

**BASIC DESIGN STUDY REPORT  
ON  
THE CONSTRUCTION PROJECT  
FOR  
THE OCCUPATIONAL SAFETY AND HEALTH CENTER  
IN THE REPUBLIC OF THE PHILIPPINES**

**AUGUST 1986**

**JAPAN INTERNATIONAL COOPERATION AGENCY**

**GRS**

**86-75**



JICA LIBRARY



1030605[8]



**BASIC DESIGN STUDY REPORT  
ON  
THE CONSTRUCTION PROJECT  
FOR  
THE OCCUPATIONAL SAFETY AND HEALTH CENTER  
IN THE REPUBLIC OF THE PHILIPPINES**

**AUGUST 1986**

**JAPAN INTERNATIONAL COOPERATION AGENCY**

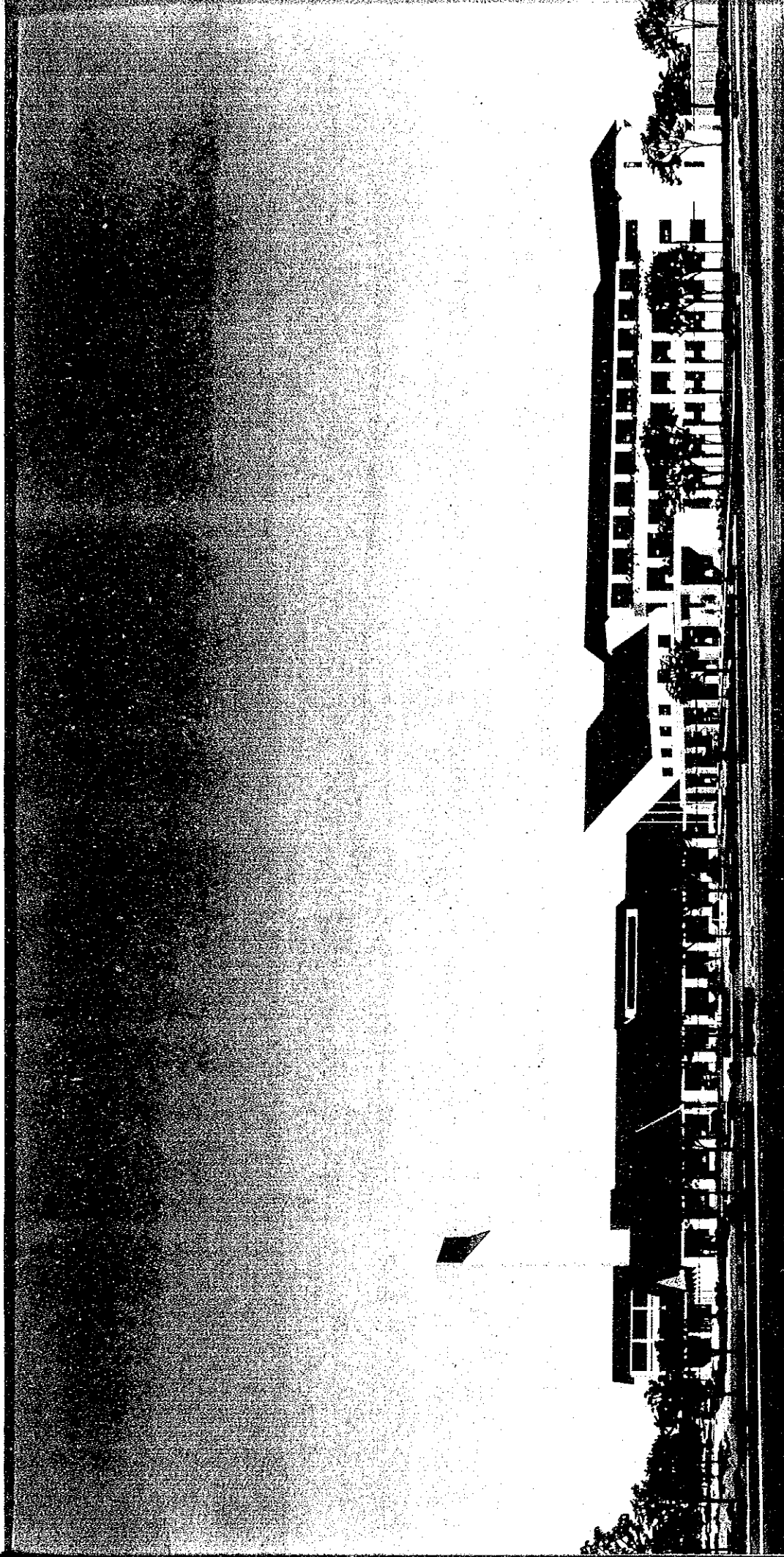
国際協力事業団	
受入 月日 '86. 9. 11	118
登録No. 15383	98.8
	GRS



THE OCCUPATIONAL SAFETY AND HEALTH CENTER IN THE REPUBLIC OF THE PHILIPPINES







THE OCCUPATIONAL SAFETY AND HEALTH CENTER IN THE REPUBLIC OF THE PHILIPPINES



## PREFACE

In response to the request of the Government of the Republic of the Philippines, the Government of Japan has decided to conduct a basic design study on the Construction Project for the Occupational Safety and Health Center and entrusted the study to the Japan International Cooperation Agency (JICA).

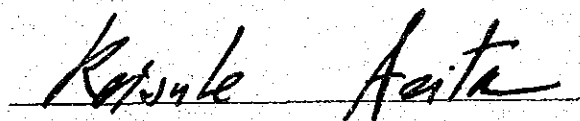
JICA sent to the Philippines a study team headed by Mr. K. SUWA, Assistant Director, Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs, from April 10 to April 29, 1986.

The team had discussions on the Project with the officials concerned of the Government of the Philippines and conducted a field survey in Metro Manila. After the team returned to Japan, further studies were made, a draft report was prepared and, for the explanation and discussion of it, a mission headed by Mr. R. ONO of 2nd Basic Design Study Division, Grant Aid Planning and Survey Department, JICA, was sent to the Philippines from July 17 to July 24, 1986. As a result, 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 Republic of the Philippines for their close cooperation extended to the team.

August, 1986



Keisuke Arita

President

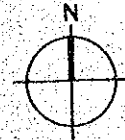
Japan International Cooperation Agency



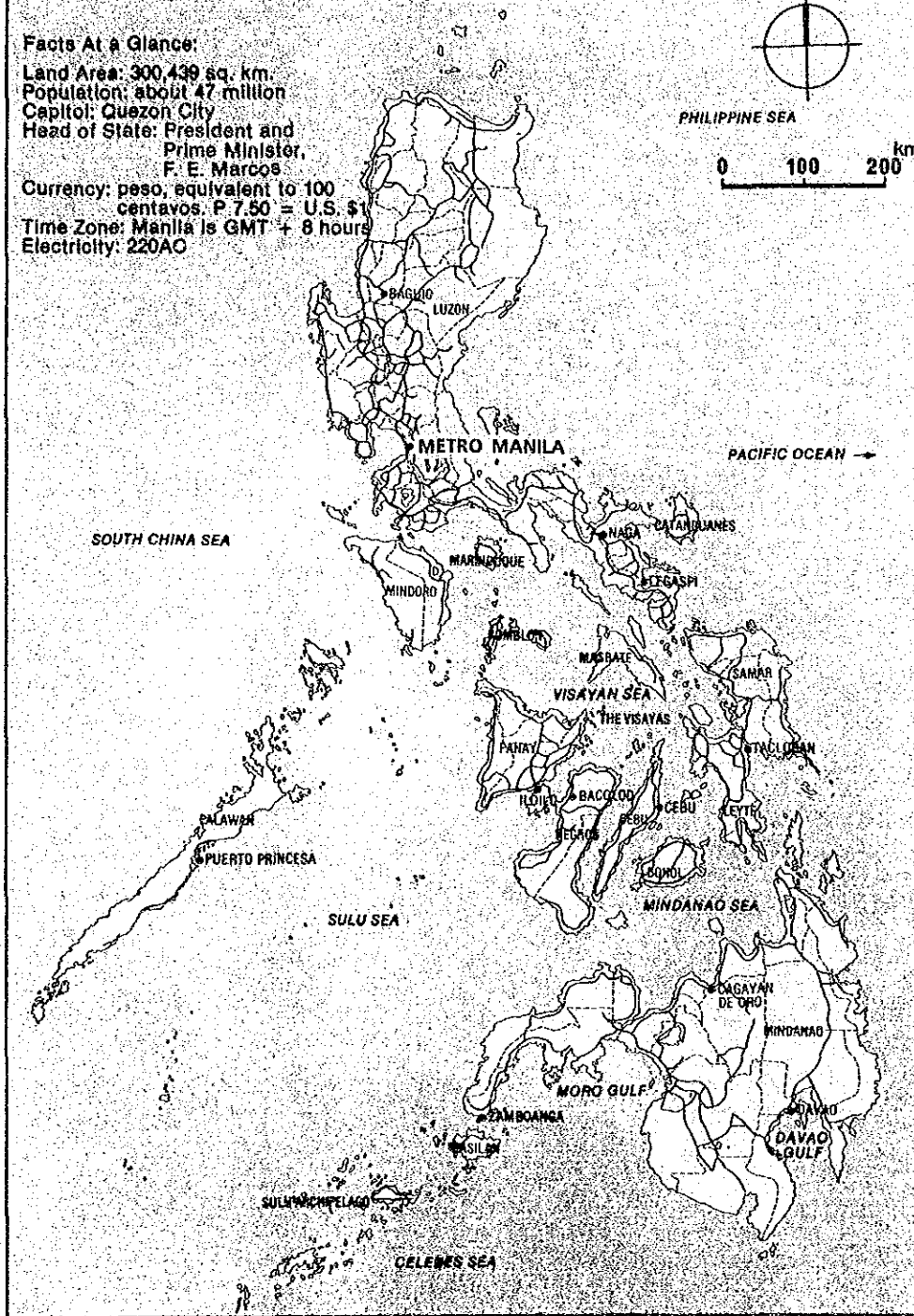
# THE PHILIPPINE ARCHIPELAGO

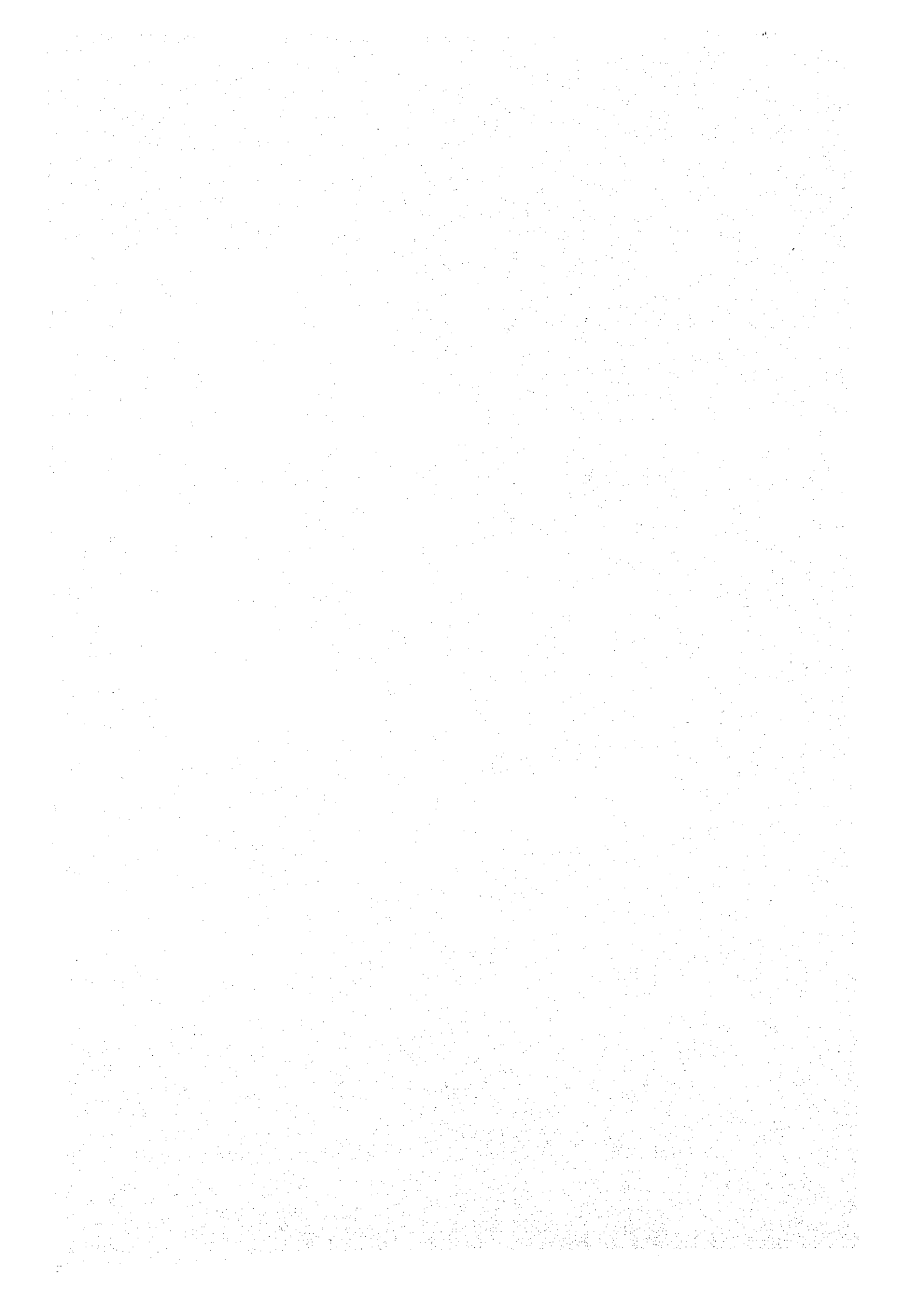
## Facts At a Glance:

