions and scales of the facilities, and technical matters concerning construction.
- 6) Discussion to select the most adequate basic design for the Center.
- 7) Explanation of the schedule for the basic design survey.
- 8) General guidance to the technical cooperation.
- 9) Explanation of expected master schedule for the implementation of the project.
- 10) Collection of information for calculation of operating expenses.  
(The organization of the basic design survey team is shown in the appendix 1.)

The survey team formed minutes of discussions containing basic items reached an agreement by both Governments concerning the purpose of the project, contents of activities of the Center, the demarcation of works to be undertaken by both parties, and basic floor plan of the Center based on the result of various studies and discussions necessary for the basic design. On 19th of February, 1982, Miss Sukon, Director General of the Department of Commercial Relations, the Kingdom of Thailand, and Mr. Abe, Team Leader of the basic design survey team, from the Government of Japan, exchanged their signatures on the Minutes and confirmed the agreement.

(The Minutes is in the appendix 2.)

With the kind and prompt cooperation of Thai officials of the Department of Commercial Relations and the Department of Foreign Trade, the basic design survey team has obtained sufficient results during the term of staying in Thailand.

(Government officials of Thailand concerned are listed in the appendix 1.)



Signing on the Minutes

## CHAPTER 2 PROJECT SITE

### 1) Construction Site

The construction site for the Center is located on the Rachadapisek Road, Lard Prao, Bangkaen district, suburbs of the city of Bangkok. It is about 5 km from the Victory Monument to the site. The Rachadapisek Rd., that the site is adjacent to, is an artery road, with 4 lanes on each way, opened in November, 1981, connecting Don Muang Airport and the city of Bangkok. Therefore, the area around the project site is expected to be urbanized rapidly in near future.

Also, the land adjacent to the project site is owned by the Department of Commercial Relations (DCR) over approximately 1 km in length. New office building of the DCR is under construction at present. According to the plan by the Department, all its Divisions, that are presently scattered in the city, are planned to be concentrated to this new building around the end of 1982.

### 2) Natural Conditions

#### Climatic Conditions

Bangkok is in the tropical zone with high temperature and high humidity throughout the year. Annual average temperature is 27<sup>o</sup>.6 C and annual average humidity is 79.0%. In architectural planning, space allocation insulating the strong solar radiation and providing good ventilation is necessary.

#### Topography/Geology

Bangkok is located at the mouth of the Chao Phraya River. The area is low and flat land and rises less than 2 m above the sea level. In rainy season, considerable area in the city is flooded. The geological formation of the area is consisted of soft layers and subsidence of foundation is recorded several centimeters per year. Consideration of measures for subsidence as well as for flood is necessary.

### 3) Conditions of Infrastructure

Infrastructure of the city, such as water supply, drainage line, electrical supply and telephone, are equipped, even though there is problem in drainage slope with heavy precipitation in low land of Bangkok area. Especially, the infrastructure around the site is well equipped along Rachadapisek Road, front artery of the site, with sufficient supply capacity for services, so that the facility planning of the Center will have no difficulty.

### 4) Construction Conditions

In the city of Bangkok, construction of office buildings of banks and hotels shows lively appearance. In addition, there are many large-scale civil engineering projects such as bridge and road constructions financed by loan agreements.

Most of construction materials are available locally except plumbing and air conditioning equipment. Cement is liable to become insufficient in the middle of construction activity. Due to disorderly cutting down of wood, lumber is also insufficient and its price tends to rise. Construction business is suffering from shortage of labor force especially because of out-flow of skilled labor to the Middle East region.

Since there is no sign of improvement on shortage problems of construction materials and labor force, construction costs continue to rise. According to the record of 1981, the rise of construction costs is about 8% over the previous year's level. The major reason of the rise is considered to be caused by the price increase of petroleum by which construction material is produced.

## CHAPTER 3 CONTENTS OF PLANNING

### 3-1 OBJECTIVES AND CONTENTS

The objective of the establishment of the Center is to obtain personnels well versed in the international trade business and practice through training activities, to facilitate improvement of the quality of Thailand's major export products, and to promote pervasion of the products by exhibition activities. Thereby it is expected that the deficit of international payment of Thailand will be eliminated and that the performance of Thailand's trade will be more developed.

According to the objectives, the activities of the Center are classified as follows:

- 1) Trade Training Activity
- 2) Standard & Quality Control Activity
- 3) Exhibition Activity

#### Training Activity

Trade business, trade finance, marketing research and movement of international markets, etc. are trained from basic information to advanced special knowledge. At present, training activity is conducted with regard to promotion of export and trade business based on government budget, fund and assistance from foreign countries. However, Export Service Center of the Department of Commercial Relations has no training facility, therefore training activities are conducted at conference rooms and halls of private hotels.

According to the curriculum planned, seminar rooms for small training, an auditorium for large-scale discussion and symposium, and language laboratory for training of foreign commercial languages are established in the Center. (The planned training fields, programme and trainees are listed in the Appendix 4.)



## Standard and Quality Control Activity

Trainings of the standard quality control techniques for the Thailand's major export products will be conducted to improve skills of government inspection officials.

Operation of equipment and inspection techniques will be trained to inspectors in private sector. Since the existing inspection facilities and equipment of the Department of Foreign Trade are inferior to those of private inspection companies, it is necessary to plan inspection rooms, analytical laboratories and equipment, which will be at least equal to Thailand's private level, in accordance with the major export products within the range of inspection training.

Information about trade and standard from various countries is collected and arranged for the use in the trade training and submitted to domestic personnels engaged in trade business in Thailand. Reference Library as well as training material production room is planned, so that the information is open to the trainees and public.

## Exhibition Activity

The Thailand's exports and related information are directly presented to domestic and foreign traders and foreign purchasers in order to expand the export market. The existing Export Service Center has a permanent exhibition hall for Thailand's exports and a hall for special exhibitions. However, these facilities have been already insufficient and supersaturated with trade fares held periodically and frequently (7 to 10 days and 2 times per month in average). Since similar facilities in Bangkok are very few, the multi-purpose hall and the exhibition equipment planned at the center are expected to obtain better results.

### 3-2 ORIENTATION FOR PLANNING

Nevertheless the three major activities of the Center have different substances in their functions, their facilities are planned in one integrated complex building because of the common purpose of the activities, that is to promote the export of Thailand's products through training talents in trade business. Accordingly, close interrelation and synergistic effect among respective activities are expected for the accomplishment of the purposes of the Center. At present, training, exhibition, preparation of training materials, etc. are executed by respective division of the Department of Commercial Relations. Since standard and inspection activities is executed by the Commodity Standard Division of the Department of Foreign Trade, these facilities are planned in the same building to perform training of government inspection officers and private inspectors through experiments, in addition to the execution of inspection.

New office building of the DCR is now under construction adjacent to project site of the Center. All the divisions of the DCR are planned to gather in this building at the end of 1982, thus, location of the Center is the most appropriate in terms of the relationship with the government authority concerned. Moreover, the location of the project site, which is adjacent to an artery road connecting International Airport and the center of the city of Bangkok, is extremely convenient to visitors and services access for the Center to fully achieve its functions.

### 3-3 BASIC DESIGN

#### 3-3-1 Policy for Basic Design

The project contains various functions with different usage of facilities in one building, such as training facilities, inspection and analytical laboratories, training material production room and reference library, and a multi-purpose hall.

Therefore, circulation of visitors and staffs in each activity and flow of service vehicles should be carefully planned. At the same time, circulation between the Center and the new office building of the

Department of Commercial Relations, which is located across the parking area, shall require close attention. Consequently, basic design for the Center is finalized with prime consideration on the following policies for design.

(1) To be functional facilities

The facilities should be easy to use and operate avoiding disorder among various activities of the Center by means of planning accurate zoning of each facility and separation of user's circulations from flows of service vehicles.

(2) To create flexible and usable space complying with the purposes of activities.

The facilities of the Center should meet its various planning and activities effectively and flexibly.

(3) To be facilities and equipment easy to maintain and operate.

The facilities should be easy to maintain and operate by means of planning clear mechanical systems in operations according to various activities of the sections. In addition, equipment should be planned on the consideration of easy maintenance and procurement of spare parts.

(4) To be a building match to local climate conditions

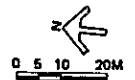
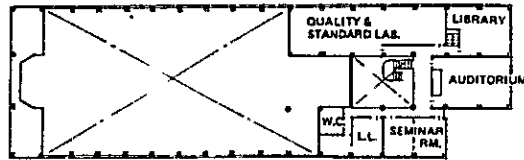
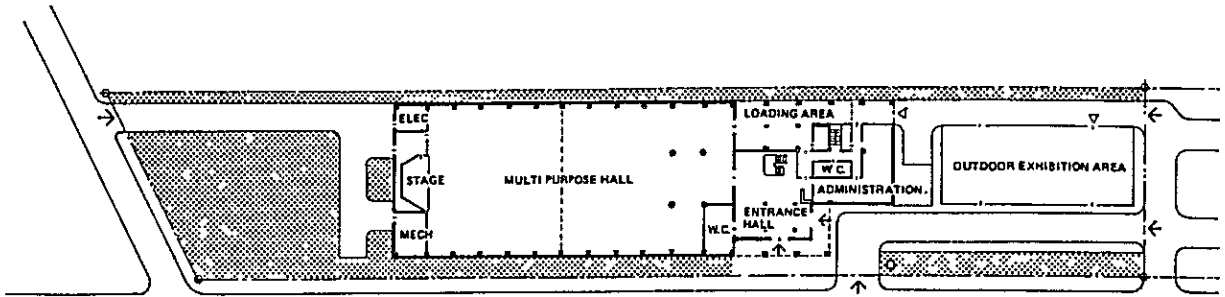
The building shall be designed to create more comfortable architectural environment on careful consideration of the strong solar radiation and rainfalls, high temperature and humidity in the region.

(5) To apply Thailand's local construction method, materials and equipment at maximum.

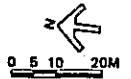
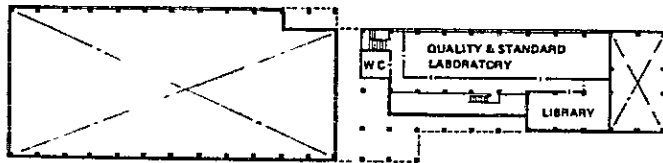
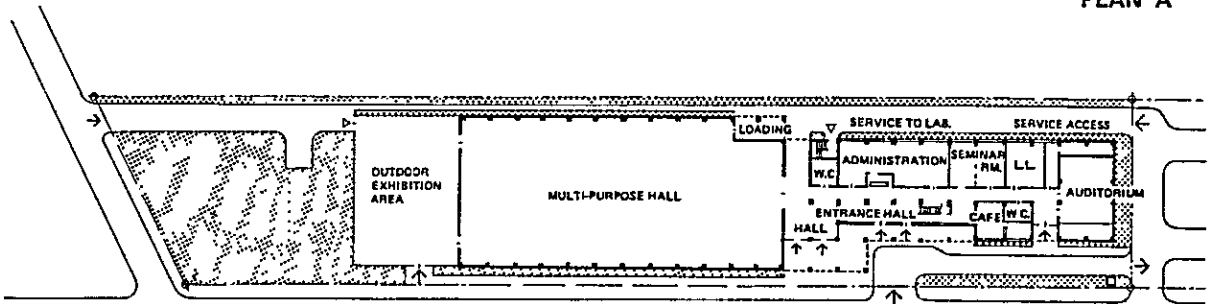
The method, which is popular in Thailand's construction business, and the materials, which are available in local common market, should be introduced at maximum to make maintenance of the facilities easy.

(6) To apply the best method for short construction term.

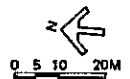
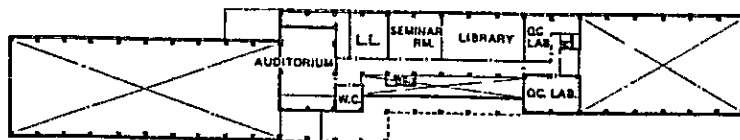
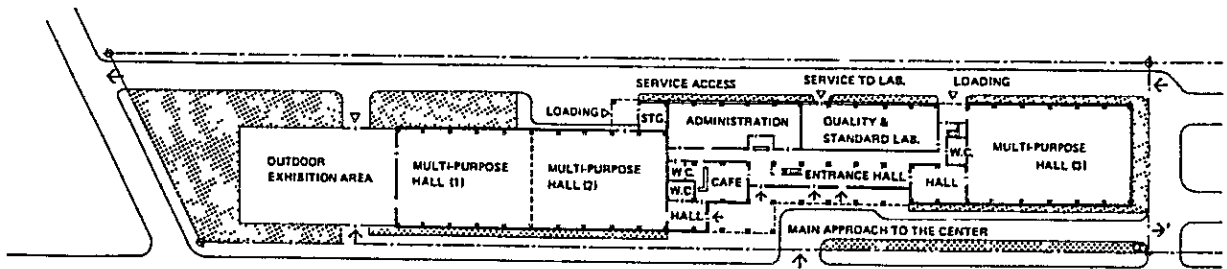
The architectural planning should be based on the method to shorten the construction term for early realization of the Center.



PLAN A



PLAN B



PLAN C

### 3-3-2 Process of Planning

Three concepts of basic plans were prepared according to the design policies to study construction costs, maintenance costs, and interrelationship of each function of requested facilities. Then, requirements of the Department of Commercial Relations are confirmed by the discussions on these plans.

Plan A has multi-purpose hall and administrative section on the first floor and training section and standard and quality control section on the second floor. All the sections are connected by entrance hall and entire facility is designed compactly.

In Plan B, multi-purpose hall is separated from the other facilities, therefore, it allows independent access to the multi-purpose hall and training facilities alike. Standard and quality control section is located on the second floor with the section's exclusive service access.

Plan C has multi-purpose hall divided into two parts with consideration of different scales of exhibition activities. Each hall has its own entrance to accommodate multiple uses of the space. In addition, these divided two halls are connected by entrance hall in building. The other facilities are planned into two floors between the divided multi-purpose halls. This plan secures service access at back side of the building.

During the survey, characteristics and advantages of the three plans are explained and discussed with Thai officials concerned on their requirements, usages and purposes. Then, following the discussions with the survey team, the DCR made discussions on the plans internally with the Director General.

After the examination and comparison of the three plans, the DCR selected Plan B according to the following requests.

