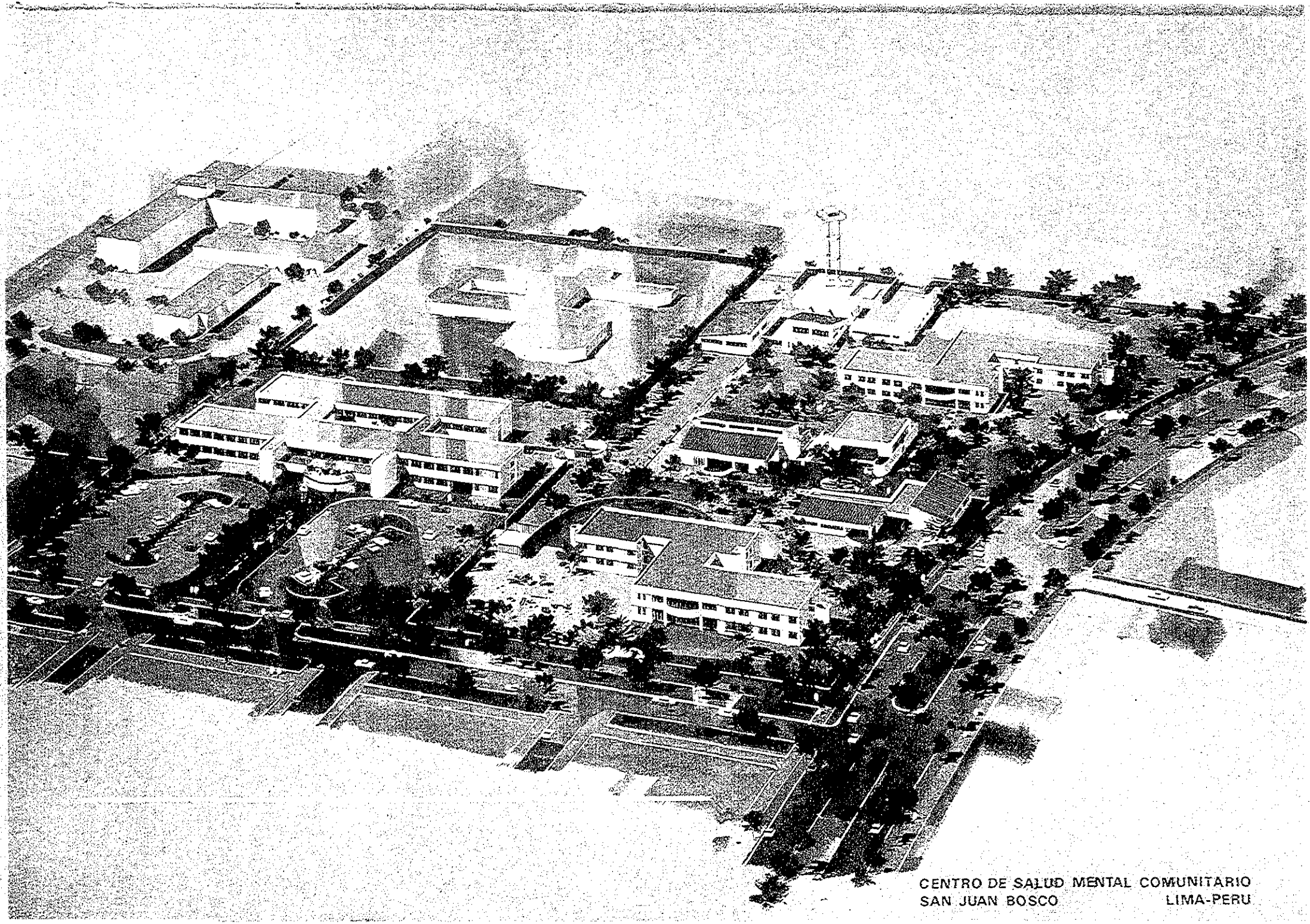
BASIC DESIGN OF THE COMMUNITY MENTAL HEALTH CENTER "SAN JUAN BOSCO" IN THE REPUBLIC OF PERU