Land Area: 300,439 sq. km.  
Population: about 47 million  
Capitol: Quezon City  
Head of State: President and  
Prime Minister,  
F. E. Marcos  
Currency: peso, equivalent to 100  
centavos. P. 7.50 = U.S. \$1  
Time Zone: Manila is GMT + 8 hours  
Electricity: 220AC

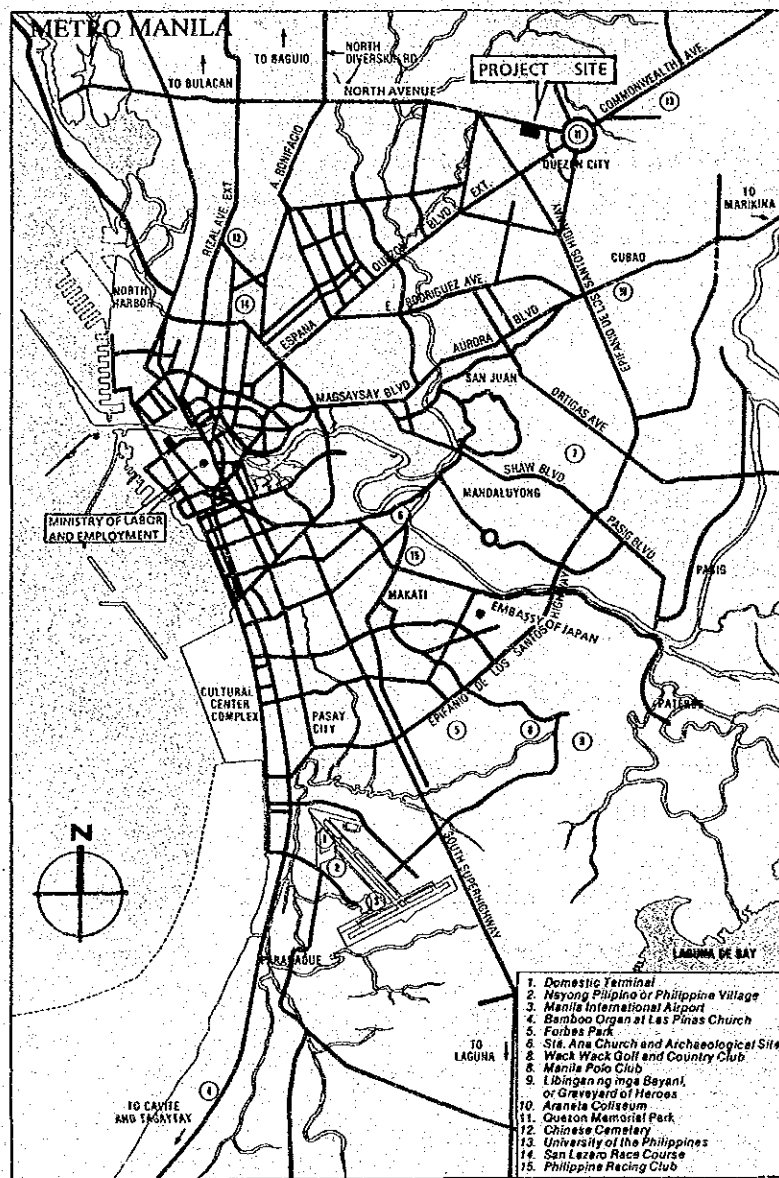


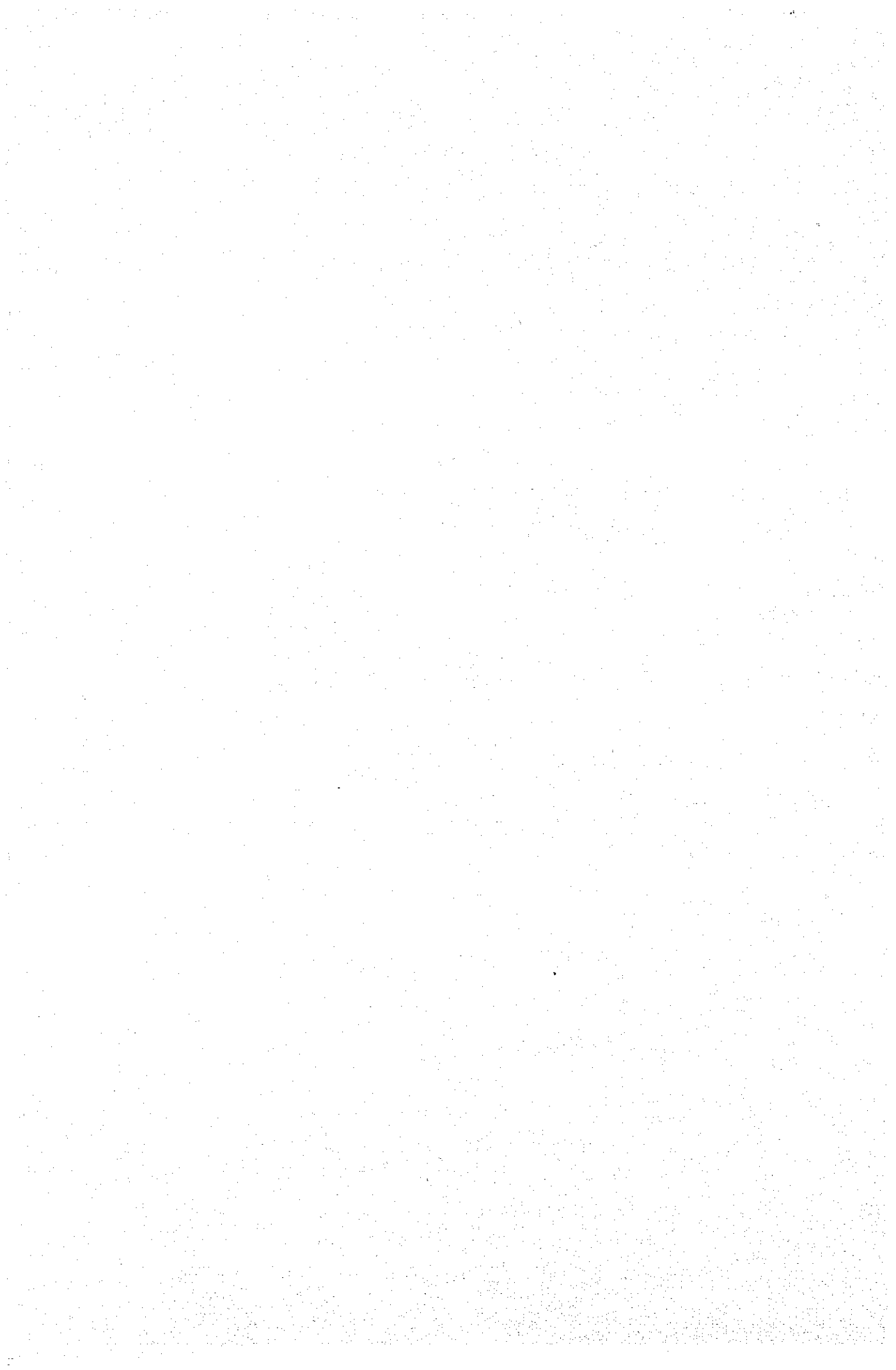
PHILIPPINE SEA





■ MAP OF METRO MANILA







## SUMMARY

The Government of the Philippines has executed 5 Economic Development Plans since 1967 on a long-term vision basis to achieve a balanced economic growth and equal allocation of social development programs. The Sixth Economic Development Plan (1983~1987) has been implemented on the results of the above. Its emphasis is placed on the continuous economic growth, equal distribution of the development plans, and the development of wide-range human resources. However, the current conditions of the economy is rather stagnant because domestic economic growth is leveling off with the increase of foreign debts in recent years.

Under these conditions, the Philippines has tried to transfer its economy from agriculture-centered to industry-centered. As a result of this economic development strategy, the manufacturing industry has achieved a 25% share in GNP. However, industrialization has brought about such problems as an increase of labor accidents and a decrease in production efficiency due to the insufficient maintenance of working conditions and environment. According to the survey on labor hazards by the Ministry of Labor and Employment (MOLE) in the Philippines between 1981 and 1984, it has been found that the rate of labor accidents requiring more than one day-off averages one out of 28 to 30 workers (approx. 3.5%). In particular, the number of labor accidents in the manufacturing industry accounts for 50% of the total labor accidents. In addition, the death rate has reached one out of 4,000 workers. One out of 30 workers suffers from a work-related disease. The number of cases in which worker's compensation insurance was payed increased by approximately 30% in the past 5 years from 1979 to 1983.

Today, in the Philippines, the increase of productivity is essentially needed for economic recovery. Under such circumstances it is critical as well as urgent to take measures for occupational safety and health for the protection of workers.

The Government of the Philippines, therefore, has planned to establish an Occupational Safety and Health Center in order to solve the above problem and requested of the Government of Japan a grant-aid for the construction of the Center. In response to this request, the Government of Japan dispatched a team in August 1985 to perform preliminary studies. Furthermore, a basic design study team was sent to the Philippines from April 10 to April 29 in 1986, through Japan International Cooperation Agency (JICA).

The basic design study, according to the contents of the preliminary study and in view of the grant-aid cooperation program includes : (1) the confirmation of the Philippines' request on the establishment of the Occupational Safety and Health Center, (2) planning of facilities suitable for the functions of the Center, and (3) selection of proper equipment and materials to be supplied, (4) reconnaissance of the site where the Center is scheduled to be constructed, and (5) examination on the maintenance condition of the relevant infrastructure.

The objectives of this plan are to strengthen safety and health administration through enforcement of the related laws and to increase occupational safety and health technologies. The Center is to play a central role in occupational safety and health activities through education and training, survey and research, and public information services. It aims at promoting workers' welfare, increasing productivity and consequently preventing labor hazards.

The planned construction site is in the center of Quezon City, which is in the northern part of the Metropolitan Manila, Capital of the Philippines, and occupies approximately 2 hectares. There are hospitals and public facilities around the site. No problem exists concerning key infrastructure such as electricity, telephone, and water supply. However, drainage facilities are not available around there, thus, drainage will have to be discharged into the creek that is about 400 m south of the site by newly laying the drain pipe along the adjacent road. Furthermore, the level of the site is considerably lower than the adjacent road and soil filling will be required.

The planned facilities of the Center are the Training and Research Building, Auditorium, Dormitory, and related outdoor facilities. Important rooms and their sizes are as follows.

**Training and Research Building :**

Large classroom (capacity of 100 persons x 1 room), Small classroom (capacity of 50 persons x 2 rooms), Seminar Room (capacity of 20 persons x 3 rooms), Experiment and Inspection Room, Test and Research Room, and Attached Equipment Room. (Health Control Division, Safety Control Division, Environment Control Division). Room for making and editing audio-visual educational material, Library and Data Room, Executive Director's Room, Lecturer's Room, Management Office, etc.

..... 5,734 m<sup>2</sup>

**Auditorium :**

Auditorium (capacity of 300~500 persons), canteen (140 seats for the whole Center) attached room, Room for Power Machineries, etc.

..... 1,295 m<sup>2</sup>

**Dormitory :**

Dormitory Rooms (for 80 persons), Lobby, Study Room, Laundry, Office etc.

..... 1,674 m<sup>2</sup>

**Total :**

..... 8,725 m<sup>2</sup>

**Attached Outdoor Facilities :** Car Garage, Guard House

The expected project implementation period consists of three and one half months for design work, two months for bidding and contract procedures and fourteen months for building construction.

The executing organizations of the Philippines is the Bureau of Working Conditions (BWC) and the Employees' Compensation Commission (ECC) of the MOLE. The Center, after its completion will belong to the MOLE, as one of its external organizations. A Governing Board, chaired by the minister of the MOLE and comprising representatives of the MOLE, workers, and managers, will be established as a governing organization which decides managing policies of the Center. Furthermore, a joint committee will be established during Japan's technical cooperation period to enrich the activity of the Center. It will be chaired by the Vice Minister of the MOLE.

It is hoped that this Project will be implemented immediately since the Center will provide facilities necessary for training, survey, and research activities on occupational safety and health which will greatly contribute to the prevention of labor accident, improvement of workers' welfare, and improvement of labor productivity.