- . The multi-purpose hall shall be able to be used as one large hall for exhibition activities.
- . Training and exhibition activities shall be executed simultaneously without interfering each other.
- . All the facilities of quality control section shall be planned together and located on the same floor.
- . To secure independent access to each section.

Based on these requests, after further discussion and study of the project, the basic design was consolidated and presented here.

### 3-3-3 Site Planning

The main approach is planned from the Rachadapisek Road, front road of the site, to the central part of the building. Public access to each facility of the Center is provided on the West front side of the building from this main approach. Service access is provided on the East side of the building and all the flows of service vehicles is managed on the back side. Thus, visitors access on the front west side of the building is kept separate from the service access on the other side to avoid complication of visitor's circulation and flow of services for various activities of the Center.

The building is laid out at the south side of the site to retain effective relationship with the office building of the DCR from its parking area.

The multi-purpose hall is located on the north part of the building directly adjacent to outdoor exhibition area, of which open space is left to cope with a possibility for future expansion of the building.

### 3-3-4 Facility Planning

The Center is basically divided into two blocks. The south block is two story building of reinforced concrete structure and contains training, standard quality control, training material production and administration facilities. The north block is a single story steel structure and contains only the multi-purpose hall. The north and south blocks have the same eaves height and express unity of the complex.

#### 1) Training Section

This section consists of an auditorium with capacity of approximately 150 seats, two seminar rooms for 35 people each and a language laboratory with approximately 30 booths. All the facilities are located on the first floor and provided access from the central entrance hall besides direct access from outside.

The auditorium has a stage equipped with electrical sound system with sufficient ceiling height and space volume in the portion of two stories. The auditorium is also equipped with a control room and simultaneous interpretation booths.

#### 2) Standard and Quality Control Section

This section, located on the second floor of the south block, has its own staircase for direct access of sample products. The practical activities of inspection, experiments and their trainings is able to be executed within the section not to disturb the other publics on corridor or hallway. However, trainees for operation of inspection machinery and testing methods can access to the section from the entrance hall.

This section consists of a sampling and preparation room and laboratories such as for analysis of agricultural products, toxic substances, mineral products, and bacteria cultivation, etc., in addition to small rooms such as dark room, constant temperature room, and reagents storage, etc. Office of standard and quality control is located among the laboratories.



### 3) Training Material Production Area

Accumulating information concerning international trade and standard and quality of products, this section edits and produces training materials and various pamphlets and develops training curriculums. The area consists of an office, a material production and printing room and a reference library. The library, located at convenient place for easy access from the other sections, has a stack space for approximately 10,000 books, and reading space at corner.

### 4) Administrative Section and Cafeteria

The administrative section is facing to the central entrance hall and situated in the center of all facilities to facilitate easy maintenance and operation of the Center. Cafeteria forms a part of the entrance hall and caters light meal and refreshments for users of the Center with capacity of approximately 50 seats.

### 5) Exhibition Section

The multi-purpose hall is planned to be independent of other facilities. The space between this hall and the south block is provided as a space for accommodation of large volume of ingress and egress of visitors during exhibitions not to interfere with the other activities of the Center at the same time.

The hall is able to lay out approximately 110 display units of dimensions of 3 by 4 meters. Provided the ceiling height of 7 meters entirely for its large space, the hall is able to be used for conventions or large symposiums as well as for exhibitions by assembling and dismembering the movable exhibition units. Insulation and ventilation at roof and ceiling levels shall be carefully considered to reduce maintenance costs of air conditioning of the hall.

### 6) Outdoor Exhibition Area

Outdoor exhibition area is laid out adjacent to the multi-purpose hall at its north, planned to display large scale products of Thailand and abroad as well. The area is also able to be used simultaneously as outdoor extension of indoor exhibition hall.

Floor finishes, drainage and outdoor lightings should be well considered to maximize outdoor display effects.

### 3-3-5 Scale of Facilities

Scale of each facility is approximately as follows.

Facility	Floor Area (m <sup>2</sup> )
(1) Training facilities	
Auditorium	220
Seminar Room (1)	60
Seminar Room (2)	60
Language Laboratory	90
Control room	40
Hall, lavatory, etc.	175
Total	<hr/> 645
(2) Standard and quality control facilities	
Sampling & keeping commodities	125
Agricultural products section	120
Toxic section	30
Tensile strength section	30
Mineral section	30
Bacteria & preservation	60
Dark room, const. temperature room, etc.	70
Office	40
Others	230
Total	<hr/> 735

Facility	Floor Area (m <sup>2</sup> )
(3) Training material production area	
Office	30
Training material production & printing room	70
Reference library	100
Total	<u>200</u>
(4) Administrative facilities & common space	
Director's, Secretary's	60
Administrative office	35
Trade training section	60
Lecturer's room	60
Exhibition office	35
Central entrance hall	180
Carateria	120
Others, labaroty, storage, corridor, etc.	170
Total	<u>720</u>
(5) Exhibition facilities	
Multi-purpose hall	2,160
Foyer, labatory, etc.	210
Total	<u>2,370</u>
(6) Outdoor exhibition area	750

### 3-3-6 Element Planning

Local meteorological conditions and interior environmental conditions are very important factors in designing building elements. In this hot and humid region, solar radiation, rainfall, and natural ventilation have strong influence on building design, and suitable measures of these factors will create comfortable interior environment.

#### 1) Roof

Roof is the building element that is most affected by solar radiation and rainfalls. Durable water-proofing against strong solar radiation and heavy rainfalls, and adequate heat insulating layers against radiation heat must be provided on and between roof and interior. In case of reinforced concrete structure in Thailand, corrugated asbestos cement covering on roof slab is the general and rational way to protect interior space from radiating heat, making good use of the air-space between the cover and concrete slab as insulating layers.

#### 2) Exterior walls

Exterior walls are also affected by the solar radiation. It is essential to provide eaves and louvers as well as to use materials with greater total resistance of heat transmitting to minimize the effect of solar radiation. There are seasonal winds in Thailand throughout the year. Making the best use of this natural benefit, openings will be provided in buildings to facilitate natural ventilation.

#### 3) Floor level

Considerable area of the city of Bangkok and its surroundings has experienced flooding quite often caused by the concentrated rainfalls during the rainy season. Therefore, designing ground floor level should be carefully studied to avoid flooding.

### 3-3-7 Material Planning

As far as there is no problem of availability, local materials should be used for the construction considering the maintenance and construction costs.

#### 1) Structural materials

Main structure is reinforced concrete framework with mon brick or concrete block wall.

The structure of the multi-purpose hall will be the steel framework.

#### 2) Exterior finish materials

- a) Roof ----- Flat roof with water proofing covered by asbestos cement sheet, or corrugated galvanized iron sheet with insulation material backing
- b) Exterior walls ----- Paint spray on mortar
- c) Doors and windows ----- Aluminum, steel, partially wood.
- d) Eaves ----- Metal or precast concrete
- e) Outdoor exhibition area - Concrete paving blocks

#### 3) Interior finish

- a) Floor  
Entrance hall, corridor, -- Tiles or polished etc. terrazzo  
General offices ----- Vinyl tiles  
Inspection room, ----- Vinyl sheet laboratory  
Auditorium, library ----- Carpet  
Multi-purpose hall ----- Floor coating material
- b) Wall  
Cement plaster, paint finish, etc.  
Acoustic board (especially Auditorium & L.L.)
- c) Ceiling  
Paint finish on board  
Acoustic board, acoustic plaster spray, etc.

### 3-3-8 Structural Planning

#### (1) Basic concept

Located away from the main seismic zones in Asia, Thailand hardly suffers from earthquakes. There is no record of strong wind, yearly average wind velocity is approximately 2.3 m/sec and maximum instantaneous wind velocity is 28.8 m/sec.

The ground foundation of the project site is composed of the alluvial deposit around the ground surface, soft clay from the surface down to approximately 20 m below ground level, and then sand further down below 20 m in depth. Since there is no definite bearing layer, end-bearing pile foundation considering the skin friction should be used to support the building.

#### (2) Structural design

External forces for the building shall be calculated according to the Control of the Construction of the Building B.E. 2522 (1979) Bangkok, and stress analysis and designing sections of structural frames shall be according to the Building Standard Law of Japan.

##### 1) Dead load

Weight of all loads fixed to the building (structural components, finishing materials, fixed equipment, etc.) shall be calculated.

##### 2) Live load

Live load on principal rooms in the Center is shown as follows.

Room	Floor slab	Unit: kg/m <sup>2</sup>
		Column, beam and foundation
Offices, laboratory	300	180
Multi-purpose hall	500	450
Auditorium	400	330
Seminar room	300	180
Library	600	500

Live load for floor slab shall be in accordance with the Control of the Construction of the Building B.E.2522 (1979) Bangkok, and live loads for column, beam and foundation shall be in accordance with the Building Standard Law of Japan considering coefficient of concentration.

3) Wind load

Since the height of the building is designed approximately 8m, the designed wind pressure of  $80 \text{ kg/m}^2$  shall be considered in accordance with the Control of the Construction of the Building.

4) Seismic force

There is no need to take seismic force into consideration.

(3) Structural materials and construction method

The building is mainly reinforced concrete structure; however, the multi-purpose hall should be designed as steel structure because of its long span. Structural materials are generally determined according to the scale and usage of building, structure, local availability, quality, transportation, and cost, etc. Materials suitable for use in the construction are as follows.

1) Piles

Considering the building size and the effect of skin friction between pile surface and surrounding soil, local H-shaped concrete pile will be used. Since ground subsidence of approximately 5 cm per year has been recorded in the area around the site, effects of negative skin friction shall be taken into consideration on calculation of pile strength.

## 2) Concrete

Portland cement, fine aggregate, coarse aggregate and other necessary materials are all available locally. Normal weight concrete of the design strength of  $F = 210 \text{ kg/cm}^2$  at the age of 4 weeks will be suitably used. Then, careful curing of concrete will be required because of the very high temperature in this region.

## 3) Reinforcing bars

The price of the locally available reinforcing bars and that of imported bars with tax exemption from Japan are almost equivalent, therefore, depending on local availability, bars imported from Japan may be considered as substitute. Deformed bars SD 30 or SD 35 shall be used because of its adhesive effectiveness.

## 4) Structural Steel

Structural steel SS41 manufactured in Japan will be used mainly. Assembling system of simple components of parts shall be introduced to economize erection costs and to simplify erection of frames as well.



### 3-3-9 Air Conditioning and Ventilation System

Air conditioning and ventilation system shall be designed with consideration of economical running costs and easy maintenance of machinery. In order to reduce running costs of air conditioning, natural ventilation is also considered. Air conditioning shall be used basically for rooms requiring specific climatic conditions (temperature and relative humidity), and be operated when rooms are required to be more comfortable conditions occupied by a large number of people.

#### (1) Air conditioning

Package type air conditioner will be equipped mainly to meet various air conditioning requirements of rooms. The following zoning is designed to reduce operating costs.

- Seminar rooms, Auditorium
- Quality Control Laboratories
- Reference Library
- Multi-purpose Hall
- Administration Offices
- Cafeteria

#### (2) Design conditions

Outdoor conditions	Temperature 34°C	
	Humidity 75%	
Indoor conditions	Temperature 27 $\pm$ 2°C	
	Humidity 50 - 60%	Seminar rooms, Library, Offices, Cafeteria, etc.
	Temperature 28 $\pm$ 2°C	
	Humidity 50 - 60%	Multi-purpose hall

Conditions required for constant temperature and humidity rooms in the standard and quality control laboratory are designed as follows by independent air conditioning system.

Constant temperature room	20 $\pm$ 2°C
Constant temperature and humidity room	
	Temperature 20 $\pm$ 2°C
	Humidity 65 $\pm$ 5%

#### (3) Ventilation

Mechanically forced ventilation will be provided to lavatories, laboratories, and cafeteria.

### 3-3-10 Plumbing System

#### (1) Water supply system

Water will be stored in a reservoir by branching from the city main piping under the front road. The capacity of the reservoir is 80 m<sup>2</sup> which is equivalent to the one day consumption of the water of the Center. Considering the stability of water pressure and easiness of maintenance, the gravity type water supply system by means of elevated water tank is designed instead of pump-running system or pressure tank system. The loop piping will be employed to secure stable water supply.

#### (2) Drainage System

The drainage system shall be designed to enhance full function of the building. The system for the Center can be classified into four subsystems: sanitary sewage, miscellaneous drainage, rainwater drainage, and experiment waste water drainage from standard and quality control laboratory.

##### 1) Sanitary sewage

The waste drainage from the lavatories is led to a septic tank, and after going through purifying process, then be discharged together with the miscellaneous drainage.

##### 2) Miscellaneous drainage

The miscellaneous drainage from the facilities shall be piped into exterior drainage main line provided at perimeter of the building, and discharged into the city main drainage line.

##### 3) Rainwater drainage

Rainwater drainage from the roof and from open space within the site shall be planned in the same method as the miscellaneous drainage.

##### 4) Experiment waste water drainage

Waste water contaminated by acid or alkaline substances from the laboratories shall be led to a neutralization tank first, then discharged together with the miscellaneous drainage.

(3) Sanitary fixture

Lavatories will be provided with proper sanitary fixtures. Water closets in lavatories planned in exhibition section will be local type for its general visitors, the other closets in the Center will be western type.

(4) Septic tank

Aeration type septic tank made by FRP locally shall be provided for each lavatory for treatment.

(5) Gas supply system

Liquefied petroleum gas will be supplied to laboratories, pantry from gas cylinders at external gas supplying storage.

Special gas cylinders of Hydrogen, Oxygen, Nitrogen for experimental use of quality control activities will be installed at besides the specific equipment.

(6) Others

Drinking water bottles on the market shall be used and provided at necessary places.

Water stills to provide pure water for experiments are installed in laboratories.

Wall type outlets of water supply and drainage traps will be equipped every 6 m span of side walls of the multi-purpose hall.

### 3-3-11 Electrical System

#### (1) Main electrical system

##### 1) Transformer substation system

Transformer substation will be planned inside or adjacent to the building, electricity incoming cable will be branched from MEA's 12 KV line along Rachadapisek Road and stepped down to a low voltage of 3-phase 4-wire 380 V/220 V, distributing into the respective loads.