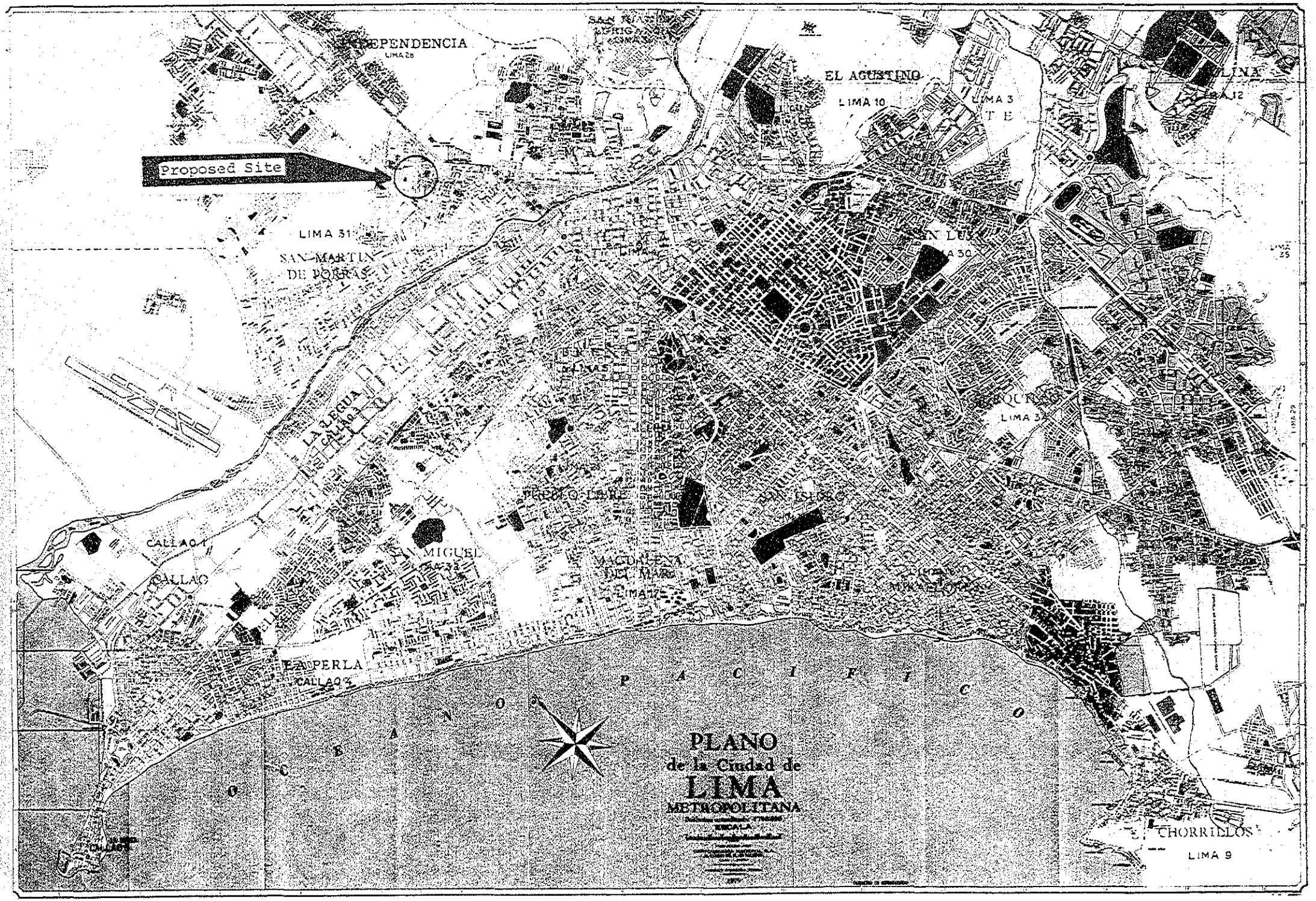
JANUARY 1980

JAPAN INTERNATIONAL COOPERATION AGENCY

BASIC DESIGN OF THE COMMUNITY MENTAL HEALTH CENTER "SAN JUAN BOSCO" IN THE REPUBLIC OF PERU



CENTRO DE SALUD MENTAL COMUNITARIO
SAN JUAN BOSCO LIMA-PERU


Proposed Site
INDEPENDENCIA
LIMA 28
EL AGUSTINO
LIMA 10
LIMA 3
LIMA 12
LIMA 31
SAN MARTIN DE PORRAS
LIMA 30
LIMA 35
LIMA 34
LA LEGUA
CALLAO
CALLAO
SAN MIGUEL
MAGDALENA DEL MAR
LIMA 17
LA PERLA
CALLAO
CHORRILLOS
LIMA 9
PLANO
de la Ciudad de
LIMA
METROPOLITANA
ESCALA
P A C I F I C O
O C E A N O