It is highly significant that the Occupational Safety and Health Center in the Philippines will be built with Japan's Grant Aid Cooperation. Furthermore, the project effect will be greatly enhanced if a project-type technical cooperation is conducted by Japan.

# CONTENTS

PREFACE

MAP

SUMMARY

CONTENTS

ABBREVIATIONS

CHAPTER 1. INTRODUCTION .....	1
CHAPTER 2. BACKGROUND OF THE PROJECT .....	5
2-1. The Sixth 5-Year Economic Development Plan and Socioeconomic Situation in the Philippines .....	7
2-2. Occupational Safety and Health Administration in the Philippines .....	8
2-3. Actual Situation of Occupational Safety and Health Organizations .....	16
2-4. Background of the Request for this Project .....	18
CHAPTER 3. CONTENTS OF THE PROJEC .....	19
3-1. Objective of the Project .....	21
3-2. Review of the Contents of the Request .....	22
3-3. Outline of the Project .....	25
3-3-1. Project execution body and operation system .....	25
3-3-2. Contents of activity .....	26
3-3-3. Training program .....	28
3-3-4. Outline of facilities and equipment .....	34
3-3-5. Management plan and staff allocation .....	36
3-3-6. Outline of the project site .....	38
3-4. Technical Cooperation .....	40
CHAPTER 4. BASIC DESIGN .....	43
4-1. Policies of the Basic Design .....	45

4-2.	Basic Plan .....	46
4-2-1.	Project Site and Facility Arrangement Plan .....	46
4-2-2.	Building Plan .....	49
1.	Planning of each building and size of various rooms .....	49
2.	Planning of horizontal plane .....	55
3.	Planning of building section .....	56
4.	Structural planning .....	57
5.	Mechanical and plumbing system .....	60
6.	Electrical system .....	66
7.	Construction material planning .....	70
4-2-3.	Equipment Planning .....	73
4-2-4.	Basic Design Drawings .....	83
4-3.	Construction Execution Plan .....	119
4-3-1.	Construction condition and execution policy .....	119
4-3-2.	Scope of works .....	120
4-3-3.	Construction supervision plan .....	122
4-3-4.	Procurement of construction materials and facility equipment .....	125
4-4.	Project Implementation Schedule .....	127
4-5.	Cost for Operation, Management and Maintenance .....	130
4-6.	Probable Construction Cost for the Philippine Side Work .....	132
<b>CHAPTER 5.</b>	<b>PROJECT EVALUATION .....</b>	<b>133</b>
5-1.	Socioeconomic Evaluation .....	135
5-2.	Evaluation of Administrative System .....	135
<b>CHAPTER 6.</b>	<b>CONCLUSION AND PROPOSITION .....</b>	<b>137</b>
6-1.	Conclusion .....	139
6-2.	Proposition .....	139

<b>APPENDIX</b> .....	<b>143</b>
1. Minutes of Discussions on Basic Design Study .....	145
2. Minutes of Discussions on Draft Report .....	157
3. Members of Study Teams .....	161
4. Schedule of Study Teams .....	165
5. Cooperative Officials in the Survey .....	169
6. Reference Data of Construciton Site .....	173
7. Collected Data .....	193
8. Others .....	199

## Abbreviations

- BWC : Bureau of Working Conditions (労働条件局)
- ECC : Employees' Compensation Commission (労働者災害補償委員会)
- ECOP : Employer's Confederation of the Philippines (フィリピン経営者連盟)
- FFW : Federation of Free Workers (自由労働者連合)
- FPA : Fertilizer and Pesticides Authority
- GSIS : Government Service Insurance System (国家公務員保険組織)
- KMU : Kilusang Mayo Uno (5月1日運動)
- LASWO : Labor Standards and Welfare Officer (労働基準監督官)
- MA : Ministry of Agriculture (農業省)
- MAR : Ministry of Agrarian Reform (農地改革省)
- MECO (MERALCO): Manila Electric Company (マニラ電力会社)
- MECS : Ministry of Education, Culture and Sports (教育文化スポーツ省)
- MMC : Metropolitan Manila Commission (マニラ首都圏委員会)
- MMTC : Metro Manila Transit Corporation (メトロマニラ交通公社)
- MNR : Ministry of Natural Resources (天然資源省)
- MOE : Ministry of Energy (エネルギー省)
- MOLE : Ministry of Labor and Employment (労働雇用省)
- MOTC : Ministry of Transportation and Communications (運輸通信省)
- MPWH : Ministry of Public Works and Highways (公共事業道路省)
- MSSD : Ministry of Social Services and Development (社会開発省)
- MTI : Ministry of Trade and Industry (貿易工業省)
- MWSS : Metropolitan Waterworks and Sewerage System (首都圏上下水道局)
- NCR : National Capital Region (マニラ首都圏)
- NCSO : National Census and Statistics Office (国勢調査統計事務局)
- NEDA : National Economic and Development Authority (国家経済開発庁)
- NFA : National Food Authority (食糧庁)
- NPCC : National Pollution Control Commission (国家汚染管理委員会)
- NSTA : National Science and Technology Authority (国家科学技術庁)
- OHNAP: Occupational Health Nurses Association of the Philippines (フィリピン産業看護婦協会)
- OSHC : Occupational Safety and Health Center (労働安全衛生センター)
- PAID : Philippine Association of Industrial Dentists (フィリピン産業歯科医会)
- PMA : Philippine Medical Association (フィリピン医師会)
- PMCC : Philippine Medical Care Commission (フィリピン医療委員会)
- PNA : Philippine Nurses Association (フィリピン看護協会)
- POEA : Philippine Oversea Employment Administration (フィリピン海外雇用庁)
- POIMA : Philippine Occupational and Industrial Medical Association (フィリピン産業医会)
- PPA : Philippine Ports Authority (フィリピン港湾局)
- PRC : Profession Regulation Commission (職業規制局)
- SOPI : Safety Organization of Philippines (フィリピン安全協会)
- SSS : Social Security System (社会保障組織)
- TUCP : Trade Union Council of the Philippines (フィリピン労働組合評議会)
- UP-IPH : University of the Philippines-Institute of Public Health (フィリピン大学公衆衛生研究所)





## **CHAPTER 1. INTRODUCTION**



## CHAPTER 1. INTRODUCTION

In recent years the Philippines has had many labor accidents, and it is likely to increase more. It is an urgent task for the government to improve the occupational safety and health, in particular, working conditions and to strengthen their administration. This will help to promote the economic development plan during 1983-1987. Its main goals are to develop human resources and increase productivity.

Although the Government of the Philippines has enacted laws on occupational safety and health to prevent labor hazards, the Ministry of Labor and Employment (MOLE), which is in charge, has no technical organization to supervise the preventive measures of labor hazards. Hence, enforcement of the safety laws is weak.

The Government of the Philippines has planned to establish an "Occupational Safety and Health Center" in order to strengthen its occupational safety and health administration. The Center is intended to execute the training on occupational safety and health, to set safety and health standards for the prevention of occupational hazards, and to conduct survey and research for the technical development on the prevention of occupational hazards. Having planned the Center's construction, the Government of the Philippines asked for grant-aid and technical cooperation of the Japanese Government in September, 1984.

The Japanese government, in response to the request, dispatched a preliminary study team in August, 1985. Those who are concerned with grant-aid and technical cooperation constituted the team. The team confirmed the content of the request with MOLE-related agencies and surveyed the local occupational safety and health administration systems.

From April 10 to April 29, 1986, the Government of Japan dispatched a basic design study team to the Philippines through the Japan International Cooperation Agency (JICA). The team was headed by Mr. Kiyoshi SUWA, Deputy Chief of the Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs. The Minutes of Discussions covering the principal parts of the plan were agreed upon, duly signed, and exchanged by the Philippine and Japanese Governments (Refer to Appendix 1).

During their stay in the country, the team carried out the following tasks :

1) Discussions with the Philippine Government Officials

The team met the Philippine Government officials for discussions on the grant aid requested and the background of the current plans. The topics covered included implementation of the plans, organizational details, planning of studies and activities, execution details, maintenance control, and budgetary provisions.

During their stay in the country, the team carried out the following tasks :

2) General Survey on Occupational Safety and Health in the Philippines

Data was collected on the government policies on occupational safety and health as well as hazards and also on their actual state in the Philippines. A number of related institutions were visited for the purpose.

3) On-site Studies and General Surveys on Construction

The projected site was surveyed and the infrastructure in the surrounding areas was studied. The surveys took into account the construction materials available, cost, and labor conditions.

This report is based on an analysis that was carried out in Japan as a result of the surveys conducted in the Philippines. It is intended to serve as a basic design study report for the Construction Project of the Occupational Safety and Health Center in the Philippines.

## **CHAPTER 2. BACKGROUND OF THE PROJECT**



## CHAPTER 2. BACKGROUND OF THE PROJECT

### 2-1. The Sixth 5-Year Economic Development Plan and Socio-economic Situation in the Philippines

Following the four successive economic plans that started in 1967, the Government of the Philippines laid down a ten-year development plan from 1978 to 1987. The fifth 5-year plan (1978 - 1982) formed the first half, and currently the sixth 5-year plan (1983 - 1987) is under way.

The following are considered as major goals in the sixth 5-year economic development plan :

- continuous economic growth
- equal distribution of developments
- wide-scale development of human resources

The plan emphasizes improving the standard of living of low-income people, providing and improving infrastructure, development of alternative energy resources.

It would involve :

- 1) reducing unemployment
- 2) increasing productivity in agriculture and manufacturing
- 3) rectifying regional unbalances and equalizing income distribution
- 4) providing and improving infrastructure
- 5) lowering dependence on imported petroleum
- 6) utilizing domestic capital sources
- 7) fulfilling needs of population growth
- 8) promoting the participation of the private sector in the economic development process

The development plans could be implemented over a wide range of targets. In 1983, the economy in the Philippines suffered a massive capital outflow and a rapid depletion of its foreign reserves. This, in addition to the increase of external liabilities, has seriously affected the current five year plan.

Consequently, the Government of the Philippines has adopted a tight monetary policy by imposing restraints on imports, and is trying to rebuild the country's economy through fresh economic measures.

## 2-2. Occupational Safety and Health Administration in the Philippines

Using the American Standards as its model, the Labor Code was enacted in 1974.

Main content of the Code is as follows :

- establishment of safety and health standard for the prevention of labor hazards.
- survey and research for developing preventive technology of labor hazards.
- training for the development of human resources in the field of safety and health, and carrying out other legal responsibilities.

The MOLE enacted the Occupational Safety and Health Standards in 1978, which is presently in effect. The Standards clearly define criteria, which are the basis of the Philippines' occupational safety and health administration. However, their goals have not actually been achieved because the standards are highly sophisticated, administrative supervision is not thorough, and the actual working environment is not well understood.

Table 2-2-1. Main Contents in the Occupational Safety and Health Standards

- Training of Personnel in Occupational Safety and Health (Rule 1030)
- Safety Committee (Rule 1040)
- Occupational Health and Environmental Control (Rule 1070)
- Person Protective Equipment and Devices (Rule 1080)
- Hazardous Materials (Rule 1090)
- Hazardous Work Process (Rule 1120)
- Explosives (Rule 1140)
- Boiler (Rule 1160)
- Unfired Pressure Vessels (Rule 1170)
- Machine Guarding (Rule 1200)
- Electrical Safety (Rule 1210)
- Elevators and Related Equipment (Rule 1220)
- Construction Safety (Rule 1410)
- Fire Protection and Control (Rule 1440)
- Agricultural Chemicals (Rule 1950)
- Medical and Dental Services (Rule 1960)



The present situation in each field is as follows :

1) Hygiene Control Administration

The following are hygiene control regulations in the Occupational Safety and Health Standards :

- permissible density of harmful objects, noise in the workshop, illumination, ventilation, etc.
- use of personal protective devices and guards and their structure.
- treatment of chemicals for agriculture, and handling of inflammable, explosive, dangerous and toxic chemicals.

It is difficult to determine the extent that the regulations are abided by. Every enterprise is mandated by law to submit a "Report on Labor Hazards and Occupational Diseases", but does not necessarily comply with it. Statistical data is not sufficient to grasp the actual situation of hygiene control.

2) Health Control Administration

The Occupational Safety and Health Standards require each enterprise to have industrial physicians, industrial dentists, industrial nurses. The number of staff depend on the size of the enterprise. This enables sufficiently maintaining a first-aid system, forming the record of medical examinations, and reporting it to the office of local Labor Standards and Welfare Officer (LASWO). The Standards require medical examination at the time of obtaining a job, leaving a job, and periodically in between.

A special medical examination is required for those who deal with toxic objects such as lead, mercury, or hydrogen sulfide. Unfortunately, only about 30 of the 2000 that are mandated to submit do so. Therefore, it is difficult to evaluate the health level of workers in each enterprise and in the Philippines as a whole.