Loads for service facilities are:

- a) General lighting, receptacles
- b) air-conditioning and ventilating facilities
- c) Exhibition equipment in Multi-Purpose hall
- d) Laboratory equipment in Quality Control section
- e) Audio and special lighting equipment in Auditorium

The total estimated electrical capacity will be about 500 KVA

##### 2) Telephone system

The telephone line is connected from the TOT (Telephone Organization of Thailand) line on the Rachadapisek road. Through power and lead-in pole erected in the site, the line is led into the MDF (Main Distribution Frame) in administrative office. From the MDF board cable conduits shall be used to the IDF board.

##### 3) Telephone exchange

About three trunk lines will be lead into the button-type exchange system from the TOT line. Equipped with a direct current power unit, the telephone sets can be used even when power failure occurs. About 20 desk-top extension telephone sets will be installed in the Center.

(2) General electrical system

1) Power circuit system

Main lines for power to drive machines and lighting fixtures will be protected by a circuit breaker mounted on the low-voltage switchboard in the transformer substation. These lines will be connected to the lighting distribution boards and the power control boards through metal conduits. Distribution board for experiment is installed in the laboratory of the quality control section.

As for the power of audio equipment, an insulating transformer is installed in the control room to cope with external noise. Power receptacles for exhibition lighting will be installed on the floor and wall of multi-purpose hall to meet multiple lay-out of exhibition booths.

The voltage classification are as follows:

Power load: 3-phase 3-wire, 380 V

Lighting receptacle load: 3-phase 4-wire, 380 V/220 V

2) Lighting equipment

Flourescent lamps are mainly used for ordinary rooms considering lower running cost. Incandescent lamps or sterilization lamps are partially used according to usage and its function. Mercury lamps are used for general illumination for the multi-purpose hall. Spot lighting by incandescent lamps is equipped for the illumination of displays of exhibition. Illumination for the auditorium will be of the adjustable type. The circuit is designed to allow on/off operations for individual groups of lamps.

The intensity of illumination in main rooms is as follows.

Laboratories & office rooms, seminar rooms	---	350-400 (lx)	
Multi-purpose hall	-----	250-300	"
Hall, corridor	-----	100-150	"

3) Public address

An amplifier is installed at the administration office to be able to conduct public address and BGM broadcasting.

In the auditorium, independent audio-visual system shall be designed for the main usage of lectures. Movable audio-visual equipment will be provided in the multi-purpose hall for its multiple usage.

4) Common TV receiving

Master antenna, with TV outlets will be equipped at respective space such as, language laboratory, auditorium, and training material production area.

5) Fire alarm

Manually operated alarm bells which, in case fire, will inform the people in the building of a fire hazard and allow them to escape quickly. The indicator panel will be installed at administrative office.

6) Lightning arrestor

Radio isotope lightning arrestors will be equipped at the highest part of the building.

7) Outdoor lighting

Outdoor lighting installed at external passages in the site for night-time security. Wiring for the lighting will be installed by underground cables, and the lighting can be turned on and off automatically. An effective outdoor lighting shall be designed for the outdoor exhibition area considering night time exhibition use of the space.



### 3-3-12 Equipment Planning

Equipment necessary for the execution of the activities of the Center is described as follows. For the selection of the equipment, the following points are taken into the first consideration.

1) Scope of function and level of equipment shall be planned with consideration of the objectives of the Center which is a training center to improve quality of experts in Thailand's trade business.

2) Equipment essential for the activity of the Center, such as training, inspection and experiment, display, production of training materials, etc., shall be given the first priority. Equipment for supporting services and general office furniture shall have lower priority.

3) Equipment which requires high running cost shall be avoided, and equipment with easy maintenance shall be selected mainly. Considering after-care, availability of periodical inspection and supply of spare-parts in Thailand shall be important factor in selection of equipment.

4) Quantity of equipment shall be decided on the consideration of the Center's planned activities and numbers of staffs. Equipment, if possible, shall be used in common by sections of the Center for its effective operation.



## Equipment Planned

### A. SERVICE UNIT

Equipment for transportation such as 15-seater microbus, and utility truck, etc.

### B. OFFICE WORKING AREA

Work desk and chair, cabinet and paper copier, etc.

### C. LANGUAGE LABORATORY

Full language laboratory system.

### D. TRAINING MATERIALS PRODUCTION AREA AND LIBRARY

Typewriter, paper copier, printing machine, and related office furniture, etc.

Library shelving, rack, counter, reading table and chair, etc.

### E. SEMINAR ROOM

Slide projector and film projector, microphone system, closed circuit TV system, tables and chairs, etc.

### F. AUDITORIUM

Audio equipment, language simultaneous interpreting system, slide projector and film projector, and related furniture, etc.

### G. MULTI-PURPOSE HALL

Exhibition booth, display installation, lighting equipment, and equipment for preparation of displaying, etc.

### H. STANDARD AND QUALITY CONTROL LABORATORY

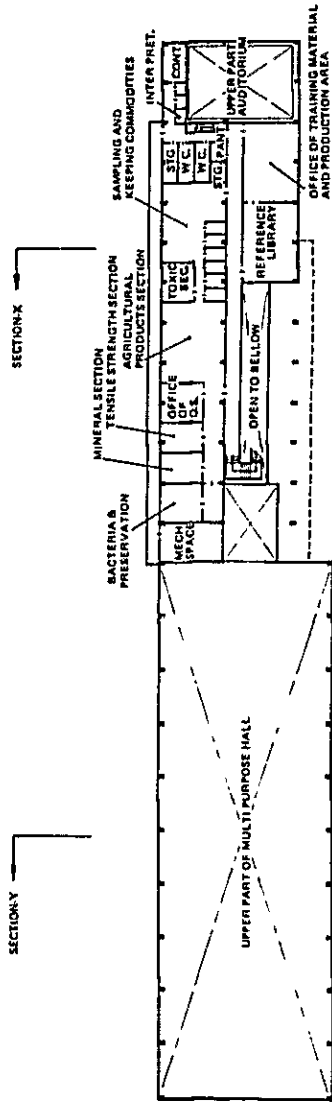
General analytical equipment and apparatus, and subsidiary equipment. Special analytical equipment of tapioca products, aflatoxin analysis, castor seed, bacteria cultivation, tensile strength, mineral products, etc.



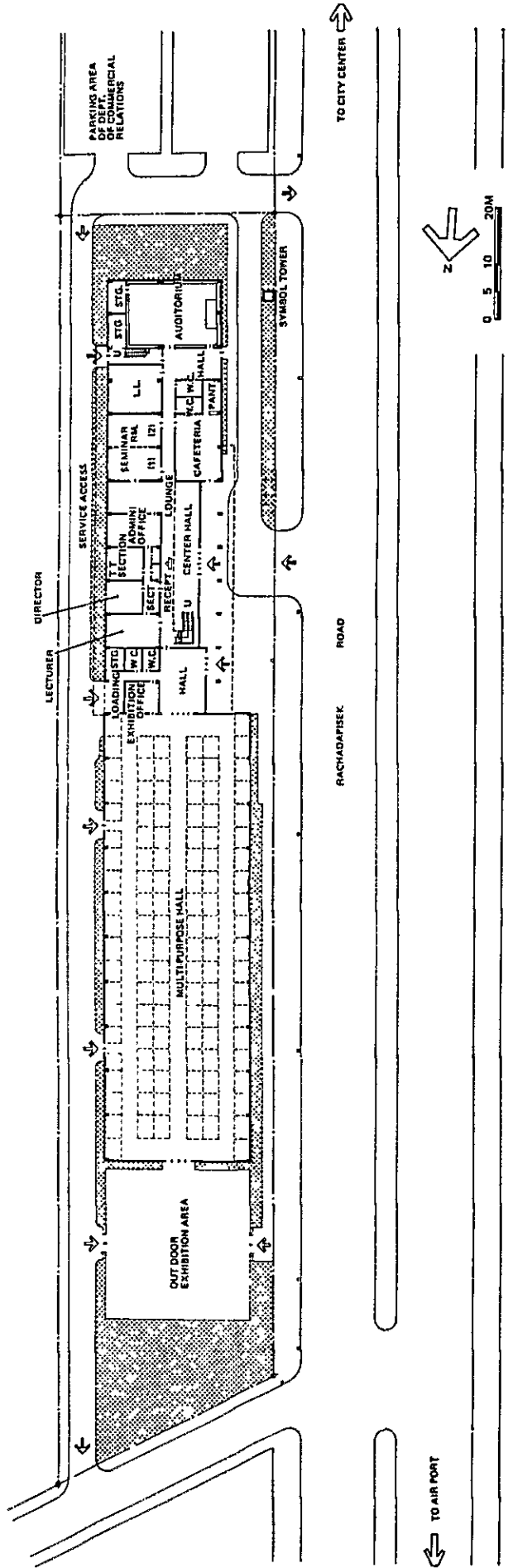
## **BASIC DESIGN**

### **LIST OF DRAWINGS**

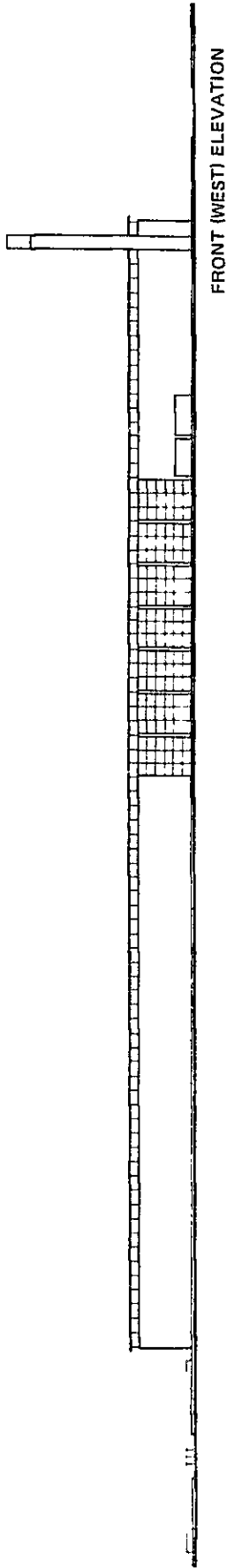
- 1 FLOOR PLAN**
- 2 ELEVATION & SECTION**
- 3 WATER SUPPLY & DRAINAGE SYSTEM**
- 4 ELECTRICAL & TELEPHONE SYSTEM**



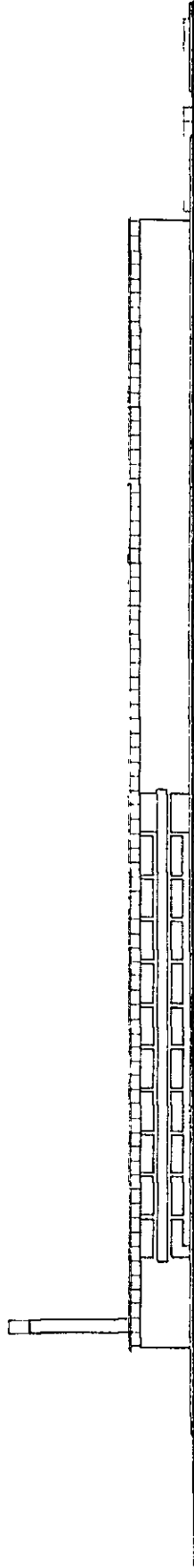
SECOND FLOOR PLAN



THE TRADE TRAINING CENTER FIRST FLOOR PLAN



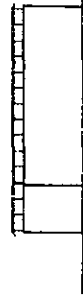
FRONT (WEST) ELEVATION



EAST ELEVATION



SECTION - X



SOUTH ELEVATION



NORTH ELEVATION

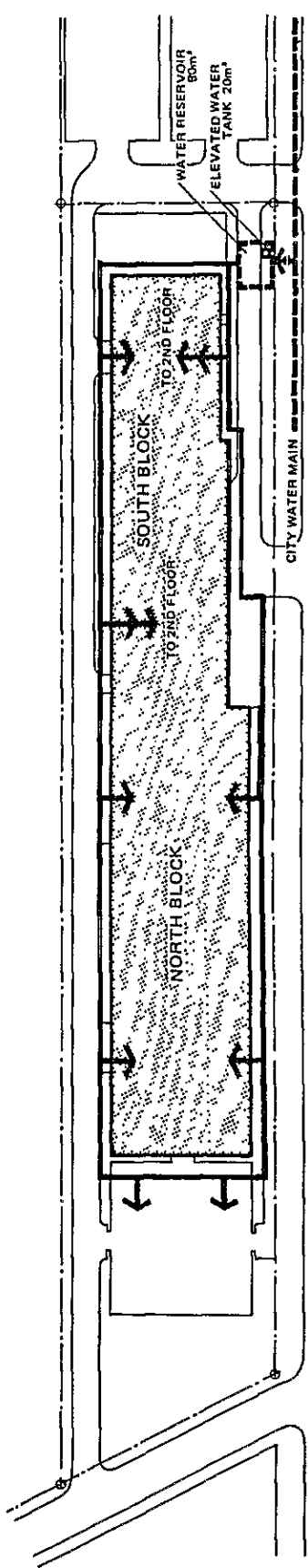


SECTION - Y

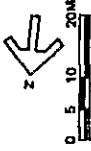


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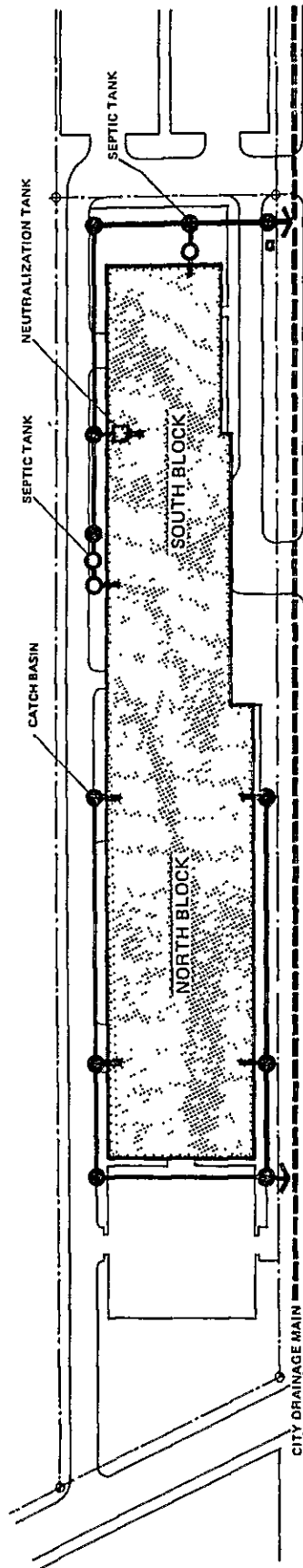
THE TRADE TRAINING CENTER ELEVATION & SECTION