PREFACE

PREFACE

In compliance with the request of the Government of the Republic of Peru, the Government of Japan has decided to implement a basic design concerning the Community Mental Health Center Construction to be donated under our grant aid. The Japan International Cooperation Agency (JICA) conducted the survey, having been entrusted by the Government of Japan to do the work.

The JICA dispatched a survey team consisting of 8 expert-members led by Dr. Masaaki Kato, director of the National Institute of Mental Health, Japan, to the Republic of Peru from the 14th October to the 3rd November, 1979.

The field survey was carried out successfully with the close support of the Government of the Republic of Peru and the authorities concerned. After further studies in Japan, the present report on the basic design of the project has been formulated.

I hope that this report would serve for the development of this project, and that it would contribute to the promotion of friendly relations between Peru and Japan.

I wish to express my deep appreciation to the Government of the Republic of Peru and the officials concerned for their close cooperation extended to our team.

January 1980

Keisuke Arita

Keisuke Arita
President
Japan International Cooperation Agency

SUMMARY OF PROJECT

SUMARIO DEL PROYECTO

PROPOSITO DEL PROYECTO

En la República del Perú, se señala una alta taza de aumento poblacional en estos últimos años, con mayor incidencia en la capital, lo que trae consigo un incremento de las condiciones adversas a la salud-mental.

Para enfrentar este problema, la República del Perú, ha planeado un proyecto de salud mental comunitario hasado en el programa designado "WHO".

Por lo arriba mencionado, se construirá el Centro de Salud Mental Comunitario, para efectuar prevención primaria, secundaria y terciaria, desarrollando actividades clínicas, principalmente para los habitantes de la región norte de la ciudad de Lima, donde la taza es aún más alta.

Asímismo este proyecto promoverá investigación y docencia de alto nivel en dicha área.

EL NOMBRE

El Centro de Salud Mental Comunitario "San Juan Bosco" de la República del Perú.

UBICACION

En un terreno cuya área es de 45,900 m^2 aproximadamente, (quedará en 40,100 m^2 aproximadamente cuando se terminará la obra de ampliación de calles perimetrales) colindante con el Hospital General Base Cayetano Heredia, en el distrito de San Martín de Porras, ciudad de Lima de la República del Perú.

PLAN DE CONSTRUCCION Y FUNCTIONES

- Edificio Central (dos pisos de hormigón armado)

Pabellón central para investigación y docencia; incluye las Clínicas, Secciones de Consulta Externa (adultos, niños), Emergencia Psiquiatrica, Hospitalización Diurna (adultos, niños), Enseñanza Especial para niños, Laboratorios Clínicos y Administración.

- Rehabilitación (Un piso de hormigón armado)

Sala para rehabilitación, Terapia Ocupacional y Recreativa.

- Cafetería (Un piso de hormigón armado)

Comedor y Puestos para pacientes hospitalizados y empleados.

- Gimnasio (Un piso de hormigón armado)

Se utilizará para Terapia Lúdica y asimismo servirá como Auditorium.

- Hospitalización (A) (Dos pisos de hormigón armado)

Habitaciones para niños	(20 camas)
Habitaciones para mujeres adolescentes	(25 camas)
Habitaciones para mujeres adultas	(50 camas)

En cada unidad se incluyen Sala Diurna, Estación de enfermeras, Consultorio Médico y Sala de tratamiento.

- Hospitalización (B) (dos pisos de hormigón armado)

Habitaciones para mujeres adultas	(25 camas)
Habitaciones para hombres adolescentes	(25 camas)
Habitaciones para hombres adultos	(50 camas)

En cada unidad se incluyen Sala Diurna, Estación de enfermeras, Consultorio Médico, Sala de tratamiento.