**Table 2-2-2. Number of Establishments which need Doctors, Dentists, Nurses and First Aiders as Safety Committee Member**

Size and Classification of Establishment		Members of Safety Committee that Establishments must organize								Total number of establishment by size	Rate to total number of establishment	Number of establishments which has duty to appoint doctor, dentist, nurse and first aider
No. of Workers	Classification	First aider		Nurse		Doctor		Dentist				
		Full time	Part time	Full time	Part time	Full time	Part time	Full time	Part time			
More than 10 Below 50		<input type="radio"/>								21,061		21,061
More than 50 Below 200	Hazardous Not hazardous	<input type="radio"/>		<input type="radio"/>						4,197 4,197	40% 60%	1,679 2,518
More than 200 Below 300		<input type="radio"/>				<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	748		748
Between 300 and 1000	Hazardous	<input type="radio"/>				<input type="radio"/>			<input type="radio"/>	913	50%	466
Ditto	Not hazardous	<input type="radio"/>		<input type="radio"/>			<input type="radio"/>		<input type="radio"/>	1,008	50%	504
Over 1000	Hazardous	<input type="radio"/>				<input type="radio"/>		<input type="radio"/>		95	70%	67
Ditto	Not hazardous	<input type="radio"/>		<input type="radio"/>			<input type="radio"/>		<input type="radio"/>	30	30%	(10)

As for the training of industrial physicians and nurses, re-education once a year is compulsory in addition to the initial training at the time of employment. The training is through the University of the Philippines - Institute of Public Health (UP-IPH), Philippine Occupational and Industrial Medical Association (POIMA), and Occupational Health Nurses Association of the Philippines (OHNAP), which are authorized by the MOLE. It is conducted for an average of 90 doctors and 70 nurses who are newly employed for the job and for an average of 170 doctors and 160 nurses a year for re-education. These figures are low compared to the total staff in enterprises consisting of about 1,750 full-time doctors and about 5,240 nurses.

Judging from the frequency of reports submitted and participation in the training, there is a big discrepancy between the standards and the actual situation.

3) Environment Control Administration

The country has sufficient environmental control laws. However, as described in 1), statistical data on environment control is far from sufficient so that the actual compliance with the laws can hardly be grasped. This would be due to the lack of well-organized implementation mechanism for environmental measuring technologies.

4) Safety Control Administration

Acquired data show the number of demanded labor accidents compensation that the Philippines turned over and the labor hazard occurrence situation in 1984 for each industry according to the kinds of labor hazards. These are based on hazard reports that about 107 large companies submitted, thus representing only a portion of all companies. The number of hazards in one million total man-working hours for the whole Filipino industry in 1984 is 11.29, (in Japan it is 2.77). This figure is derived from reports from only a handful large companies. Therefore, the actual figure should be much higher.

Table 2-2-3. Distribution of Accidents by Extent of Injuries

Extent of Injuries	1979		1980		1981		1982		1983	
	No.	%	No.	%	No.	%	No.	%	No.	%
All Injuries	6112	100.00	6639	100.00	5200	100.00	5091	100.00	4709	100.00
Temporary Total	5273	86.27	5425	81.71	4382	84.27	4194	82.38	3824	81.21
Medical Treatment	779	12.76	1146	17.26	764	14.69	842	16.54	843	17.90
Fatal	50	0.82	55	0.83	30	0.58	33	0.65	22	0.47
Permanent Partial	10	0.16	13	0.20	24	0.46	22	0.43	20	0.42

Source : Employee's Work Accident/Illness Report (107 Establishments)  
MOLE/BWC/HSD/IP-6

Remark : In case of 40,639,667 establishments in Japan in 1984,  
All injuries : 271,884, Fatal : 2,635  
Source : Safety and Health Yearbook - 1985

Under these conditions, the MOLE has been trying to enforce the standards by enforcing spot inspections by LASWOs.

In 1984, spot inspections were made to :

900 enterprises for general working conditions for general working.

4,000 enterprises for safety technology criteria for safety working.

It is reported that about 700 enterprises among the above, which is about 18%, were in violation of the standards. The rate of conducting on-the-spot inspection is only about 1% though there are about 380,000 enterprises in the Philippines. Therefore, the implementation of the supervision is not enough and the actual situation of the compliance with safety criteria is not well grasped.

Table 2-2-4. Frequency and Severity Rates (1984)

Industry	FR	SR	Remarks (in case of Japan)	
			FR	SR
All industries	11.29	703	2.77	340
Agriculture, fishery & forestry	19.00	403	18.65 (forestry only)	1460 ( " )
Mining & quarrying	3.09	1,780	13.20	8370
Manufacturing	11.99	1,375	1.81	200
Electricity	7.56	4,204	1.15	90
Construction	5.09	548	2.20	390
Transport, communication & storage	1.87	21	5.26	590
Services	14.88	1,635	0.21	10

Source : 1984 Work Accidents Statistics  
(from 107 establishments)  
EWC, MOLE

Source :  
Safety and Health  
Year book-1985  
(from 40,639,667  
establishments)

**Table 2-2-5. Number of Establishments which need Safety Men and First Aiders as Safety Committee Member**

Size and Classification of Establishments		Trainee Number	Safety man to be appointed		Number of Establishments by size	Rate to total number of establishments	Number of Establishments which have duty to appoint safety men and first aiders
No. of Workers	Classification		Full time	Part time			
Between 100 and 1000	Not hazardous	Inspector or engineer	1	○	3,026	60%	1,816
Over 1000	Ditto	Inspector	1	○	260	40%	104
Between 100 and 200	Hazardous	Inspector or engineer	1	○	1,530	40%	612
Over 200	Ditto	Ditto	2	○	1,756	50%	878
							Sub-total 3,410 (In Metro Manila 1,364)
Below 100	Ditto	* (4)		○	380,280	40%	152,112 (In Metro Manila 60,845)
Ditto	Not hazardous	* (5)		First aider	380,280	60%	228,168 (In Metro Manila 91,267)

- Notes: 1. Source for number of establishments is "Distribution of Establishments by Employment Oizentand Major Industry Group, Philippines : 1984"
2. Rate to total number of establishment was calculated on the assumption that 100% of manufacturing and construction establishments are hazardous and the others are not hazardous.
3. Number of establishments in Metro Manila was calculated on the assumption that its rate is 38.3~40% of total number of establishments in the Philippines with reference to "Number of Establishments and work by Industry".
4. There is no regulation about duty of training and number of trainees, but it is regulated that those personnel who have become safety men should have adequate training.
5. Those personnel who have become first aiders must have adequate training in accordance with the Standards.

**Table 2-2-6. Educational Profile of LASWOs in the Regional Offices**

Education	No. of LASWO	Percent
1. Law	51	21.7
2. Commerce/Business Administration	56	23.8
3. Engineering	71	30.2
4. Education	25	10.6
5. Medical/Allied Courses	3	1.3
6. Liberal Arts	29	12.3
7. Others	1	0.1
Total	236	100.00%

Source : MOLE/BWC "Statistics"

5) Training and Public Information Field

LASWOs supervise and inspect those enterprises which the Occupation Safety and Health Standards and other related laws are applied to. Currently there are 13 regional labor offices. The total number of LASWOs is 236. Among them only 74 are with technical background, including 4 with medical background (30% of the total). Training for LASWOs is conducted once or twice in every few years, but it is hard to say that it is done on a planned basis. There are 81 staff members who manage the labor compensation system. They certify occupational diseases and the grade of injuries at the ECC, including Government Service Insurance System (GSIS) and Social Security System (SSS) are under the ECC. The Training for physicians has not been done on a planned basis just as is the case with LASWOs.

**Table 2-2-7. Number of personnel who must undergo training on occupational safety and health in establishments in accordance with the Standards**

	First Aider	Nurse	Doctor		Dentist	
			Full time	Part time	Full time	Part time
Number of Personnel	23,599	2,193	1,281	1,262	533	1,262
Establishments with workers more than 10	13,527 ~ 27,053 Note : $23,053 \div 2 = 13,527$ in case of the establishments adopting two shift work system.					

**Table 2-2-8. Number of Personnel who must undergo training as safety men in establishment in accordance with the Standards**

Establishment	Establishments with workers more than 100	Hazardous establishments with workers not more than 100	Not hazardous establishments with workers not more than 100
In the Philippines	4,392	152,112	228,168
In Metro Manila	1,757	60,845	91,267

It is compulsory that private companies conduct training for physicians, nurses, safety managers, and first-aiders according to the size of each enterprise. However, legally mandated training is insufficient because;

- 1) there are too many mandated enterprises and people who need training;
- 2) duties (such as selection of safety managers in the enterprises) that the laws apply to are administratively not thoroughly enforced;
- 3) there are not enough facilities and human resources to conduct training.

As for the public information activities, they are limited to safety poster and catalogue publications presently.

**Table 2-2-9. Training Programs Conducted for Labor Inspectors (1975-1985)**

Kind of Training	Date of Training	Place of Training	No. of Participants
Short-Term Training Course for LASWO on Occupational Health and Safety	Feb. 16 to Apr. 19 1985	Manila Legaspi City Dipole City Baguie City	191
Pilot Training Program for the Labor Inspectorate	Aug. 6-24, 1984	BWC	31
Seminar Workshop on Effective Labor Law Enforcement	June 2-25, 1981	Miyas ng Bulacaan	140
Seminar Workshop on Effective Labor Law Enforcement	March 18-23, 1981	Banarra Hotel	103
Basic Training Course for LRO, ISE, SE	Dec. 10-14, 1979	Batulao Village Club, Nasugbu, Batangas	70
LRO/ISE Evaluation Seminar Workshop	Aug. 7-11, 1979	Antipolo Hotel Antipolo, Rizal	60
First National Evaluation of Present Policies of the BOL on Labor Standards	Dec. 16-21, 1977	BLS	162
Fourth Training Course for LRO	Dec. 13-23, 1976	Antipolo Hotel Antipolo, Rizal	55
Training Course of Safety and Health Personnel	Dec. 9-20, 1975	ditto	70
Occupational Health and Safety Seminar	Oct. 27-31, 1975	ditto	20
3rd LRO Training	June 13-29, 1975	ditto	47
2nd LRO Training	May 15-26, 1975	ditto	Not clear
First Training Course for LRO	May 6-25, 1975	ditto	ditto

Source : MOLE/BWC Data

## **2-3. Actual Situation of Occupational Safety and Health Organizations**

The Safety Organization of the Philippines (SOPI), Philippine Occupational and Industrial Medical Association (POIMA), Occupational Health Nurses Association of the Philippines (OHNAP), University of the Philippines - Institute of Public Health (UP-IPH), etc. are the MOLE-accredited training organizations.

The activities of each organization are outlined as follows :

### **1) SOPI**

SOPI is a private organization concerned with the whole occupational safety issue in the Philippines. It has actively cooperated with other related organizations in the public and private sectors. Primarily managed by membership fees from about 10,000 individual members (about 3,000 are active members) and about 300 corporate members, it aims at the prevention of labor hazards through establishing safety consciousness for public safety and through public information activities.

Main activities that the SOPI is currently engaged in are as follows :

- educational training activities on occupational safety and health.
- participation as technical advisor in various safety related committees and conferences.
- liaison with international organizations concerned with labor safety, and participation in conferences.
- public information activities on labor safety.

Lecture-style basic training is being conducted mainly for large corporations. Basic courses on labor safety and health (about 40 hrs) are conducted approximately 4 times a year.

### **2) POIMA, OHNAP**

According to the Occupational Safety and Health Standards, industrial physicians and industrial nurses are to receive training of 50 - 60 hours when they start the job and 4 hours a year for re-education. Training is conducted through POIMA (about 1,000 members), OHNAP (about 500 members) and UP-IPH, which are designated by the MOLE.

POIMA has predominantly been conducting lecture-style training on the annual average of about 90 doctors who start the job, and about 170



incumbent doctors. It is also disseminating information by such means as holding various seminars and lectures on industrial medicine.

OHNAP, on the other hand, conducts short training about three times a year for industrial nurses.

**Table 2-3-1. Number of Medical Personnel (1979-1985)**

		(person)
Physicians	Professional Regulations Commission	49,502
	Philippine Medical Association	10,400
	Philippine Occupational & Industrial Medical Association	1,000
	No. of Physician with training in OHS at UP-IPH	456
Nurses	Professional Regulations Commission	146,887
	Philippine Nurses Association	5,000
	Occupational Health Nurses Association of the Philippines	500
	No. of nurses with training in OHS at UP-IPH	605
Medical Technologists	Professional Regulations Commission	16,471

### 3) UP-IPH

UP-IPH is, founded with the cooperation of World Health Foundation, a research institution attached to the University of the Philippines (UP) as a research organization on public health. Main activities are as follows :

- Offering units of public health in the graduate school.
- research and testing public health including safety and health.
- cooperation for the training on occupational health control.
- exchange technologically with other external organizations such as World Health Organization (WHO).

It conducts seminar-type training about 4 times a year mainly for those outside the Institute.

## **2-4. Background of the Request for this Project**

The Government of the Philippines has been striving to improve working environment and conditions in its present economic development plan. It has been putting laws and regulations in order on the recognition that it is indispensable to improve and substantiate safety measures not only for protecting workers but increasing productivity, especially production activities.