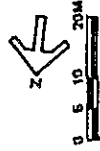
— WATER SUPPLY LINE



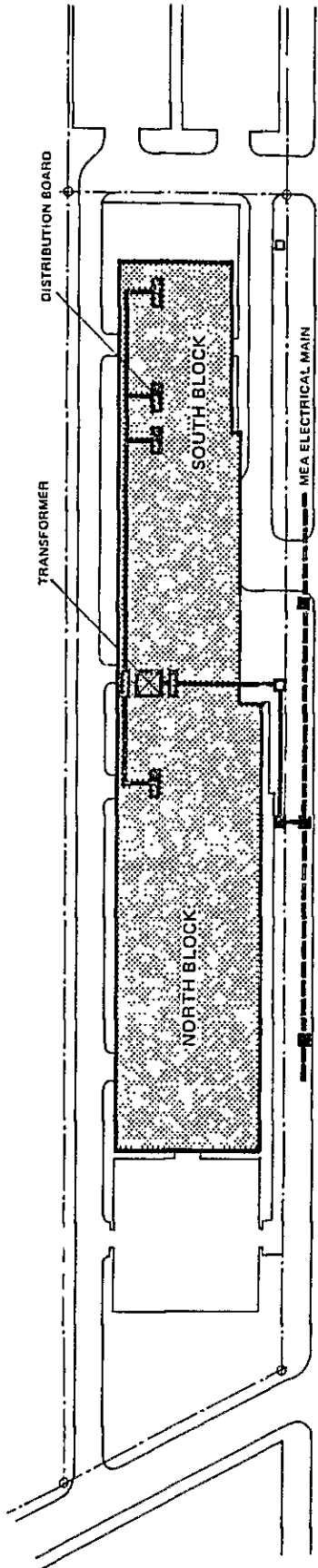
THE TRADE TRAINING CENTER WATER SUPPLY SYSTEM



— DRAINAGE LINE  
 ○ SEPTIC TANK  
 ● CATCH BASIN

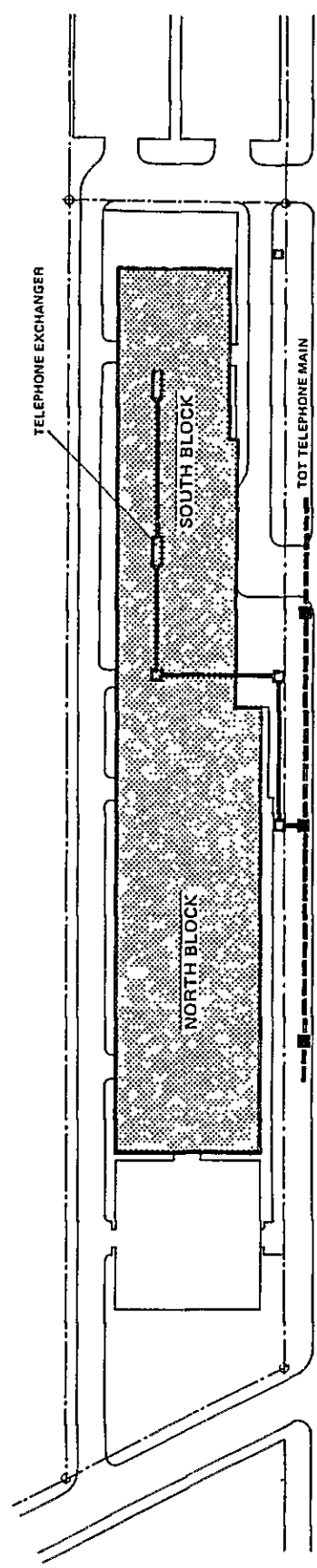


THE TRADE TRAINING CENTER DRAINAGE SYSTEM 3



- ELECTRICAL POWER LINE
- ▭ DISTRIBUTION BOARD
- ELECTRICAL POST

THE TRADE TRAINING CENTER ELECTRICAL SYSTEM



- TELEPHONE MAIN LINE
- ▭ MAIN DISTRIBUTION FRAME
- ELECTRICAL POST

THE TRADE TRAINING CENTER TELEPHONE SYSTEM

### 3-4 TECHNICAL COOPERATION

In the discussion during the survey, the Government of Thailand strongly requested Japan's technical cooperation, such as despatch of Japanese experts, to ensure effective execution of the planned activities of the Center. The Survey Team replied to submit the request to the related authorities of the Government of Japan.

The Survey Team explained the outline of the technical cooperation of Japan. Consequently, the Government of Thailand understood the suggestion by the survey team, that is, the details should be discussed when the survey on technical cooperation will be conducted.



## CHAPTER 4 ORGANIZATION FOR PROJECT EXECUTION

### 4-1 EXECUTION SYSTEM

#### 4-1-1 Responsible Government Official for the Project

The Director General of the Department of Commercial Relations (DCR), the Ministry of Commerce will be responsible for the planning and execution of the Project in Thailand. The Director General will be a responsible government official of the consultant agreement for architectural and supervision services, the contract agreement for construction of the building, and the delivery agreement of the Project.

During the execution of the construction, a construction committee of the Center will be established in the D.C.R., and the committee's members will take charge of the execution business in cooperation with consultant and construction firms.

#### 4-1-2 Administration System of the Center

##### (1) Organization of the Department of Commercial Relations

Present DCR has the following 4 divisions

- . Office of the Secretary
- . Trade Information Division
- . Trade Promotion Division
- . Export Service Center

In the change of the present organization of the DCR planned in 1982, the division of Trade Training Center will be established for administration of the Center. (Present and proposed organization of the DCR is shown in Appendix-3.)

(2) Organization of the Trade Training Center

Director of the Center will be nominated from the officials of the DCR. The proposed organization and number of staffs in the first 5 years from the establishment are as follows:

. Director	1 position
. Secretary	1 "
. General Affairs Section (incl. 6 typists)	10 "
. Curriculum Development and Training Material Section	12 "
. Quality and Standard Section	12 "
. Trade Training and Personnel Development Section	12 "
Total	42 positions

Chiefs of the four sections hold the position of Deputy Director in addition.

Because the office of the exhibition section will be located in the new office building of D.C.R. adjacent to the Center, only the office of display planning for about 5 staffs of exhibition section will be planned in the Center.

(3) Administration of the Center

The expenses necessary for the administration of the Center will be covered by the following sources of finance.

- . Thailand's Government Budget
- . Export Promotion Fund
- . Overseas Aid
- . Private Sector's Contribution

The administration expence of the DCR for 1982:

9,645 million US dollars

The expense for trade training, 1982: 72,129 US dollars

## 4-2 CONSTRUCTION PLANNING

### 4-2-1 System

The establishment of the Trade Training Center is expected to be implemented under the Grant Aid Cooperation by the Government of Japan. After the decision of execution of the Project, the Government of Thailand shall make banking agreement with one of foreign exchange banks in Thailand for payments concerned to the establishment of the Project, then shall select a consultant for designing and supervisory services and a construction company from Japanese corporations.

### 4-2-2 Construction Planning

Because the necessary infrastructures and site reclamation are fully equipped already, the construction of the Center is able to commence, simply after the preparation of detail drawings and specifications and decision of a contractor.

After the establishment of construction committee and the nomination of its member staffs in the DCR, arrangement of opinions on detail drawings and practical business on tender and contract, exchanges of necessary information etc. will be well communicated with related Japanese corporations.

As for the construction planning, the construction committee of the DCR and Japanese staffs in charge will study the detail construction schedule, demarcation of works to be undertaken by both parties, and procurement and transportation of construction materials.

Due to the climatic conditions of Bangkok, piling, foundation, structural frames, exterior wall and its finish, and external works shall be executed during dry season. During rainy season interior finish works and related equipment works shall be executed. The time of carrying imported materials and equipment into the site and construction terms using local materials shall be carefully studied to accomplish short term completion of the Project.

#### 4-2-3 Supervisory Planning

Under Japan's grant aid cooperation, the construction supervision will be executed by the agreement for architectural and supervisory services between the Department of Commercial Relations and a Japanese corporation consultant. The purposes of the supervision is to cooperate in fair contract agreement, in faithful realization of the design objectives, and in instruction to the contractor for its adequate execution of the construction.

The supervisory services are as follows:

1) Cooperations on contract agreement

Selection of construction companies, Preparation of contract documents, Assistance in letting construction contracts, Examination of cost breakdown for construction, Attendance on contract agreement.

2) Check and confirmation of shop drawings

Examination of shop drawings, materials, finish samples, and equipment submitted from contractor during construction.

3) Instruction of construction

Study of construction planning and schedule, Instruction to staffs of contractor, Presentation of supervision report for construction progress.

4) Cooperation on authorization to pay

Examination of contents of payment requests during and after construction and cooperation on payment procedure.

5) Inspection of construction

Inspections of construction on each completed amount of work during the construction term from commencement to completion.

The consultant will confirm the completion of construction and fulfillment of conditions of contract agreement. By the attendance on the delivery and acceptance of the Project, the consultant will complete its supervision services. Moreover, the Project will be reported its necessary and essential matters to the Government of Japan through consultant such as construction progress, payments procedure, and completion and delivery, etc.

#### 4-3 DEMARCATION OF CONSTRUCTIONS

The basic design survey team held a series of discussions and exchanged views on the demarcation of construction works with Miss Sukon, Director General, Department of Commercial Relations, as well as Thai officials concerned. The following items are summaries of the construction works and necessary measures to be undertaken by the both Governments.

##### 4-3-1 Items to be Borne by the Government of Japan

1) Building for:

- (a) Training facilities
- (b) Standard & Quality Control facilities
- (c) Exhibition & Congregation facilities  
(including outdoor exhibition area)
- (d) Administrative facilities

2) Equipment for

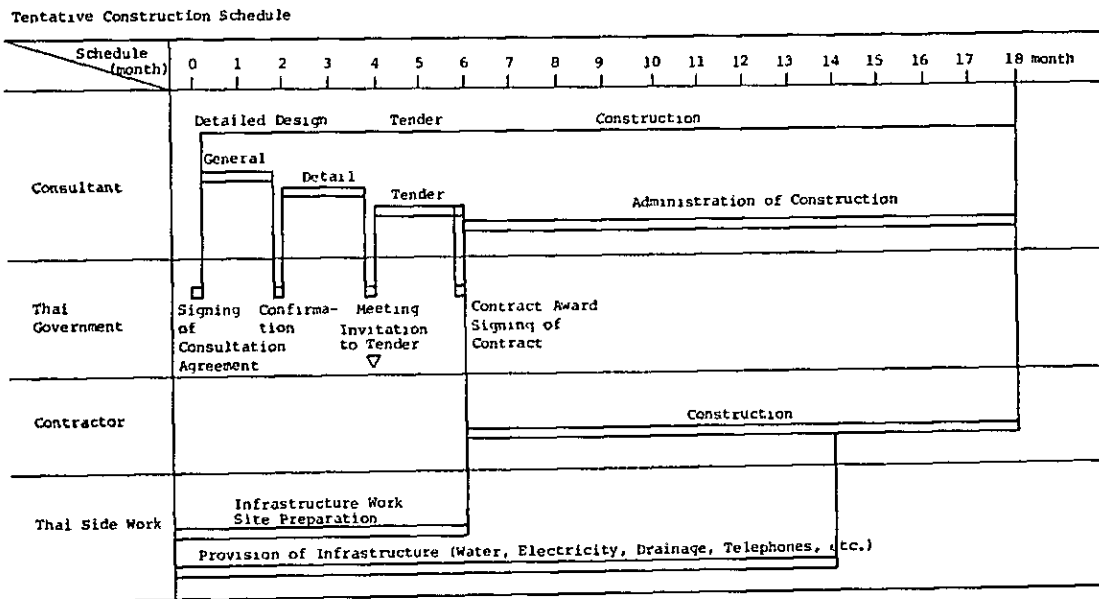
- (a) Training
- (b) Standard & Quality Control
- (c) Exhibition

#### 4-3-2 Arrangements to be undertaken by the Government of Thailand

- 1) To secure a lot of land necessary for the construction of facilities and to clear, fill and level the site as needed before the start of the construction.
- 2) To provide facilities for distribution of electricity, telephone, water supply and drainage and other incidental facilities outside the Building.
- 3) To ensure prompt unloading, tax exemption, customs clearance at ports of disembarkation in Thailand, and prompt internal transportation therein of the products purchased under the grant.
- 4) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in Thailand with respect to the supply of the products and the services under the verified contracts.
- 5) To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into Thailand and stay therein for the performance of their work.
- 6) To maintain and use properly and effectively that the facilities constructed and equipment purchased under the grant.
- 7) To bear all the expenses, other than those to be borne by the grant, necessary for the construction of the facilities as well as for the internal transportation of the products and services under the grant.
- 8) To undertake incidental civil works such as planting and fence, if needed.

#### 4-4 EXECUTION SCHEDULE

The detail design for the establishment of the Center is executed under the grant aid cooperation by the Government of Japan after the Exchange of Note by both Governments. Selection of construction companies and their tender will follow after the completion and client's confirmation of the execution drawings and documents. The Government of Thailand, the client, makes contract agreement with the successful bidder. Then, after the verification of the agreement by the Government of Japan, the contractor commences the execution of construction. The construction term is estimated approximately 12 months.



The schedule shall be finalized subject to conclusion of Exchange of Notes.

#### 4.5 MAINTENANCE PLANNING

For the effective operations of the activities of the Center, adequate administration and maintenance system should be established. The maintenance planning is to establish the system by the selection of adequate staffs for operation of various training activities and staffs for maintenance of the facilities and equipment.

The operation and maintenance of the facilities should be executed functionally according to the purposes of the activities of the Center.

Due to the scale and contents of the facilities, specialists are not required for the maintenance. Trade Training Center Division of the DCR will have charge of the administration of the Center, and the staffs in charge will be responsible for the maintenance and periodical checks of the equipment and the building. In addition, the instruction for the usage of the facilities is planned for the staffs in order to reduce the running cost.

The design of the Center shall be based on easy maintenance and operation. On the occasion of the delivery of the building, maintenance and operation of building and its related facilities, and special equipment will be instructed to the staffs of the DCR with the presentation of equipment manuals and explanation notes.