However, as was described in the "Administration of Occupational Safety and Health" section, the circumstances of labor hazard occurrence, working environment, and so on are not sufficiently grasped. Furthermore, a system to enforce these regulations thoroughly is not well established. Therefore, there is a big gap between what laws stipulate and the actual situation. On safety and health education, in particular, many enterprises are mandated to receive it. However, the system of conducting it, which is the responsibility of the administration side, has not been fully established yet. There are few training facilities that could provide proper guidance to each enterprise. Hence, it is not easy to enforce the laws in practice.

To solve these problems it is necessary to :

- substantiate the education and training on occupational safety and health for administrative personnel and private firms through substantiating training facilities and implementating the system, thereby increasing and strengthening administrative capabilities.
- understand the actual situation through survey and research on health, safety, and environment control.
- improve the current laws and regulations such as the Occupational Safety and Health Standards by reviewing them so that they would address the actual situation.

Due to the need of core facilities for the above purposes, the Government of the Philippines drew up a plan to establish the Center and requested the Government of Japan to extend a grant aid as well as technical cooperation to execute it.

## **CHAPTER 3. CONTENTS OF THE PROJECT**



## **CHAPTER 3. CONTENTS OF THE PROJECT**

### **3-1. Objectives of the Project**

The Government of the Philippines has been making efforts to improve the working conditions and environment through the enactment of the Labor Code in 1974 and Occupational Safety and Health Standards in 1978. However, the actual situation on the occupational safety and health is not as satisfactory as has been expected and the tendencies are :

- the above-mentioned standards are not abided by,
- there are many enterprises to which the administrative inspection should be extended in accordance with the regulations,
- the actual working environment is not fully understood.

Hence, it is necessary to strengthen especially the administrative implementation system of the occupational safety and health measures.

The main purpose of the project is to establish an Occupational Safety and Health Center, which plays the central role for occupational safety and health in the Philippines. The Center will train administrative officers and the safety men in the private sectors, survey and research occupational hazards and diseases. Consequently it will :

- 1) promote widespread application of techniques to insure occupational safety.
- 2) implement related legal provisions and modify them when necessary.
- 3) prevent occupational hazards at work sites.
- 4) prevent occupational diseases at the respective work sites.

The above are intended to protect the labor force in the Philippines, improve labor productivity, and help develop the country's economy.

### **3-2. Review of the Contents of the Request**

The content of the request that the Philippine side proposed establishing this Center is, in general, as follows :

Functions and the content of activities are :

- training administrative personnel/staff and those who are in charge of safety and health in the private sector.
- public information activities on occupational safety and health.
- technical research activities on occupational safety and health.
- surveying working environment and policies.
- medical examination and research on occupational diseases.
- acquisition of statistical and scientific data.

Facilities and equipment are :

- classroom, experiment room, audio-visual rooms and equipment that are necessary for training activities.
- experiment and analysis room, research room, library and data room and equipment that are necessary for survey, research, and public information.
- medical examination facilities and equipment on health control.
- dormitory for trainees.
- auditorium for meetings and lectures on occupational safety and health.
- other office and administrative room, etc. to operate the facilities.

The MOLE, as the executing agency of this project, hopes the Center will play a central role for the prevention of labor hazards in the Philippines. And the functions to be fulfilled by the Center include practical survey and research concerning health, safety and environment, gathering and analysing various data, executing educational training.

The following are the result of studies on the Philippine's request from a viewpoint of implementing the Japan's Grant Aid :

#### **1) Activities in the Center**

According to the Philippine's request, activities such as training, measurement and research, and public information should be done in conjunction with Health Control Division, Safety Control Division and Environment Control Division. Considering the present situation of occupational safety and health administration as described in the previous chapter, it is necessary to promote the Center's activities in the following procedure :

- In the first stage after the Center's opening, stress should be on developing training activity on occupational safety and health by establishing an implementing body backed up by both capable staff and technology.
- Then, the Center should substantiate measurement and research activities and, should take to prevent occupational hazards.

## 2) Education and Training

Every enterprise is mandated by law to organize a safety committee consisting of safety men, first aiders, physicians, dentists, nurses, etc. and to have them undergo training on safety and health control. However, such training has not been conducted sufficiently in the country due to a lack of instructors and public facilities. At present, such kind of facility is vitally needed in the Philippines.

## 3) Physical Checkups and Environmental Measurements

Regulations relating to physical examinations and environmental measurements are well provided in the Occupational Safety and Health Standards.

However, present situation is such that the administrative body, which is to observe the laws, has not been so strong as to be able to fulfill its duty thoroughly. Furthermore, the actual working conditions in private enterprises are not sufficiently understood due to insufficient reports on physical checkups, etc.

In order to improve these situations, the following are pointed out:

- Implement an administrative mechanism to fully equip.
- Carry out medical examinations and working environment measurement from the standpoint of administration, and then to fully understand their actual situations.
- Take measures necessary to rectify the discrepancy between laws and actual state.

Consequently, it should be quite significant and effective from the view point of fulfilling the administrative duty to equip with such function in the Center as to execute medical examinations and working environment measurements.

#### 4) Juxtaposing an Auditorium

The Philippine side has requested juxtaposing an auditorium in the Center, which is utilizable to 1) the Center's whole activity on training such as orientation and guidance for trainees, lectures, etc., and 2) general meetings and lectures for the occupational safety and health related agencies. Since the Center is to play a central role in occupational safety related activities and in increasing occupational safety awareness in the Philippines, it is deemed significant that the Center be provided with the auditorium.

#### 5) Lodging Facilities for Trainees

The trainees that the Center accepts will be those who belong to administrative services or occupational safety related sections in private sectors. Most of the Training period will last for two or three weeks. At least half of the trainees will come from the provincial areas.

Taking into account the lodging situations nearby the projected site, it is necessary for the Center to furnish a dormitory.

### 3-3. Outline of the Project

#### 3-3-1. Project Execution Body and Operation System

The construction planning and implementation of the Center is under the jurisdiction of the MOLE in the Philippines. The committee for implementation, the members of which are selected from the Bureau of Working Conditions (BWC) in the MOLE and the Employees' Compensation Commission, will have authority over the daily plans. The chairman of the committee is the director of the BWC and is in charge of the concerned agencies and ministries as well as deciding detailed work for the construction of the Center.

After completion, the Center will be attached to the MOLE.

The policy-making board of the Center is the governing board that is chaired by the minister of the MOLE. It is composed tripartily of three government representatives, two management representatives and two labor representatives. This board will also have ex-officio (but non-voting members) who will serve as advisors to the board.



A joint committee will be set up to discuss annual plans, policies, and daily administration related to the technical cooperation.

Five divisions that are under Executive Director and Deputy Executive Director, (the Administrative Division, the Training and Public Information Division, the Health Control Division, the Environmental Control Division, and the Safety Control Division), will operate and manage the Center.

Fig. 3-3-1. Organization of Ministry of Labor and Employment (MOLE)

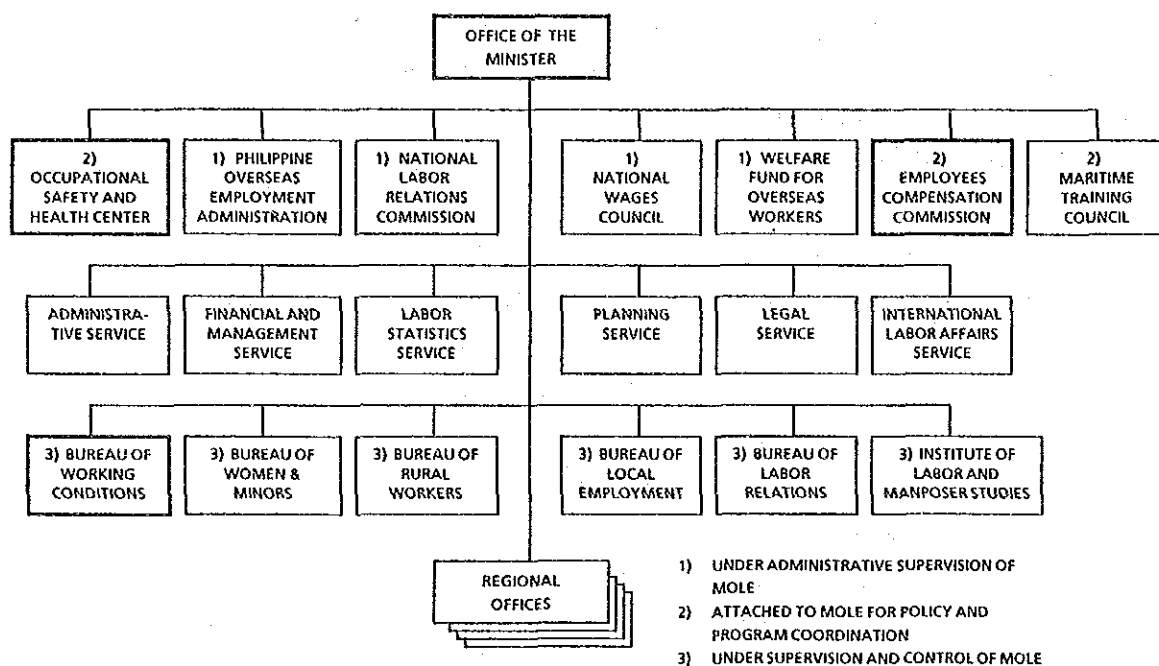
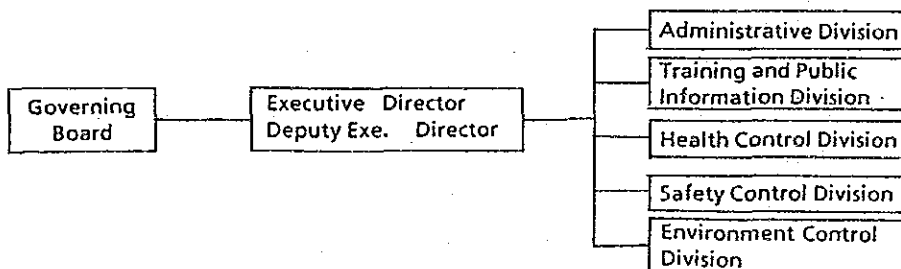


Fig. 3-3-2. Organizational Chart of OSHC



### 3-3-2. Contents of Activity

The activities that are planned to be undertaken by the Center's establishment are roughly described as follows :

- training and public information activities on occupational safety and health.
- conducting medical examinations and researching occupational diseases.
- survey, research, and public information activities on occupational safety and health.
- surveying and researching actual working conditions and environment.
- acquiring and studying various data and information, and their classification.

The Public Information Division, Health Control Division, Safety Control Division, and Environmental Control Division will do the above activities. The breakdown of each Division's task involves :

#### 1) Training and Public Information Division

- training for administrative personnel/staff
  - training for LASWOs
  - training for doctors of the ECC, SSS, and GSIS.
- training for personnel in the private sector
  - training safety committee member representatives of either labor or management side.
  - training industrial hygienists, dentists, and nurses.
  - training first aiders and safety managers.

This division will also be responsible for providing textbooks and educational tools used for training. Involved are publishing books on safety and hygiene, and advising private sectors' training and public information activities.

#### 2) Health Control Division

##### (1). General and Special Medical Examination

Health check-ups will be done independently for workers when administratively considered necessary on the following items.

General check-up for :

tuberculosis, audio and visual senses, auscultation and percussion on the chest and abdominal region, blood, urine.

Special check-up :

lung check-up for those who deal with dust, neurological check-up for those who deal with lead and organic solvent, anemia, lead content in blood, liver, and kidney.

(2). Surveying and researching health control

- to know the current state, gathering medical data and researching occupational diseases.
- cooperation to the administration by setting standards and guidelines for health control.

(3). Advising for administrative personnel/staff and concerned organizations in private sectors and cooperation in training and public information activities at the Center.

3) Safety Control Division

(1). To evaluate safety measures at hazardous enterprises. To conduct safety checks at accident or disaster-prone enterprises.

(2). To guide and cooperate with LASWOs who conduct safety check and survey of hazards to the private sectors.

(3). To cooperate with administrative authorities to enact and improve laws, regulations and standards as well as survey and research safety control.

(4). To assist in the training and public information activities that are conducted by the Center.

4) Environment Control Division

(1). To conduct survey measurements of the working environment when administratively considered necessary.

(2). Checking dustproof masks and poison proof masks. Collaboration with concerned organizations to improve those conditions.

(3). Gathering and analyzing the data on working environment control.

(4). Collaborating public information activities with the Center.

(5). Cooperating with the administration to organize environmental control standards and guidelines.

### 3-3-3. Training Program

The Center is planning to offer two training programs. With Japan's technical cooperation on a project basis, separate training programs for the administrative personnel and private sector should be able to begin in the second and third years respectively. The first two years would be used for preparations. Exception would be made for important courses which could be started by the Filipinos in the first year.

Considering the situation in the Philippines, there may not be enough trainees, especially from the private sector. However, the Philippine side proclaimed that it would do public information activities and also take necessary legal and administrative measures. This involves strengthening the authority of labor administration and enforcing more severe punishment to firms which violate the laws.

Each of the Training courses is tentatively detailed hereunder, with the contents, number of trainees, period, etc.

#### I . Training Program for Administrative Personnel / Staff

Course Name	Trainees	Main Subjects	Frequency (per year)	Capacity (Number)	Period
Training for newly hired LASWOs	Newly hired LASWOs	Trends and Tasks of Administration, Trends in Labor Economy, Laws Relating to Labor Safety and Health, Basic Knowledge of Labor Safety, Basic Knowledge of Labor Health, Business of Welfare Officer for Safety and Health (Practice)	1 time	30	1 month
Training for experienced LASWOs who are technical officers (General Training on safety & health)	Engineering LASWOs with several years experience	Trends and Tasks of Administration on safety and health, Safety Engineering, Investigation and Cause-analysis of Accidents (Practice), Evaluation in Advance (Practice), Diagnosis of Safety and Health (Practice), Improvement of Working Environment (Practice in measurement & design)	1 time	30	1 month

Course Name	Trainees	Main Subjects	Frequency (per year)	Capacity (Number)	Period
Training for experienced LASWOs who are technical officers (Professional training) Machinery and Electricity Safety Course	Technical LASWOs with more than 3 years experience	Trends and Tasks of Safety Administration, Reliability Engineering, Human Engineering, Transportation Engineering, Work Analysis, Automatic Control, Destruction of Material, Electric Engineering, Practice in Advance Evaluation of Safety (Manufacturing factories), Practical in Advance Diagnosis of Safety and Health (Manufacturing factories)	1 time	10	2 to 3 weeks
Safety course on boiler operations	LASWOs with more than 3 years experience	Trends and Tasks of Safety Administration, Trends and Tasks of Boilers, Automatic Control, Water Control, Fuel and Combustion, Laws of Operation and Maintenance and Construction Standard, Obligation of Inspection	1 time	10	2 to 3 weeks
Safety course on elevator operations	Technical LASWOs with more than 3 years experience	Trends and Tasks of Safety Administration, Trends and Tasks of Elevators, Design of Elevators (Construction standard), Manufacture of elevators, Inspection of elevators, Practice	1 time	10	2 to 3 weeks
Construction Safety Course	LASWOs with more than 3 years experience	Trends and Tasks of Safety Administration, Economic Situation of Construction Business, Engineering Geology (mainly on earthfall prevention), Structural Mechanics (mainly on design of temporary structure), Mechanizing Application, Practice in Advance Evaluation of Safety (Construction work), Safety	1 time	10	2 to 3 weeks
Chemical safety course	Technical LASWOs with more than 3 years experience	Practice in Hygienic Diagnosis (Construction work), Trends and Tasks of Safety Administration, Knowledge about Dangerous Material and Chemical Reactions, Structure, Instrumentation, Control, etc. of Chemical Equipment, Handling and Measurement of Chemical Equipment, Protective Apparatuses and Tools, Advance Evaluation of Safety (Chemical manufacturing factories), Practice	1 time	10	2 to 3 weeks
Training for industrial hygienists Health Control Course	Medical, hygienic, or technical LASWOs with more than 3 years experience	Trends and Tasks of Industrial Hygiene, Occupational Diseases and Their Prevention, Labor Physiology, First-aid Treatment, Improvement of Working Environment, Labor Hygiene, Practice in Health Examination	1 time	5	2 to 3 weeks
Environment control course	Technical LASWOs with more than 3 years experience	Trends and Tasks of Industrial Hygiene Administration, Occupational Diseases and Their Prevention, Practice in Designing Local Ventilation Equipment, Practice in Measurement of Working Environment	1 time	5	2 to 3 weeks
Training for recognition of occupational diseases	Physicians employed in ECC, SSS, AND GSIS	Trends and Tasks of Industrial Hygiene Administration, Epidemiology and Pathogenesis of Each Occupational Disease, Techniques and Criteria of Diagnosis on Each Occupational Disease, Technique of Differential Diagnosis	2 times	15	2 to 3 weeks
Training for occupational diseases classification	Physicians employed in ECC, SSS, and GSIS	Trends and Tasks of Industrial Hygiene Administration, Epidemiology and Pathogenesis of Occupational Diseases, Criteria of Diagnosis on Occupational Diseases, Medical Treatment and Its Evaluation of Occupational Diseases	1 time	15	2 to 3 weeks
Trainors' training course	LASWOs, etc.	Trends and Tasks of Occupational Safety and Health, Laws relating to Occupational Safety and Health, Education Technique	1 time	10	2 to 3 weeks

## II . Schedule of Training for Personnel of Private Industries

Course Name	Trainees	Main Subjects	Frequency (per year)	Capacity (Number)	Period
Course for safety committee members	Supervisors including field chiefs and representatives of trade unions, out of members of the safety committee which is compulsory	Method of planning the Working Process, Improvement of Working Method, Appropriate Layout, Method of Instruction and Education, Safety of Working Equipment, Checking Method, Remedies for Abnormalities, Maintaining of Interest in Safety and health	6 times	100	1 week
Safety and health Seminar for Executives	Executives from enterprises	Problems and Countermeasures of Safety and Health, Outline of Safety and Hygiene Laws, Management of Enterprise and Safety and Health, measures concerning Basic Items for Prevention of Occupational Accidents, Positive Measures for Prevention of Occupational Accidents	4 times	50	1 day
Training for industrial physicians	Candidates out of medical-university graduates	Outline of Industrial medicine, Epidemiological Research and Analysis of Research Results, Prevention Methods of Occupational Diseases (Control of Working Environment, Control of Work, health Control), Special Working Environment and health Injuries, Related Laws, Method of General and Special Medical Examination (including field work)	4 times	50	1 week
Training for Industrial Physicians	Existing Industrial Physicians	Trends and Tasks of Industrial Health Administration, Recent Information of Industrial Medicine, Occurrences and Prevention of Occupational Diseases, Case Study of Occupational Diseases	2 times	100	1 day
Safety man's course Manufacturer's course	Safety men or the candidates in manufacturing industry	Outline of Safety Control, Outline of Hygiene Control, Equipment for Planning, Improvement of Environment (Safety diagnosis & check), Safety and Health Education and Training (including first aids), Research Method and Analysis of Industrial Accidents, Practical Prevention Method of Industrial Accidents, Related Laws	6 times	50	2 to 3 weeks
Course for Construction Business	Safety men or the candidates in construction business	Outline of Safety Control, Outline of Hygiene Control, Advance Evaluation of Safety for Each Construction Work, Safety of Construction Equipment, Safety in Excavation, Safety of Construction Machines, Safety and Health Education and Training (including first aids), Research Method and Analysis of Industrial Accidents, Positive Prevention Method of Industrial Accidents, Related Laws	6 times	20	2 to 3 weeks
Course for mining	Safety men or the candidates in mining industry	Outline of Safety Control, Outline of Hygiene Control, Plan Making, Safety of mining Machines, Safety in Excavation, Safety and Health Education and Training (including first aids), Research Method and Analysis of Industrial Accidents, Positive Prevention Method of Industrial Accidents, Laws.	6 times	20	2 to 3 weeks
Agriculture Course	Safety men or the candidates in agriculture	Outline of Safety Control, Outline of Hygiene Control, Plan Making, Safety of Agricultural Machines, Safety in Agricultural Work, Safety and Health Education and Training (including first aids), Research method and Analysis of Industrial Accidents	6 times	20	2 to 3 weeks

Course Name	Trainees	Main Subjects	Frequency (per year)	Capacity (Number)	Period
Working environment measuring course	Staff in charge of working environment measurement at private enterprises	Harmful Factors and Health Injuries, Control Method of Working Environment, Aims, Method, and Evaluation of Working Environment Measurement, Practice in Working Environment Measurement (Handling method of measuring instruments, analysis of measured results, etc. chiefly concerning dust, organic solvents, chemical substances,	2 times	15	2 to 3 weeks
Working Environment Control Course	Staff in enterprises who are in charge of planning, designing, checking, etc. of total and local ventilation equipment	Method of Controlling Working Environment, Design and Maintenance of Local Ventilation Equipment, Positive Method of Improving Working Environment (Noises, High temperature, harmful substances, etc.)	1 time	30	2 to 3 weeks
Industrial nurse's training course	Candidates for industrial nurses	Industrial Medicine, Outline of Nursing, Basic Knowledge of Prevention of Occupational Diseases, Basic Knowledge of General Medical Examination, Basic Knowledge of Special Medical Examination	4 time	50	2 to 3 weeks
Industrial nurse's course	Those who are already industrial nurses	Trends and Tasks of Industrial Hygiene Administration, Industrial Medicine, Recent Findings and Knowledge about Nursing, Occurrences and Prevention of Occupational Diseases, Case Study of Industrial Nursing	2 times	100	1 day
Accredited doctors course	Accredited doctors	Epidemiology and Pathogenesis of Occupational Diseases, Diagnostic method and Diagnostic Standard of Occupational Diseases, Technique of Differential Diagnosis of Occupational Diseases, Therapy of Occupational Health	4 times	50	3 days
Industrial dentist course	Industrial Dentists	Trends and Tasks of Industrial Hygiene Administration, Industrial Hygiene Administration at Working Environment, Prevention of Occupational Diseases and case Research, Survey of Diseases and Analysis of Result, Examination Technic and Standard of Dentistry	4 times	50	1 week
Industrial dentists refresher course	Industrial dentists with several years experience	Trends and Tasks of Industrial hygiene Administration, Occurrences and Prevention of Occupational Diseases	2 times	100	1 day
First aider course	Supervisors in Industries	Laws relating to Occupational Safety, Practical Training and Knowledge on First-aid Treatment	6 times	50	3 days

**Tentative Training Schedule**  
**I. Training Courses for Administrative Personnel/Staff of (MOLE, ECC, SSS, GSIS)**

Course Name	Capacity (Number)	Period	Frequency (Per Year)	Philippine Side Plan						Tentative 5th year Training Schedule																
				1st year	2nd year	3rd year	4th year	5th year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec						
Training for newly hired LASWOs	30	1 month	once	35/2	25/1	25/1	30/1	30/1																		
Training for experienced LASWOs who are technical officers	30	1 month	once	Prep.	34/5	35/2	25/1	30/1																		
Training for safety engineers with more than three years experience-five separate courses																										
a. Mechanic & electric course	10	2-3 weeks	once	Prep.	10/1	10/1	10/1	10/1	10/1																	
b. Boiler course	10	2-3 weeks	once	"	"	"	"	"	"																	
c. Elevator course	10	2-3 weeks	once	"	"	"	"	"	"																	
d. Construction course	10	2-3 weeks	once	"	"	"	"	"	"																	
e. Chemical course	10	2-3 weeks	once	"	"	"	"	"	"																	
Training for industrial hygienists in the field of occupational health control	5	2-3 weeks	once	Prep.	5/1	5/1	5/1	5/1	5/1																	
Trainers' training course	10	2-3 weeks	once	10/1	10/1	10/1	10/1	10/1	10/1																	
Training for industrial hygienists in the field of working environment control	5	2-3 weeks	once	Prep.	5/1	5/1	5/1	5/1	5/1																	
Occupational diseases classification course	15	2-3 weeks	twice	Prep.	15/2	15/2	15/2	15/2	15/2																	
Disability evaluation course	15	2-3 weeks	once	Prep.	15/1	15/1	15/1	15/1	15/1																	



## II. Training Courses for Personnel of Private Industries

Course Name	Capacity (Number)	Period	Frequency (Per Year)	Philippine Side Plan					Tentative 5th year Training Schedule														
				1st year	2nd year	3rd year	4th year	5th year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
				Prep.	Prep.	50/4	50/4	100/6	Prep.	Prep.	50/4	50/2	50/4	50/4	50/4	50/4	50/4	50/4	50/4	50/4	50/4	50/4	
Course for safety committee members	100	1 week	6 times	Prep.	Prep.	50/4	50/4	100/6	F	F	F	F	F	F	F	F	F	F	F	F	F	F	
Course for executives of establishments	50	1 day	4 times	Prep.	Prep.	50/2	50/2	50/4	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
Course for physicians to be employed by establishments	50	1 month	4 times	"	"	50/4	50/4	50/4	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
Refresher training for physicians employed by establishments	100	1 day	2 times	"	"	100/2	100/2	100/2	F	F	F	F	F	F	F	F	F	F	F	F	F	F	
Safety man's course	50	2-3 weeks	6 times	"	"	50/4	50/4	50/6	D	D	D	D	D	D	D	D	D	D	D	D	D	D	
a. Manufacturing course	20	2-3 weeks	6 times	"	"	20/4	20/4	20/6	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
b. Construction course	20	2-3 weeks	6 times	"	"	20/4	20/4	20/6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
c. Mining course	20	2-3 weeks	6 times	"	"	Prep.	"	20/6	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
d. Agriculture course	20	2-3 weeks	6 times	"	"	"	"	20/6	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
Working environment measurement course	15	2-3 weeks	twice	"	"	15/2	15/2	15/2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Working environment improvement course	30	2-3 weeks	once	"	"	15/1	15/1	30/1	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
Industrial nurse's course	50	2-3 weeks	4 times	"	"	50/4	50/4	50/4	D	D	D	D	D	D	D	D	D	D	D	D	D	D	
a. Course for industrial nurses to be employed by establishments	50	2-3 weeks	4 times	"	"	50/4	50/4	50/4	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
b. Refresher training for industrial nurses employed by establishment	100	1 day	twice	"	"	100/2	100/2	100/2	F	F	F	F	F	F	F	F	F	F	F	F	F	F	
Accredited doctors course	50	3 days	4 times	"	"	50/4	50/4	50/4	D	D	D	D	D	D	D	D	D	D	D	D	D	D	
Industrial dentist course	50	1 week	4 times	50/4	50/4	50/4	50/4	50/4	D	D	D	D	D	D	D	D	D	D	D	D	D	D	
Industrial dentist refresher course	100	1 day	2 times	100/2	100/2	100/2	100/2	100/2	F	F	F	F	F	F	F	F	F	F	F	F	F	F	
First Aider course	50	3 days	6 times	50/6	50/6	50/6	50/6	50/6	D	D	D	D	D	D	D	D	D	D	D	D	D	D	
Total of Number of Trainees (I + II)										145	130	120	145	140	90	145	145	130	185	130	150	150	150
										150	100	130	100/60	150	50/100	150	100	150	100/60	150	100/60	150	150