The maintenance consists of usages and cleaning of building, adequate operation hours and periodical checks of facilities and special equipment. The necessary information about repairing and spare parts will be also presented to the DCR.

For the operation and maintenance of the Center, effective measures for budget is indispensable. Depending on the survey and collected data, the rough estimation of the operation and maintenance costs for the first year is calculated tentatively as follows.



	unit; thousand Baht
Personal expenditure	1,800
Maintenance expenses for facilities	600
Equipment and supplies	1,000
Operating expenses for mechanical & lighting facilities	1,800
70% of maximum operation	
Maintenance expenses for vehicles	100
Miscellaneous expenditure	400
<hr/>	
Total	5,700

The running costs necessary for the operation of equipment of the Center are shown below. The calculation is conducted on the assumption of 100% operation of all the equipment at the same time. Nevertheless, it will be of very rare occurrence that all the facilities including seminar rooms and multi-purpose hall are operating every day throughout the month. Considering preparation terms of the rooms and their equipment, the running costs of the equipment facilities might be less than the 100% calculation. Moreover, the cooler season (from October to January), requires less load for air conditioning, therefore the machines may not be operated 100%.

The above tentative calculation is estimated by the rate of average monthly usage as 70% of maximum operation.

1. Calculation of electrical charges

(1) Conditions of calculation

- 1) One month usage of electricity by maximum loading
- 2) Operating hours of equipment: 8 hours a day and 25 days per month

(2) Rough capacities of loading

	Power: KW	Lighting: Kw
1) Training Section	20	14
2) Quality Control Section	10	12
3) Exhibition Section	250	100
4) Administrative Section	30	25

(3) Usage of total electrical power

Total capacity: 461 KW x 8 hrs. x 25 days = 92,200 KWH/Month

(4) Electrical charge

rate of usage	basic charge TCS	+	charge for usage TCS x KWH/Month	=	charge per month TCS
100%	90.52		2.33 x 92,200		214,916.52

2. Calculation of water charges

(1) Rough capacity of water supply

The capacity of water supply per day is expected as follows:

1) Training Section	20,000 l/day
2) Quality Control Section	4,000
3) Exhibition Section	43,270
4) Administrative Section and Outdoor	7,760

Total: 75,030 l/day  $\dot{=} 80 \text{ m}^3/\text{day}$

$80 \text{ m}^3/\text{day} \times 25 \text{ days} = 2,000 \text{ m}^3/\text{month}$

(2) Water charge

rate of usage	basic charge TCS	+	charge for usage TCS x m <sup>3</sup> /month	=	charge per hour TCS
100%	30		4.5 x 2,000		9,030

. Electrical and water charges are according to the present contract charges of large quantity demand by the government buildings of the Kingdom of Thailand, March, 1982.



#### 4-6 PROCUREMENT OF CONSTRUCTION MATERIALS

For the execution of the construction of the Center, the procurement of construction materials shall be planned on the maximum adoption of local materials considering Thailand's construction techniques, maintenance ability, and construction term.

As for procurement of the labor force for construction, Thailand's local labors are able to work for general construction materials imported from Japan, even though a few specialists may have to be dispatched from Japan to carry out installation and adjustment of special equipment.

The outline of procurement planning of construction materials is as follows:

1) Construction materials planned to be procured from Japan

Main structural steel

Floor finishing materials for laboratories

Air conditioning machines, pumps, and transformer

Special lighting and audio equipment (for training and exhibition)

Equipment (for training, standard & quality control, and exhibition)

2) Construction materials planned to be procured locally in Thailand

Construction machines (crane, tractor, bulldozer, concrete mixer, etc.)

Temporary scaffolding

Cement and aggregate (sand, gravel)

Concrete products (pile, concrete block etc.)

Reinforcing bars and light gauge steel

Lumber, plywood

Galvanized iron sheet

Metal sash and door, wood door

Glass

Brick, concrete block

Asbestos cement products

Paint

Interior finish materials

Pipe and sanitary fixture

Electrical cable, conduit, and panel, lighting fixture

General office furniture

Even though the quality and productivity of these local materials are unsuitable, introduction of the above local materials in the construction of the Center has less problem by the strict study of quantity and quality, and has advantages to the maintenance of the building after completion.

Almost all the factories and makers of the local construction materials are concentrated in and around the Bangkok Metropolis, therefore the procurement and transportation of the materials might have no difficulty for the construction at its necessary time.

## CHAPTER 5 EVALUATION OF THE PROJECT

The social evaluation and economic evaluation of the implementation for the establishment project of the Trade Training Center in the Kingdom of Thailand are as follows.

### 1) Social Evaluation

Thailand's overall balance of international payment indicates a tendency of constant red figures and has an important effect on the country's economics. Thus, the Government of Thailand sets normalization of trade balance as a primary subject, and places an emphasis on trade promotion by the Fifth National Economic and Social Development Plan. On the other hand, the trade promotion is not facilitated fundamentally because of the lack in competent persons participating in trade business.

From these backgrounds, the establishment of the Center was planned for the execution of training activities to improve the competence of the government trade officials, traders, and technicians alike.

The trade training activity of the Center is expected to make the base of trade promotion by means that the trainee acquire basic and specific knowledge and techniques in trade business. The expected trainees are executives of trade companies, middle managers in trade business, government officials of trade or export promotion agencies, and researchers and instructors of research institutes or training centers. The planned fields of training are trade business, finance, marketing techniques, and movements of international markets. The existing training activities give 22 seminars for 1,900 trainees per year in average. The planned activities after establishment of the Center are able to give 34 times of seminars for 2,400 to 4,000 trainees annually, thus the increase of the number of the officials and experts well versed in the trade business and international customs is able to contribute to the trade promotion of Thailand.

Execution of standard and quality control activity makes the concentration of inspections for quality control that have been executed at various places up to the present. Thus, the divergence of inspections will be eliminated and the quality of export products will be unified effectively. Periodical technical trainings of government inspection officers and private inspectors are effective for unity of inspection technique, improvement of their competence, and acquisition of latest technical skills, consequently, the effective inspection of Thailand's exports can be executed. Delivery of adequate information to the persons in trade business is possible by the collection of latest information and data about trade standards of import countries, consequently, international competitive abilities of products of Thailand will be strengthened by the improvement of quality.

In addition to the standardized 10 products, potential products for export, such as frozen shrimp, soybean, fresh vegetables and fruits, tobacco, rubber, goldware, etc., will be established their standards. Improvement of productivity and promotion of industry of these products are expected by the unity of standards and development of markets, and increase of export as well.

By the execution of exhibition activities, direct presentation of necessary information of Thailand's export products increases the opportunity for expansion of export. The exhibition activities have been held at various places up to the present, according to the contents and scales of products displayed. By the realization of the Center, the concentration of the places is possible for presentation of information. Opportunities for presentation of new export products are increased because the exhibition facility of the Center is about three times in scale of the existing halls of DCR, and the facility is expected to contribute to the trade promotion because the exhibition activities are possible in the scale of international trade fare.

## 2) Economic Evaluation

Even the scale of facilities to be undertaken by the Government of Japan is not big enough for unexpected larger activities, the facilities and equipment are sufficient to execute the activities effectively planned by the Government of Thailand by multiple uses. The active introduction of the Thailand's local construction method, materials and equipment, and labor force is planned to reduce the construction cost and expected to contribute to encouragement of local construction industry as well.

The conditions of construction site is well equipped with infrastructure, perimeter fence, and reclamation of the site, thus, the responsibility of the Government of Thailand is not required additionally, related to these items. The arrangements to be undertaken by the Government of Thailand during the construction, such as necessary measures for imported materials and connection of infrastructure may be little charges, that is 250 thousand Baht by tentative rough estimation.

The estimation of operation and maintenance expenditure for the Center by DCR is approximately 6 million Baht per year which exceeds 5.7 million Baht of the tentative estimation by the basic design study, therefore the expenditure might not be an obstacle for the operation of the Center.

The mechanical planning of the Center based on the policy of saving energy will reduce expense of utilities (air conditioning, plumbing, and electrical) by the adequate operation and maintenance.

The Government of Thailand has no surplus responsibility because the minimum scope of facilities necessary for the planned activities of the Center is designed under the expected Japan's grant cooperation.

The early realization of the Center by the Japanese corporation's technical and rational administration of construction and its schedule will contribute effectively to the trade promotion policy of the Government of Thailand.



## CHAPTER 6 SUGGESTIONS

The project is concluded with sufficient effect by the previous social and economic evaluations of the Project requested by the Government of the Kingdom of Thailand. The grant aid cooperation by the Government of Japan for the establishment project of the Center, which is the urgent political subject of Thailand, has great significance and contribution to improve competence of the persons participating in trade business of Thailand.

Economic and political stability of the Kingdom of Thailand is an essential precondition of the peace and prosperity not only for the Asian countries but for Japan. Under such recognition, the Trade Training Center, to be established under Japan's grant aid cooperation to promote Thailand's trade, is expected to play an important role. At the same time, however, the achievement of trade promotion by effective operation and activity of the Center will basically depend on Thailand's own effort.

1. The preparation of programs adapted to trade business by short term training, that will manifest their effects immediately, is requested to give more opportunities to larger number of trade businessmen in private sector and persons in charge at actual spots of trade business, in addition to executives and instructors of trade firms and trade officers of the government agencies in the planned programs.
2. The Center is planned as a new divisional organization in the organization structure of the Department of Commercial Relations. Therefore, for the activities and operation, the director and staffs of planned four sections (Trade Training and Personnel Development, Quality and Standard, Curriculum Development and Training Material and General Affairs) are to be nominated and selected promptly to make them understand the contents of facility planning and to prepare the smooth operation of the Center immediately after completion of its construction.

3. The adequate execution system of the project is requested to be established by DCR to secure adequate connection of infrastructure, prompt procedure for custom clearance of imported materials and equipment according to the construction schedule.
4. Budgetary allocation for necessary supplies of equipment of the Center is required. The tentative estimation for the minimum necessary supplies of equipment fixed to the building is expected approximately 200 thousand Baht.
5. Mechanical engineers for equipment should be selected promptly. They can be well versed in the operation and maintenance of equipment during the construction. Thus, the periodical inspection of equipment and periodical supply of consumption articles will have no difficulties after the completion. The expenditure for maintenance of the building and operation of mechanical equipment is calculated tentatively approximately 150 to 200 thousand Baht according to climate condition and usage rate of facilities.
6. Even the benefit from training activities is not planned, collection of lecture fees should be examined to alleviate utility expenses and operation expenditures.
7. The technical cooperation, dispatch of experts for example, by the Government of Japan is requested to study in detail because of the smooth and effective execution of the activities planned at the Center.

## **Appendix**

- 1. Dispatch of the Survey Team**
- 2. Minutes of Discussion**
- 3. Organization Charts of Authorities**
- 4. Conditions of Trade Training**
- 5. Location and Conditions of the Site**
- 6. Soil Conditions of the Area around the Site**

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that this is crucial for ensuring transparency and accountability in the organization's operations.

2. The second part of the document outlines the various methods and tools used to collect and analyze data. It highlights the need for consistent data collection procedures and the use of advanced analytical techniques to derive meaningful insights from the data.

3. The third part of the document focuses on the role of technology in data management and analysis. It discusses how modern software solutions can streamline data collection, storage, and analysis, thereby improving efficiency and accuracy.

4. The fourth part of the document addresses the challenges associated with data management, such as data quality, security, and privacy. It provides strategies to mitigate these risks and ensure that the data is reliable and secure.

5. The fifth part of the document concludes by summarizing the key findings and recommendations. It stresses the importance of ongoing monitoring and evaluation to ensure that the data management processes remain effective and up-to-date.

## 1. Dispatch of the Survey Team

Survey teams have been dispatched two times for preliminary survey and basic design survey on establishment Project for the Trade Training Center.

### 1) Member List of the Survey Team

#### o Preliminary Survey Team (Jan. 6 to 14, 1982)

Mr. Keiichi Tachibana	Team Leader	Executive Director Japan International Cooperation Agency
Mr. Seiji Morimoto	Technical Cooperation	Second Technical Cooperation Economic Cooperation Bureau Ministry of Foreign Affairs
Mr. Kazumi Fujita	Quality Control (Agricultural)	Inspection Division Executive Department Food Agency
Mr. Kazuyoshi Seto	Quality Control (Industrial)	Standard Division Standard Department Agency of Industrial Science and Technology
Mr. Naoko Kai	Project Coordinator	Basic Design Division Grant Aid Department Japan International Cooperation Agency
Mr. Osamu Matsumura	Architectural Planning	Architect International Department Kume Architects-Engineers

#### o Basic Design Survey Team (Feb. 21, 1982)

Mr. Hideki Abe	Team Leader	Head of Basic Design Division Grant Aid Department Japan International Cooperation Agency
Mr. Naoki Kai	Coordinator	Basic Design Division Grant Aid Department Japan International Cooperation Agency
Mr. Osamu Matsumura	Architectural General	Architect International Department Kume Architects-Engineers
Mr. Norio Ihira	Architectural Equipment	Architect International Department Kume Architects-Engineers
Mr. Koji Kodama	Architectural Mechanical	Architect International Department Kume Architects-Engineers

2) Cooperative Officials in the Survey

o Embassy of Japan in Thailand .

Mr. Yuzuru Kubota      Councillor  
Mr. Seiichi Igarashi   First Secretary  
Mr. Hideo Tajima        First Secretary

o Japan International Cooperation Agency, Bangkok Office - JICA

Mr. Akira Kasai         Director  
Mr. Yoshiaki Sakamaki   Officer

o Thai Authorities and Officials concerned      \* Project Coordinator

● Ministry of Commerce

\*\* Liaison Officer

• Department of Commercial Relations

Director-General	Miss Sukon Kanchanalai
Deputy Director-General	Mr. Chalaw Fuangaromya
Director, Export Service Center	Mr. Norawat Suwarn*
Deputy Director, ESC	Mr. Supreecha Pangsapa
Chief, Training and Seminar Section	Mr. Vithun Tulyanond
Chief, Design and Decoration Section	Mr. Yuddhana Klykoom
Chief, Product Adaptation Section	Mrs. Supatra Srisook**
Training and Seminar Section	Mr. Chaita

• Department of Foreign Trade

Director-General	Mr. Bajr Israsena
Deputy Director-General	Mr. Piphat Intarasupht
Deputy Director-General	Mrs. Oranuj Osatananda
Commodity Standards Div.	Mr. Prathom Panichayanuson
Commodity Standards Div.	Mr. Pravat Kongchertchai

• Department of Technical and Economic Cooperation (DTEC)

Deputy Director-General	Mr. Kasem Unahasuwan
Director of Colombo Plan Sub-Division	Mr. Thawl Polpuech

## **2. Minutes of Discussion**

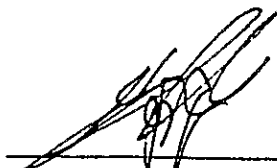
The basic design survey team and the Government of Thailand have held a series of discussions and exchanged views. The both parties summarized their agreements on Minutes as the result, and exchanged their signatures by and among Mr. Abe, Team Leader, Miss Sukon, Director General of the DCR, and Mr. Thawl, Director of DTEC.

Minutes of Discussion  
on  
The Establishment of the Trade Training Center  
in the Kingdom of Thailand

In response to the request made by the Government of the Kingdom of Thailand for the Establishment of the Trade Training Center in Bangkok (hereinafter referred to as "the Project"), the Government of Japan has sent, through the Japan International Cooperation Agency (hereinafter referred to as "JICA"), a team headed by Mr. Hideki ABE, Head of Basic Design Division of Grant Aid Department, JICA, to conduct a basic design study for 14 days from February 8th, 1982. The team carried out a field survey, held a series of discussions and exchanged views with the authorities concerned.

As the result of the study and discussions, both parties have agreed to recommend to their respective Governments to examine the results of the survey attached herewith towards the realization of the Project.

February 19th, 1982.



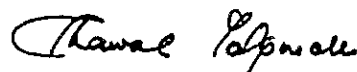
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Mr. Hideki ABE  
Team Leader  
The Japanese Survey Team  
JICA



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Miss Sukon KANCHANALAI  
Director General  
Department of Commercial Relations  
Ministry of Commerce



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Mr. Thawal POLPUECH  
Director of Colombo Plan Sub-Division  
Department of Technical and  
Economic Cooperation (DTLC)



## ATTACHMENT

1. The objective of the Project is to provide necessary building, facilities and equipment for the establishment of the Trade Training Center in Bangkok (hereinafter referred to as "the Center").
2. The proposed site of the Project is the land acquired by the Government of Thailand facing Rachadapisek road, Lard Prao, Bangkaen, Bangkok (hereinafter referred to as "the Project Site"). The Project Site is shown in Annex I.
3. The Center will undertake its activities with following basic objectives;
  - (1) to train personnels in the field of trade, particularly international trade,
  - (2) to initiate, improve and develop standards & quality control techniques for exportable products through training, and
  - (3) to exhibit exportable products in order to develop and strengthen, inter alia, product adaptation and development for further expanding export opportunities.
4. The Japanese Survey Team will convey to the Government of Japan the desire of the Government of the Kingdom of Thailand that the former takes necessary measures to co-operate in implementing the Project and provides the building and other items listed in Annex II within the scope of Japanese economic cooperation programme in grant form.
5. The Japanese Survey Team will convey to the Government of Japan the desire of the Government of the Kingdom of Thailand that Technical Cooperation Programme is needed for the smooth and effective operation of the Center on and after the establishment.
6. The Government of the Kingdom of Thailand will take necessary measures listed in Annex III on condition that the grant assistance by the Government of Japan is extended to the Project.
7. Both sides confirmed that Japanese Survey Team explained Japan's Grant Aid Programme and Thai side understood it.

THE TRADE TRAINING CENTER  
PROPOSED SITE

To Airport

Lard-Preo Rd.

Phnom Penh

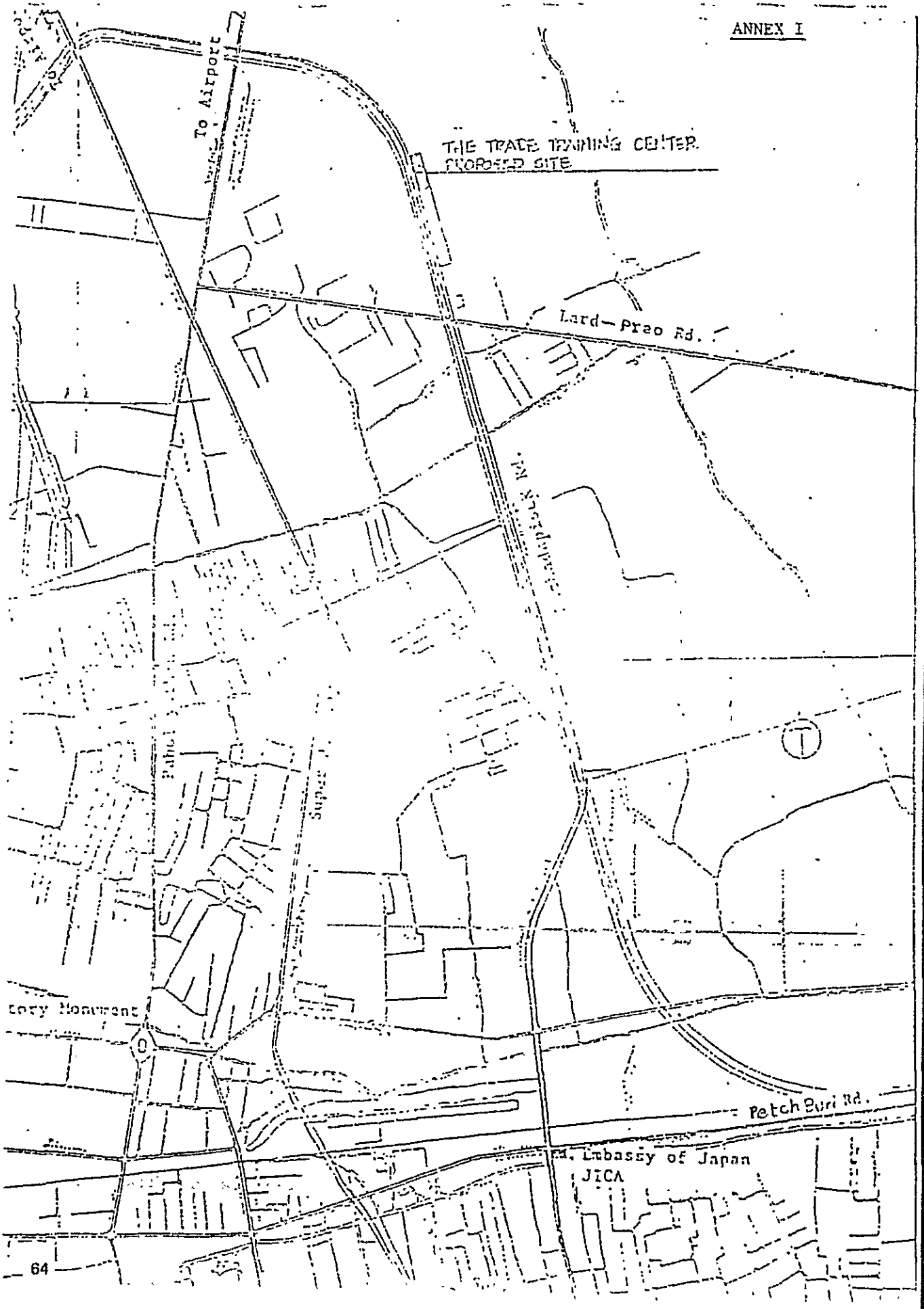
Phnom Penh

Super 7

Independence Monument

Petch Suri Rd.

Embassy of Japan  
JICA



ANNEX II

Items requested by the Government of the Kingdom of Thailand  
the cost of which will be borne by the Government of Japan -

1) Building for :

- (a) Training facilities
  - (b) Standard & Quality Control facilities
  - (c) Exhibition & Congregation facilities (including outdoor exhibition)
  - (d) Administrative facilities
- \* Tentative architectural Plan is attached herewith.

2) Equipment for :

- (a) Training
- (b) Standard & Quality Control
- (c) Exhibition





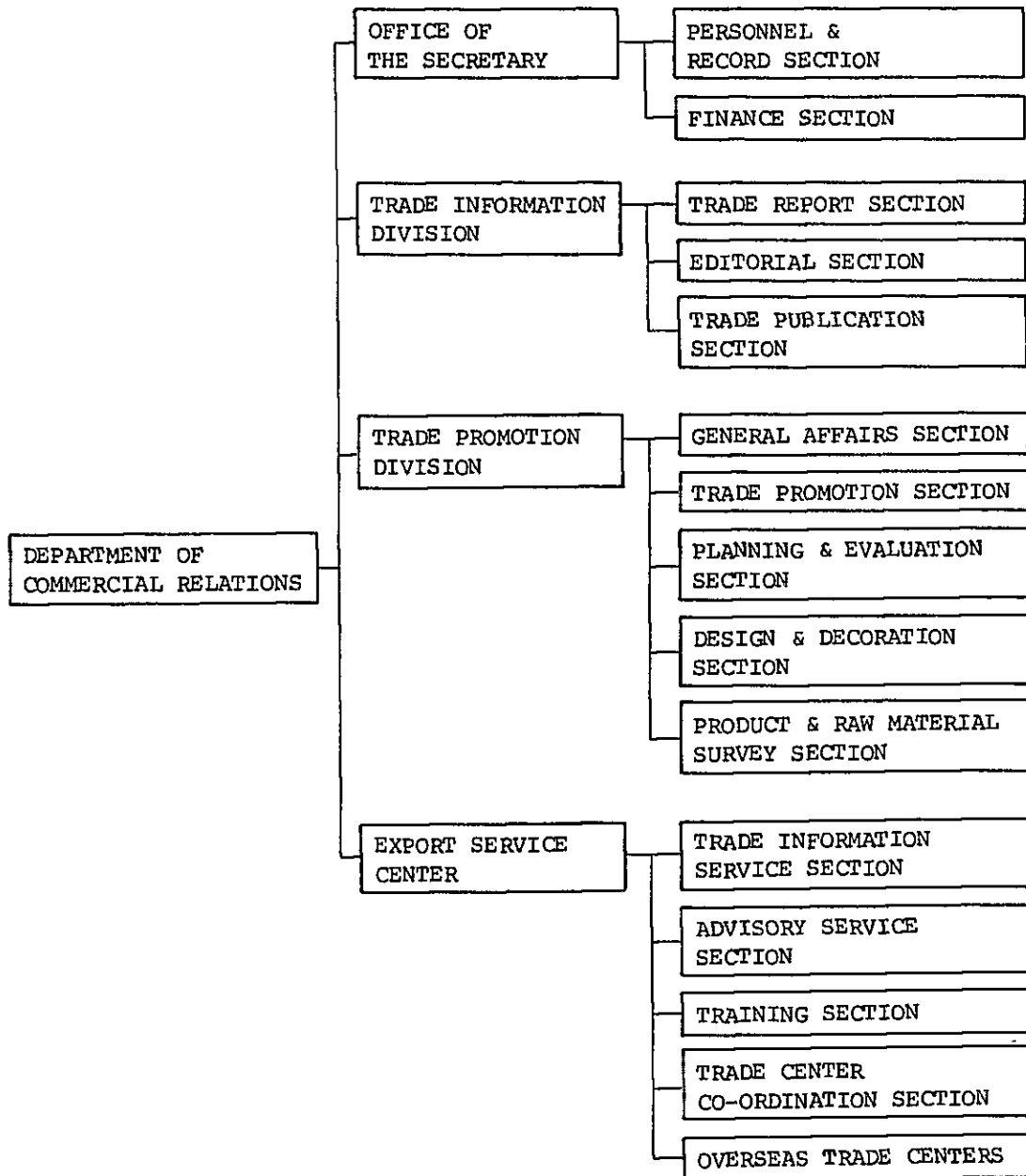
ANNEX III

Following arrangements are required to be taken by the Government of Thailand

1. To secure a lot of land necessary for the construction of facilities and to clear, fill and level the site as needed before the start of the construction.
2. To provide facilities for distribution of electricity, telephone, water supply and drainage and other incidental facilities outside the Building.
3. To ensure prompt unloading, tax exemption, customs clearance at ports of disembarkation in Thailand, and prompt internal transportation therein of the products purchased under the grant.
4. To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in Thailand with respect to the supply of the products and the services under the verified contracts.
5. To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into Thailand and stay therein for the performance of their work.
6. To maintain and use properly and effectively that the facilities constructed and equipment purchased under the grant.
7. To bear all the expenses, other than those to be borne by the grant, necessary for the construction of the facilities as well as for the internal transportation of the products and services under the grant.
8. To undertake incidental civil works such as planting and fence, if needed.