**Legend**

- (1) A,B,C : Seminar Room
- (2) ( ) shows number of trainees for one day course
- D,E : Small Classroom
- (3) [ ] Total number of trainees in the first half month
- F : Large Classroom
- Total number of trainees in the latter half month

### 3-3-4. Outline of Facilities and Equipment

An outline of the facilities and equipment in the plan is as follows :

#### 1) Outline of Facilities

- Office of the Executive Director
  - Executive Directors' Office, Deputy Directors' Office, Senior Staffs' Office, Room for Secretaries and Reception, Lecturer's Room, Conference Room.
  - Computer Section - Room for data processing
- Administrative Division
  - Finance and Budget Section - administrative room, dining room (run by a private company)
  - Administrative Section - Lobby for Administrative Personnel, Machinery Room, Power Room, Car Garage.
  - Dormitory section - Office, Bed Rooms, Study Room
- Training and Public Information Division
  - Training Section - Office, Training Room, Seminar Room, Training and Experiment Room, Drill Room
  - Audio-visual Education Section - Office, Editing Room for Audio-visual educational tools.
  - Public Information Section - Office, Printing Room, Exhibition Corner, Library and Data Room, Auditorium.
- Health Control Division
  - Medical Examination Section - Room for Medical Examiners, Medical Examination Room.
  - Diagnostic Section - Diagnostic Personnel Lobby, Specimen Diagnosis Room, Specimen Diagnosis Preparation Room, Specimen Disposal Room, Reagent Room, Blood Drawing Room, Urine Collecting Room, X-ray Taking Room, X-ray Operation and Analysis Room, Dark Room, Hearing Examination Room, Electrocardio Room, Body Measurement Room, Reception.
- Safety Control Division
  - Safety Test Section - Safety Engineers' Room, Test Room.
  - Safety Research and Survey Section - Research and Survey Room, Machineries and Equipment Storage.
- Environment Control Division
  - Working Environment Section - Working Environment Research Room, Environment Measurement and Experiment Room, Machines and

Device Room for Environment measurement and Experiment. X-ray Analysis Equipment Room, Reagent Room, Water Process Room, Staff Lobby, Machines and Equipment Storage.

- Industrial Hygiene Section - Industrial Hygiene Research Room, Local Exhaust Ventilation Devices Room, Mask Examination Room.

## 2) Outline of Equipment

- Frequently used equipment
  - vehicles for training, measurement and survey
  - printing machine for making textbooks
  - equipment for making audio-visual educational tools (audio-visual equipment and devices included)
  - equipment for information and data processing (e.g. personal computer)
- Equipment for Health Control Division
  - Check X-ray Equipment (X-ray car included)
  - equipment for general medical examination
  - devices for examination and analysis of blood, urine, etc.
  - other devices for experiment and research on health control
- Equipment for Environment Control Division
  - various devices for environment measurement
  - equipment for training
  - devices for examination and analysis on environment control
  - devices for environment improvement (local exhaust-ventilation apparatus, examination devices of dust-proof, and gas masks)
- Equipment for Safety Control
  - test devices of safety helmet, safety shoes, safety belt
  - various safety equipment (woodworking machine, press machines, grinding machine, welding machine, etc.)
  - various safety and protection equipment
  - other measurement devices and training equipment on safety control

### 3-3-5. Management Plan, Personnel Allocation

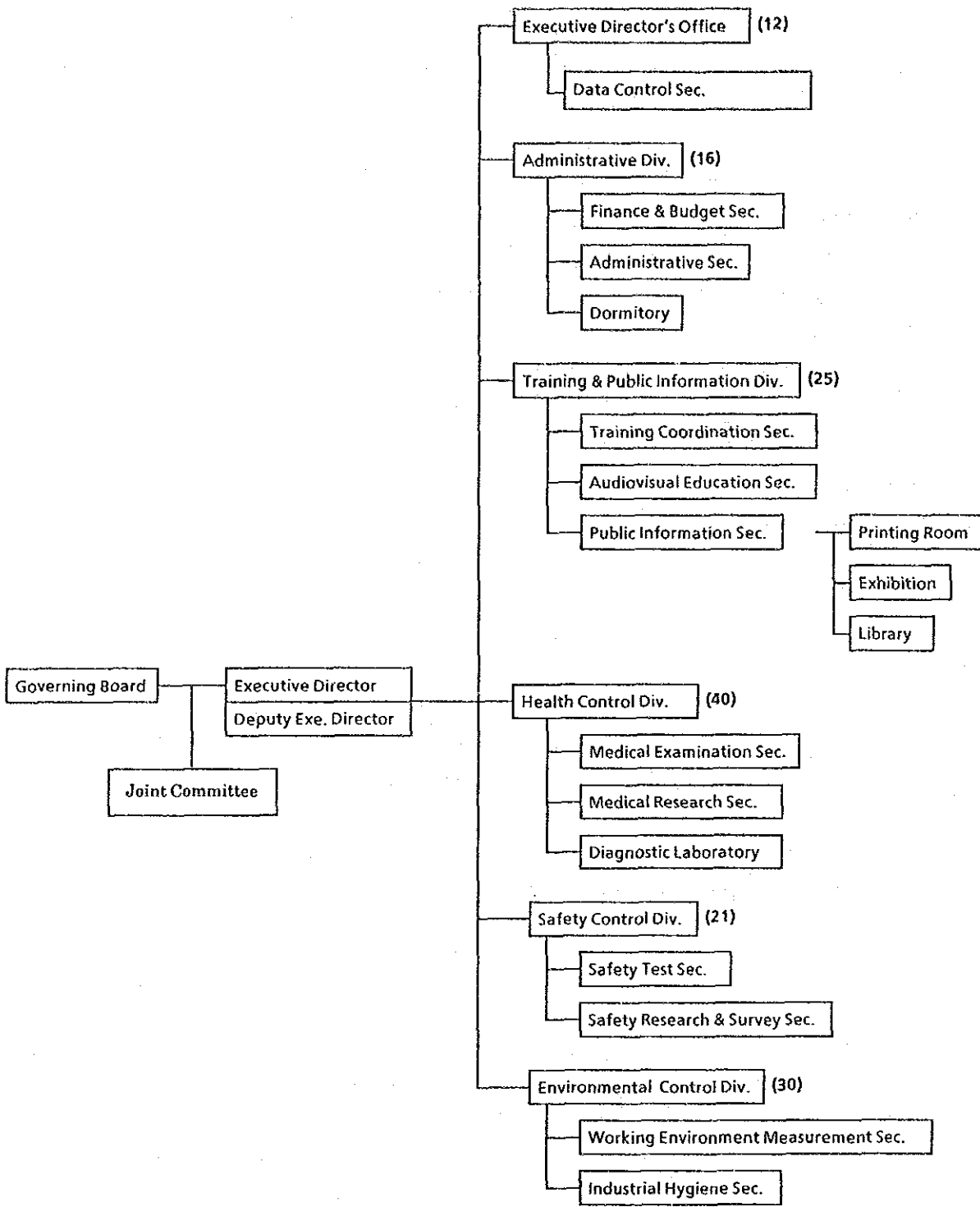
The highest consultative organization that decides operation policies in the Center is the governing board. Based on the policies of the governing board, a joint committee that is chaired by the vice-minister of the MOLE (consisting of the executive director of the Center, directors of the BWC and ECC, and others from the Philippine side and technical cooperation experts, chief advisor, and others from the Japanese side) will plan and implement operation and activities during Japan's technical cooperation period.

Under the governing board is the Executive Director's Office, below which is five Divisions consisting of Administrative, Training and Public Information, Health Control, Safety Control, and Environment Control Divisions. Furthermore, in each Division, there are Sections. Altogether, 14 sections are planned. Presently, the total staff will be 139 (line personnel : 79, support personnel : 60). In the future, 5 more personnel will be added to the Medical Research Section, so there will be 144 staff members. At the time of the Center's opening, only 80% of the planned personnel will be needed. (see figure 3-3-2)

Based on the approved standards of the Office of Compensation and Position Classification (OCPC), the management of the Center appoints qualified personnel to these positions. The Civil Service Commission (CSC) approves these appointments if appropriate civil service eligibility and qualification standards are met.

Fig. 3-3-3. Organization Chart and Staff Allocation of OSHC

( ): number of staff



Total : (144)

### 3-3-6. Outline of the Project Site

#### 1) Location of Project Site

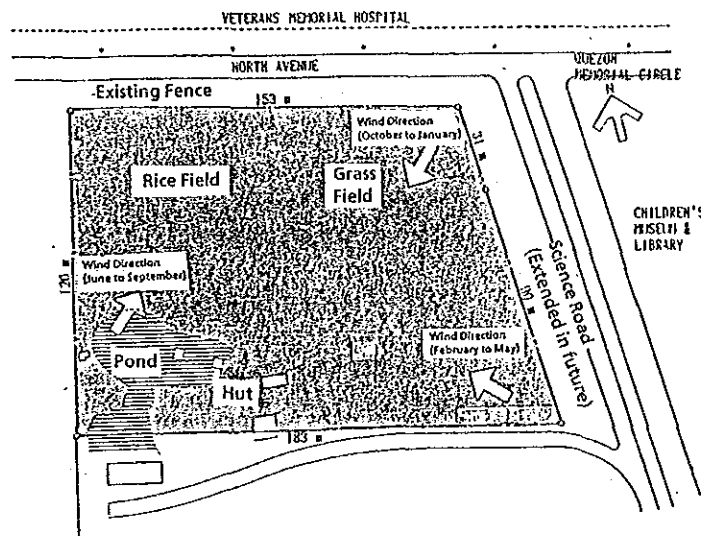
The planned site of the Center is located in the Deliman area of Quezon City, which is in the north of the Metropolitan Manila, the capital of the Philippines. It is located about one kilometer west of the Quezon Memorial Circle, in which many public buildings such as the City Hall of Quezon, Ministry of Agriculture, etc. are centered. It is around the place where the North Avenue and Science Road cross. Access to Manila and Makati is easy via the North Avenue and Epifanio De Los Santos Avenue.

The site is owned by the Philippine Overseas Employment Administration (POEA), which is attached to the MOLE. It was agreed on Dec. 12, 1984 that the site would be used for the Center on.

#### 2) State of the Site and its Surroundings

The site is about 2 hectare (20,000 m<sup>2</sup>: 150 m : side x 120 m : length), in the shape of trapezoid. The North Avenue, Science Road, and an adjoining estate comprise the boundary on the North, East, and West respectively. These boundaries are clearly divided by concrete block walls. However, to the South, it is not clearly defined. Basically the site has flat grassy fields with a pond in the southwestern part. The east side is 1.5 - 2.0 meters higher than the west side. The site itself is about 1.0 - 1.5 m below the road, therefore, soil needs to be added. Surrounding environment is pleasant and has such amenities as hospital, children' museum and library, bus terminal, and fire station.

Fog. 3-3-4. Project Site



### 3) Geological Features

According to the geological survey that was conducted in the planned site, top soil of 1.5 m thick is of silty clay, with sandy clay below that. This sandy clay layer is tight and in some places it is concreted (see data in appendix-3). Since the N-value is more than 50 in a standard penetration test, the soil is strong enough to support the foundation of buildings.

### 4) Infrastructure Facilities

#### Electric Power Supply :

There is a 3-phase 4 wire 34.5 KV key electric power line overhead. Its capacity is about 10,000 KW. Although, there will be no problem for the Center to get power supply, the quality of power services is low. Power stoppage occurs 2-4 times a month and the voltage varies  $\pm 10\%$ . The Center needs to consult with the Manila Electric Company (MERALCO) before it actually gets the power supply.