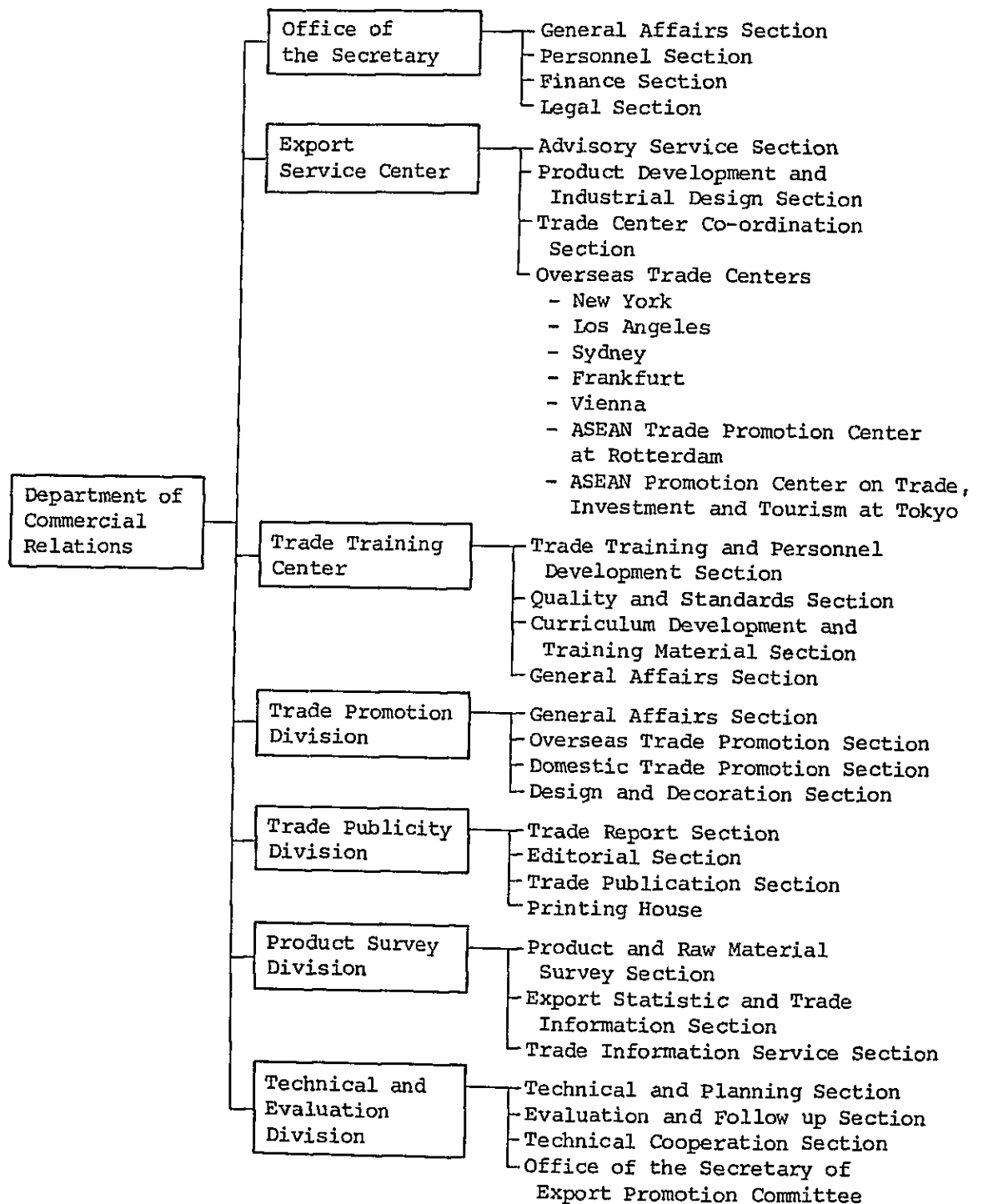
### 3. Organization Charts of Authorities

#### o Present Organization Structure of the Department of Commercial Relations



○ Proposed Organization Structure of the Department of Commercial Relations

(Expected to be effective within 1982)

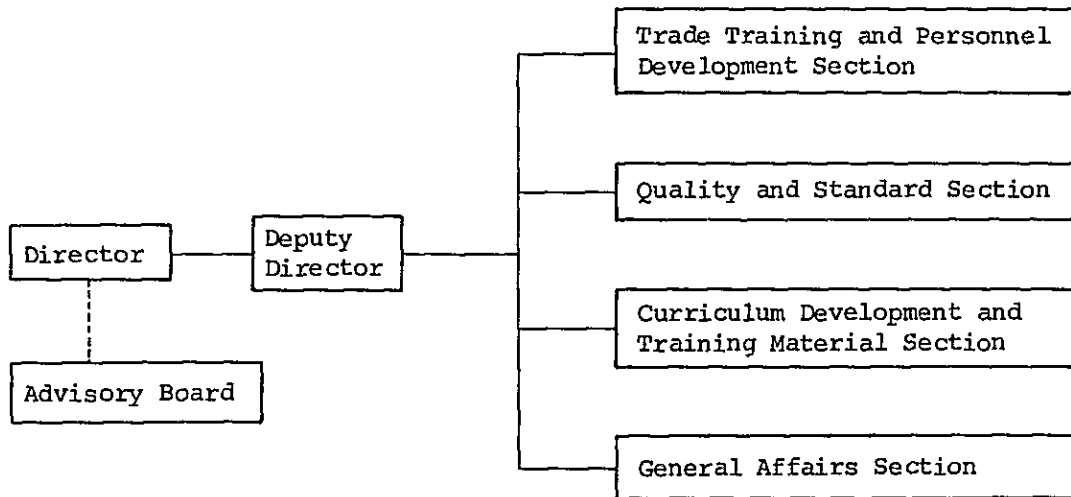


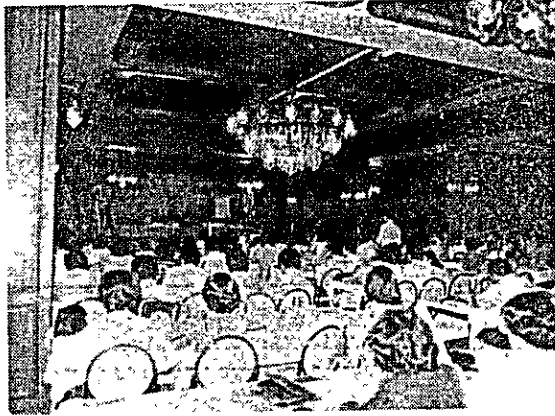


○ Proposed Organization Structure of Trade Training Center

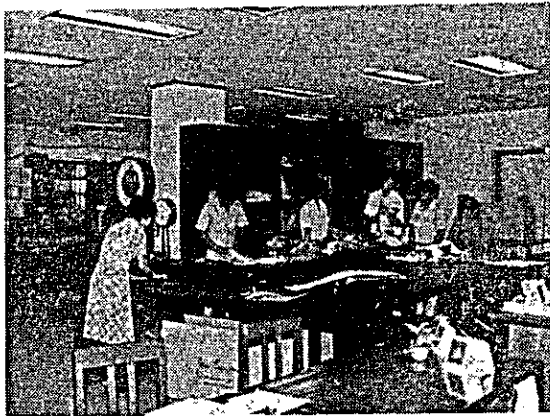
(DRAFT)

Trade Training Center Organization Chart

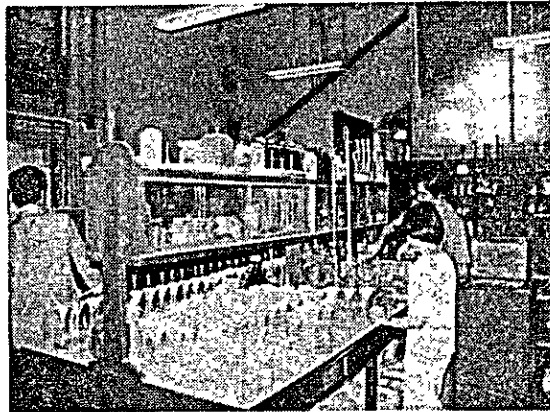




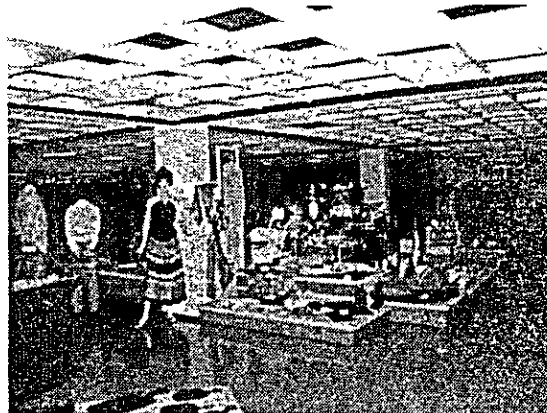
◀ Seminar on Trade/at conference room of a hotel in Bangkok (130 participants)



◀ Quality Inspection/for Thai-silk products



◀ Quality Inspection/analytical inspection of agricultural products



◀ Exhibition Activity/permanent exhibition hall of Export Service Center

#### 4. Conditions of Trade Training

##### 1) Present Condition of Training Activity

Type of Activity \ Of the year	Number of Participants							Total
	1975	1976	1977	1978	1979	1980	1981	
Seminar on Specific Topic	(6) 371	(2) 260	(2) 294	(7) 605	(6) 672	(7) 843	(8) 879	(58) 3,924
Training Course for Exporters	-	(4) 106	(4) 189	(2) 100	(5) 260	(6) 279	(5) 298	(26) 1,232
In-service Training	(1) 28	(5) 162	(5) 115	(3) 63	(5) 58	(5) 75	(8) 81	(32) 582
Special Lecture	(3) 150	(4) 200	(2) 190	(8) 339	(14) 634	(18) 740	(13) 609	(62) 2,362
Total								(158) 8,600

\* Figure in ( ) represents the number of event.

##### 2) Recent Exhibition Activity

<u>Name of Exhibitions</u>	<u>Period/Organizer*</u>
1. Leather Goods Week	7-16 Nov. 1980/DCR
2. Plastic and Rubber Goods Week	28 Nov.-7 Dec. 1980/DCR
3. New Year Gifts Week	19 Dec. 1980-2 Jan. 1981/DCR
4. General Goods Fair	9-18 Jan. 1981/*
5. Wooden and Rattan Furniture Week	30 Jan.-8 Feb. 1981/DCR
6. Ready-Made Garments Week	27 Feb.-8 Mar. 1981/DCR
7. General Goods Fair	13-22 Mar. 1981/*
8. Aquarium Fishes and Plants Week	27 Mar.-5 Apr. 1981/DCR
9. General Goods Fair	10-19 Apr. 1981/*
10. Preserved & Frozen Food Week	24 Apr.-3 May 1981/DCR
11. General Goods Fair	8-17 May 1981/*
12. Electronic & Electric Appliances Week	29 May-7 June 1981/DCR
13. Exporting Goods Week	26 Jun.-5 Jul. 1981/DCR
14. General Goods Fair	10-19 Jul. 1981/*
15. Toys & Sporting Goods Week	31 Jul.-9 Aug. 1981/DCR
16. General Goods Fair	14-23 Aug. 1981/*
17. Handicrafts Week	28 Aug.-6 Sep. 1981/DCR
18. General Goods Fair	11-20 Sep. 1981/*
19. General Goods Fair	25 Sep.-4 Oct. 1981/*

Remarks: \* indicate exhibitions organized by other organizations.

### 3) Planned Trade Training

#### a) Training Course

- Basic export marketing
- Market research
- Market planning
- Market penetration techniques
- Exploitation of export opportunities in respect of products, markets and functions
- Export financing
- Export documentation
- Distribution systems
- Export costing and pricing
- Export design and packaging
- Export standards and quality control
- Product adaptation and development

#### b) Training Courses schedule

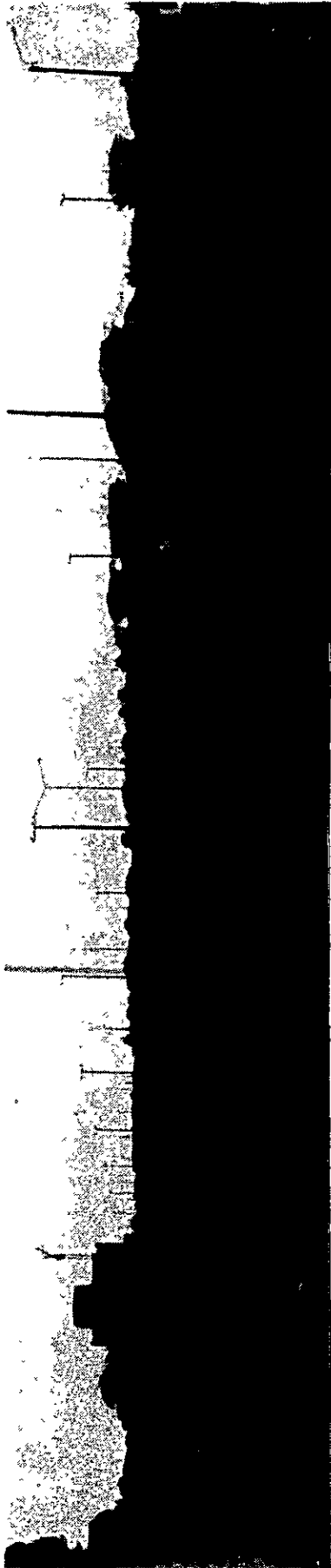
Courses	Duration	No. of Event per Year	No. of Trainee	Total Trainee
1. Basic Training in Export	2 weeks	5	70	350
2. Specialized Training on Specific Function	2-3 weeks	5	70	350
3. Seminar on Market and/or product and/or Function	1-5 days	6	150	900
4. Special Lecture on Specific Topic	1 day	12	50	600
5. Commercial Language Course (English, Japanese, German)	16 weeks	3	30	90
6. Training on Export Promotion for Officials	1 week	2	30	60
7. Training for Instructors in Export Marketing	2 weeks	1	30	30
Total		34		2,380

**c) Planned instructors**

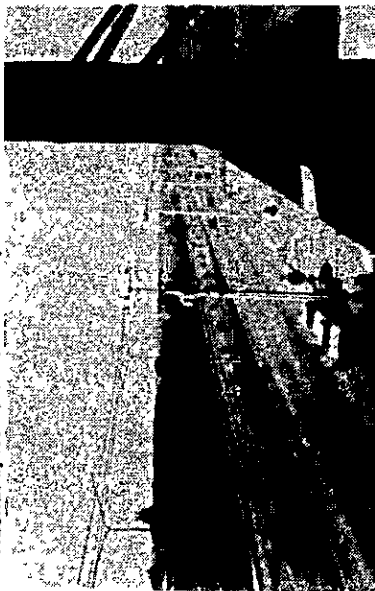
- a. Government official staff of Export Service Center of DCR.
- b. Professor group from University and Vocational College.
- c. Member of Export Instructor Club.
- d. Representative from public sector of Trading field.

**d) Target Trainee**

- a. Executives of exporting firms (e.g. managing director, export director, marketing director)
- b. Middle managers of exporting firms (e.g. product manager, export sales manager)
- c. Manufacturers and businessmen interesting in export.
- d. Personnel of concerned organization (e.g. chamber of commerce, trade association)
- e. Government officials responsible for export promotion.
- f. Academic leaders and export marketing trainers in the academic institutions and training organization throughout the country.



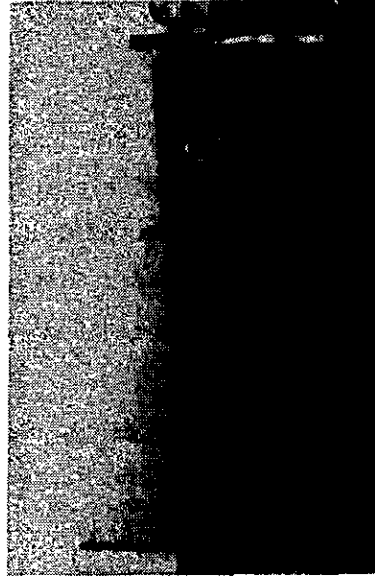
▼ Rachadapisek Rd. front artery road.



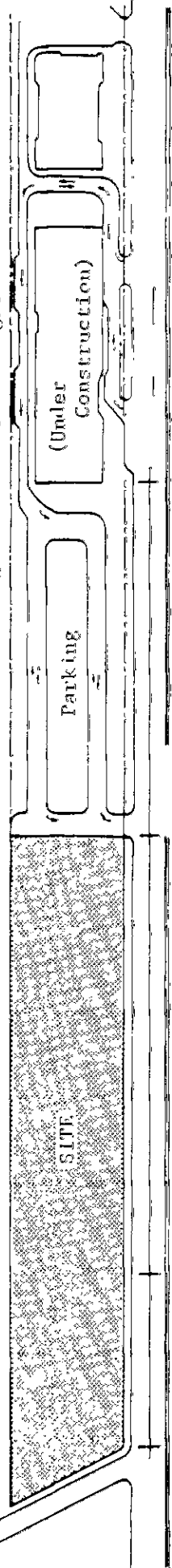
▼ Infrastructures are will equipped along the front road of the site.



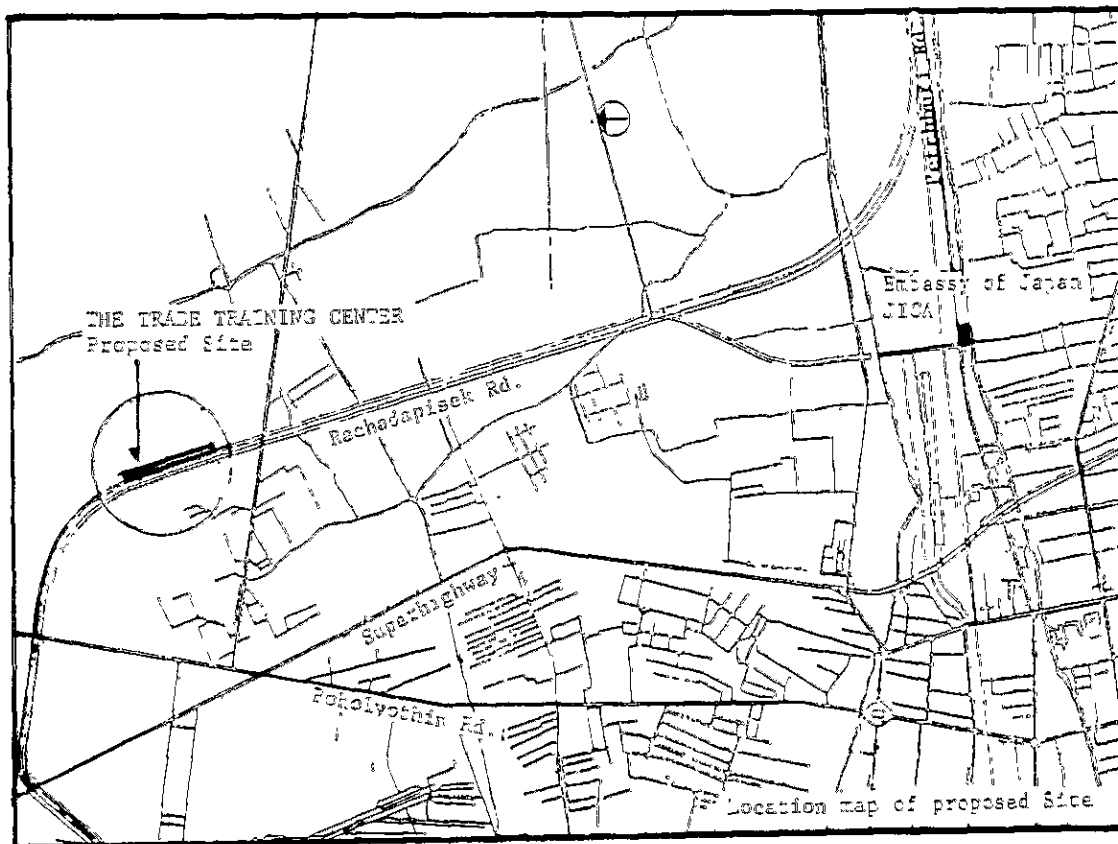
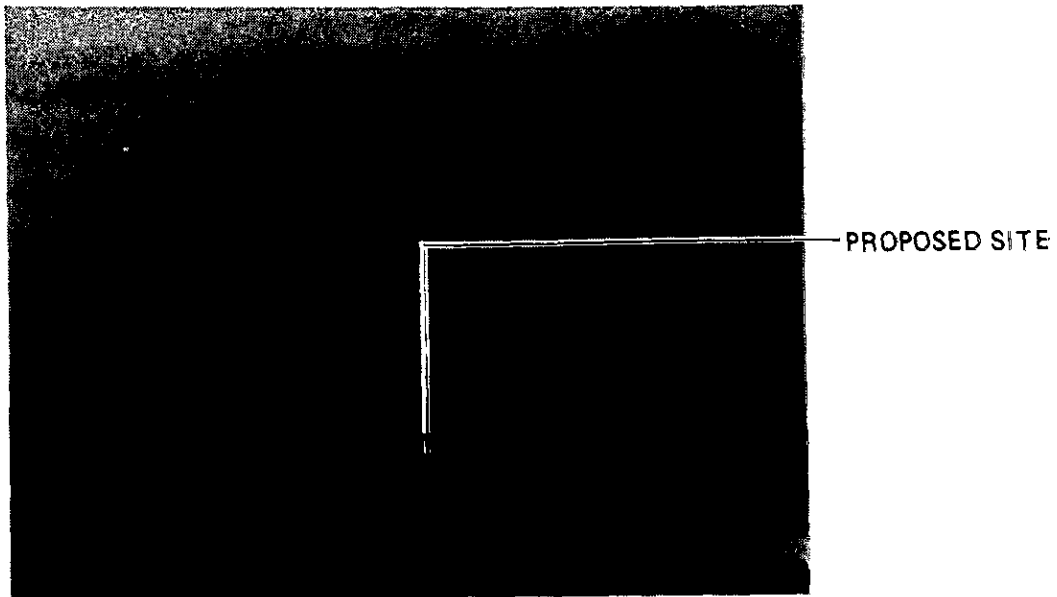
▲ Construction Site: reclamation of the site, and construction of Redimeter fence have completed already.



Rachadapisek Road Lard Prao  
Bangkaen District Bangkok



5. Location and Conditions of the Site



6. Soil Conditions of the Area around the Site

○ SURFACE SUBSIDENCE OF BANGKOK AREA

( "PROPERTIES OF DEEP OBSERVATIONS FROM SHALLOW AND DEEP FIELD INSTRUMENTATION" )

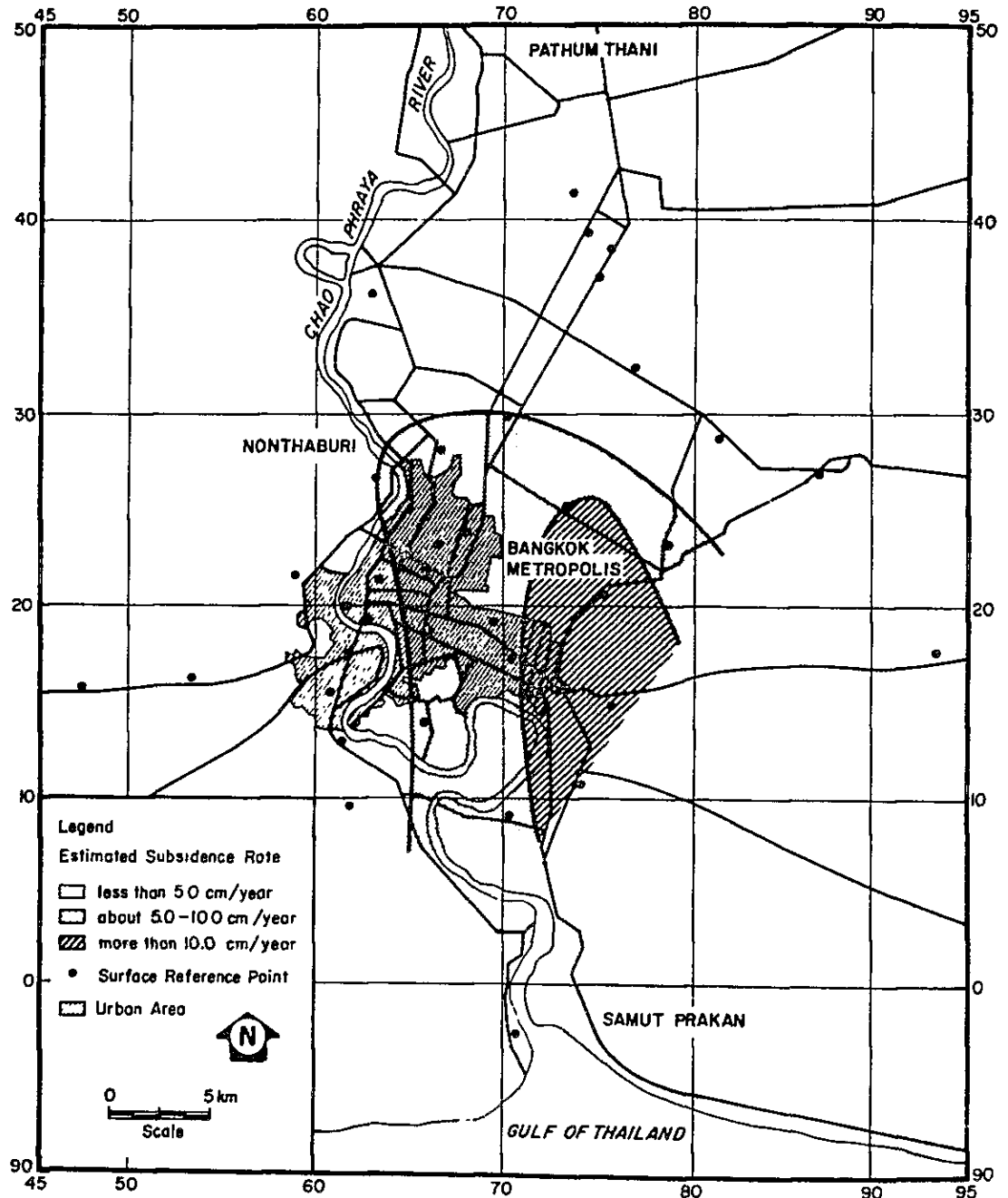
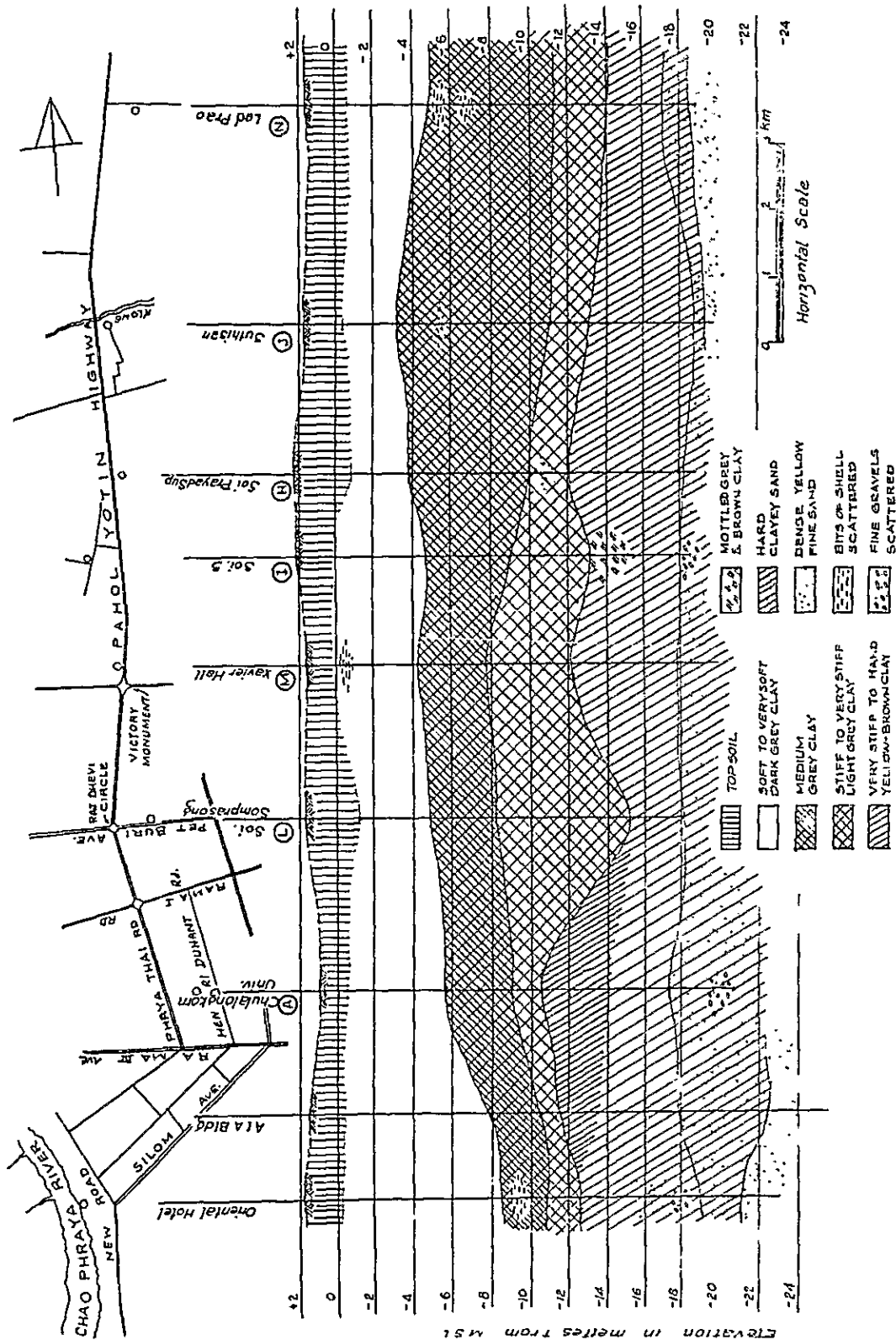


Fig.60 Zones of the Surface Subsidence Rate in the Bangkok Area Estimated from the Data of Precise Levelling on the Surface Reference Points by RTSD in the Period 1978-1979



o Soil conditions near the construction site

( "ENGINEERING PROPERTIES OF BANGKOK SUBSOILS" )



Profile of Subsoils along the alignment of Pahol Yotin Highway.





JICA