#### Telephone :

A key telephone line is buried along North Avenue, enabling the Center to hook its telephone line. According to the Philippine Long Distance Telephone Co. (PLDT), which is in charge of telephone lines, it would be better to have telephone lines buried than overhead.

#### Water Supply :

Two water supply pipes are buried along North Avenue, a 600 $\phi$  pipe to the location side, and a 300 $\phi$  pipe to the other side. Metropolitan Waterworks and Sewerage System (MWSS) will take care of burying a water supply pipe from the 600 $\phi$  main water supply pipe to the water supply meter in the site.

#### Drainage :

MPWH Quezon City Engineer's Office confirmed that there is no drainage facility around the site. There is one sewage pipe along Science Road for rain only, besides which its capacity is too small for other uses. Therefore, a new drainage pipe has to be buried along the Science Road to the Tanguue Creek, which is about 400 meters to the south.

### 3-4. Technical Cooperation

The Government of the Philippines requested Japan's technical cooperation on project basis. The Government of Japan hence dispatched a preliminary study team ahead of the basic design study team in August, 1985 through JICA. The team discussed the following with the Philippine side :

1) Dispatch of Japanese Experts

About six Japanese experts, including a chief advisor, will be dispatched to provide the necessary technical advice to the Philippine counterparts. The Philippine side requested dispatch of experts on a long-term basis in the following fields.

A chief advisor on the project.

A project coordinator between the Philippines and Japanese sides.

Four experts each are for health control, safety control, environment control, and training and public information.

2) Reception of the Philippine experts

Japan is to receive experts from the Philippine for a suitable period of time to give training on occupational safety and health. The Philippine side desires to start full-fledged activities as soon as possible after their training in Japan. Preferably this can be accomplished before the dispatch of Japanese experts.

3) Provision of equipment

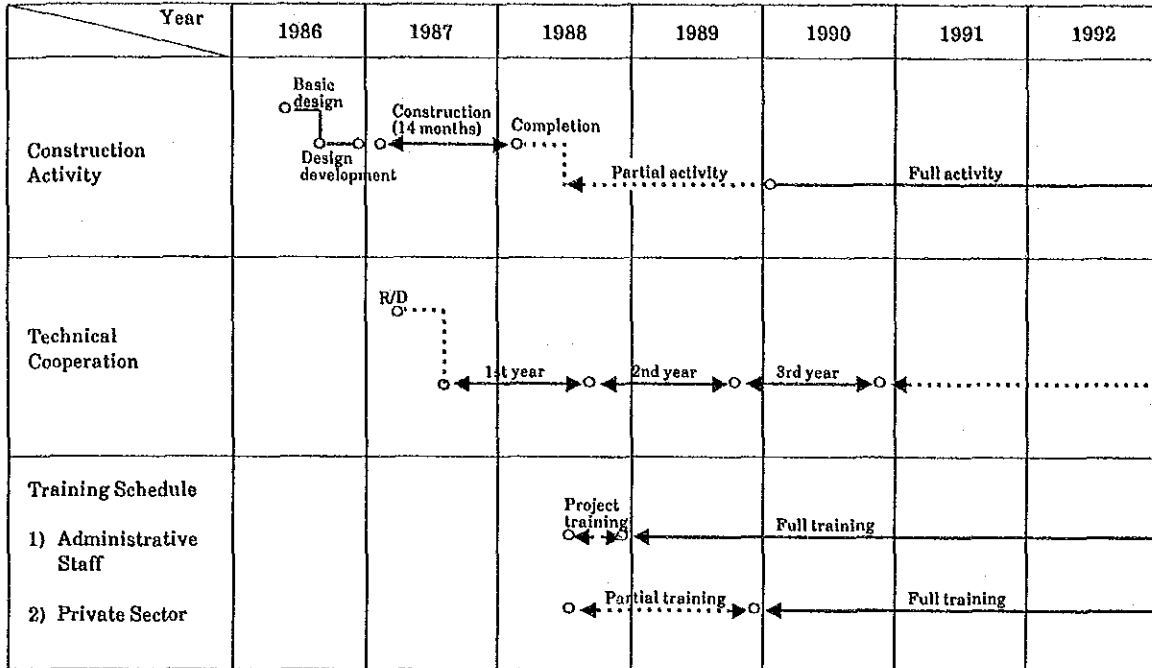
Some of equipment are scheduled to additionally be provided as a part of the technical cooperation program in accordance with the progress of the center's activities.

As for the content and the schedule for implementing technical cooperation, it will be checked in detail in the Record of Discussion, among others, in 1987.

Figure 3-4-1 shows the general timetable for construction of facilities and for implementing technical cooperation.



**Fig. 3-4-1. Tentative Schedule of Facility Construction and Activity**





## CHAPTER 4. BASIC DESIGN



## **CHAPTER 4. BASIC DESIGN**

### **4-1. Policy of the Basic Design**

Based on the content of the project (shown in chap. 3), the basic design policies have been established, emphasizing function, cost effectiveness and endurance. This involves :

- **Facility that is convenient to use**

The Center should perform a lot of activities such as research, survey, training, and public information on occupational safety and health. On the basis of each division's activities, the Center will be designed according to each division's need with easy and convenient usage. Especially for the training division, facilities related to training programs will be designed so that many trainees who use them for a short period of time could use it conveniently.

- **Facilities that fit with climatic and natural environment**

Taking the tropical weather into account, it will be so designed as not only to prevent strong sunlight and violent squall but to be able to get sunlight in and to circulate natural wind into facilities without a machine. In addition, they will be designed to be comfortable and fit for the site's weather.

- **Easy maintenance and low running cost**

Suitable energy conservation techniques will lower the maintenance cost of the facilities. Obtaining construction materials and machineries from the local Philippine market will reduce construction costs and simplify maintenance. It is anticipated that most of the research and training equipment will come from Japan, so these equipment should be selected from companies with representative offices in the local area. This would provide efficient follow-up service. Endurance and maintenance of Japanese products should determine the types of equipment unavoidable in the Philippines.

## 4-2. Basic Plan

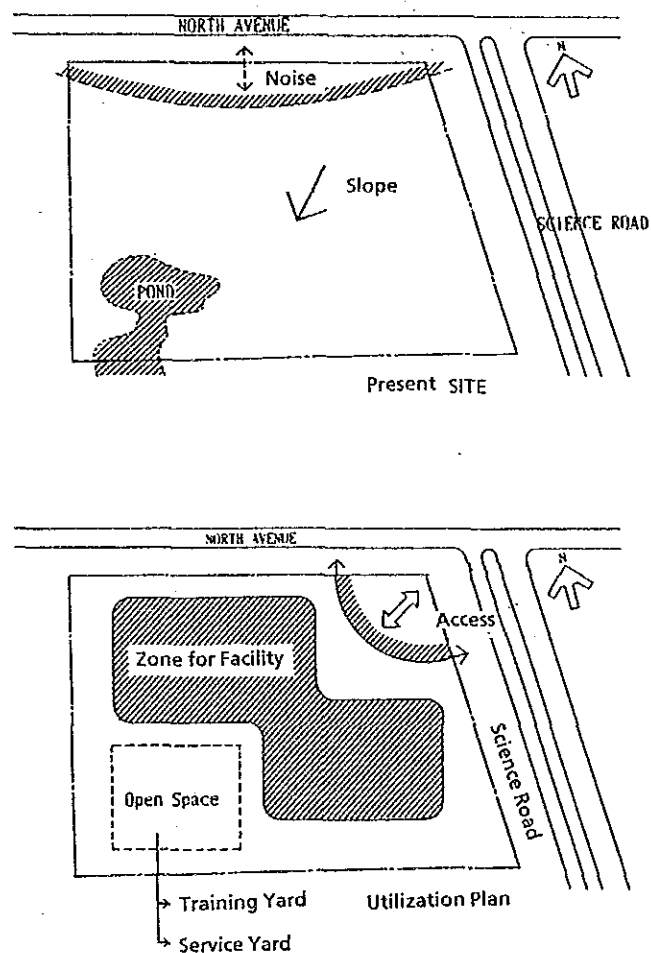
### 4-2-1. Project Site and Facility Arrangement Plan

#### 1) Site Condition and Utilization

The site is in the shape of trapezoid facing two roads in the North and East. Having the main approach as part of the front yard would enable easier access going in and out, and also it will be authentically pleasing. There is a pond in the southwest part of the site which has no drainage system. As it is not good for human health, it is proposed to reclaim the pond and avoid placing a building and facility on this pond area.

The overall placement of facilities is illustrated in the figure below. Traffic noises due to high traffic volume on the North Avenue side must be taken into consideration, also.

Fig. 4-2-1. Site Utilization Plan



## 2) Plan for Placement

The Center should have the following blocks in view of the divisions and their functions :

- Training and Research Building

The training facility should play the central role. Since research and survey facilities of each division will assist in the training program, it is better to put them in one building.

- Dormitory for Trainees

This should be independent.

- Auditorium

This is to be independent of the Training and Research Building, to allow visitors to the Center, (expected to be many), can use it separately.

Three types of plans of placement have been studied and their advantage and disadvantage are shown in Fig. 4-2-2.

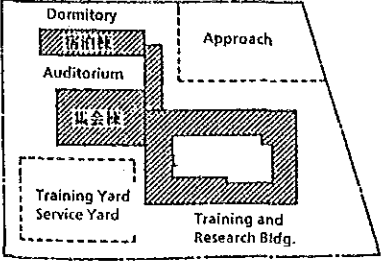
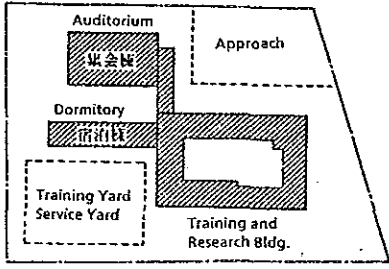
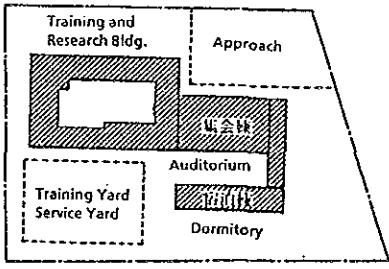
Plan C, which had the fewest problems in the above three case studies, was further examined in the following.

Concerning the problem of approach to the Dormitory, its independent nature can be provided by having a sub-gate in the Eastern edge of the site facing the road.

Concerning traffic noise problem from the North side, consideration will be taken not to place training facilities such as classroom to this side.

Furthermore, such measures as planting trees along the road will be taken. With these measures, it is thought that the problem of Plan C can be overcome. As a result of the above studies, it is proposed to adopt Plan C as the best placement plan for the Center.

Fig. 4-2-2. Comparison of Facility Placement Alternatives

Facility Block Placement	Advantage	Disadvantage
<p>Plan-A</p>  <p>The diagram for Plan-A shows a trapezoidal site. At the top left is a hatched rectangular block labeled 'Dormitory'. Below it is another hatched rectangular block labeled 'Auditorium'. To the right of the dormitory is a dashed line labeled 'Approach'. At the bottom left is a dashed rectangular area labeled 'Training Yard' and 'Service Yard'. At the bottom right is a large hatched U-shaped block labeled 'Training and Research Bldg.'.</p>	<ul style="list-style-type: none"> <li>• Independent nature of the dormitory is good.</li> </ul>	<ul style="list-style-type: none"> <li>• North side of dormitory will be noisy.</li> <li>• Location of training-research bldg. is not clear since dormitory is situated near the main road.</li> <li>• Movements of staff and visitors will be complicated especially between training-research bldg. and auditorium.</li> </ul>
<p>Plan-B</p>  <p>The diagram for Plan-B shows a trapezoidal site. At the top left is a hatched rectangular block labeled 'Auditorium'. Below it is a hatched rectangular block labeled 'Dormitory'. To the right of the auditorium is a dashed line labeled 'Approach'. At the bottom left is a dashed rectangular area labeled 'Training Yard' and 'Service Yard'. At the bottom right is a large hatched U-shaped block labeled 'Training and Research Bldg.'.</p>	<ul style="list-style-type: none"> <li>• Access to training-research bldg. and auditorium is clear and functional.</li> </ul>	<ul style="list-style-type: none"> <li>• North side of auditorium may be noisy.</li> <li>• Independent administration of dormitory is difficult east side of dormitory is connected to the training-research bldg.</li> </ul>
<p>Plan-C</p>  <p>The diagram for Plan-C shows a trapezoidal site. At the top left is a large hatched U-shaped block labeled 'Training and Research Bldg.'. To its right is a dashed line labeled 'Approach'. Below the training and research building is a hatched rectangular block labeled 'Auditorium'. At the bottom right is a hatched rectangular block labeled 'Dormitory'. At the bottom left is a dashed rectangular area labeled 'Training Yard' and 'Service Yard'.</p>	<ul style="list-style-type: none"> <li>• Access to training-research bldg. and auditorium is clear and functional.</li> <li>• Independent administration of dormitory is easy.</li> </ul>	<ul style="list-style-type: none"> <li>• Access to dormitory is far.</li> <li>• North side of training-research bldg. may be noisy.</li> </ul>