- Servicio de Mantenimiento (Un piso de hormigón armado)

Cocina, Lavandería, Sala de máquinas, Sala de electricidad, Depósitos, etc.

DESCRIPCION DE INFRAESTRUCTURAS

- Instalaciones de electricidad

Sub-estación eléctrica, Equipo completo de electrogeneración de reserva para emergencia, Instalación para la fuerza motriz, Conexión con la red de distribución, Instalación de los aparatos de iluminación, Sistema de telefonos (interno y externo), Sistema de altavoces, Instalación de relojes eléctricos, Sistema de sitófonos, Sistema de ITV.

- Instalación Sanitaria y Ventilación

Instalaciónes de: Ventilación, Abastecimiento de agua fresca, Abastecimiento de agua caliente, Desagüe, Aparatos sanitarios, Gas, Cocina, Lavandería, Grifo contra Incendio y extinguidores.

INSTALACION DE EQUIPOS MEDICOS

- Diversos equipos clínicos
- Equipos de neurofisiologia clínico
- Equipos para exámenes químicos
- Equipos para rehabilitación.
- Equipos para investigación y docencia.

FUNCTIONAMIENTO

Este Centro realiza actividades clínicas de rehabilitación investigación y docencia en el área de salud mental.

Es una dependencia del Ministerio de Salud, de la Región de Lima Metropolitana y atiende preferentemente a la población comprendida en el cono norte de Lima Metropolitana.

TABLE OF CONTENTS

Chapter 1
PROGRESS AND CONCEPT OF PLANNING

1-1 Progress of Planning

The Government of the Republic of Peru (hereafter referred to as Peru) had planned the establishment of a community mental health center and requested the Government of Japan to provide a grant aid for that purpose.

In response to the request, the Government of Japan sent out Dr. MASAAKI KATO, Director of the Japan National Institute of Mental Health, to Peru in September, 1978, through the Japan International Cooperation Agency (hereafter referred to as JICA), its implementation agency, to conduct preliminary survey.

Based on the report of the preliminary survey, the JICA sent out a four-member survey team headed by Dr. KATO in July, 1979, to conduct more detailed survey.

These survey reports clarified the necessity and adequacy of the center described in the following and, accordingly, the JICA sent out an eight-member basic design survey team headed by Dr. KATO in October, 1979, to conduct necessary survey concerning the basic design of the center.

The total number of beds in mental health facilities in Peru is 2,400, which is about 7% of total number of national hospital beds of 33,500 and is considered to be insufficient, particularly in comparison with the level of mental health in Japan where 28 beds are available per every 10,000 citizens.

New outpatients are forced to wait for more than 2 months before receiving treatment, the number of patients admitted for long-term hospitalization is decreasing and the number of days of consultation and treatment for hospitalized patients is also decreasing (patients stay in hospital for about 3 months in average).

According to the results of survey conducted by MINISTERIO DE SALUD, about 18.7% of population in the city Lima shows some characteristics that require mental health cares. In addition, about 45% of population of this country is consisting of people younger than 15 years old, and about 30% to 50% of outpatients of mental hospitals are the youth younger than 15 years old, which seems to be very high percentage. Particularly, at present, there are many children who have learning disability, mental retardation, behavior disorders, and epilepsy. Special classes for mentally retarded children for about two to three times a week are currently considered to be the key target.

1-2 Necessity of This Project

The Government of Peru made a mental health plan in 1975 in accordance with the concept of the community mental health (preventive psychiatry) partially conforming to WHO method, in which city of Lima was divided into four districts and one mental health center was planned for each district. Particularly, the northern district for which the proposed mental health center is planned presently has the population of 1.5 million and its annual rate of population increase is about 7%. This will far exceed the annual rate of population increase of whole country of Peru which is about 2.8%. (Even this percentage of 2.8% is high compared to international standard.)

Most of people living in this district have moved from mountainous areas to find new opportunities in employment in urban district. However, these people are socially and economically in very difficult situations so that they are subjected to high mental stresses in daily life and additionally have the problems in adaptation. According to

the hospital statistics, mental and social psychological disorders of people in this district occur with a high rate of occurrence that is about 2 times or more compared to those of other districts. Many mental health problems such as increasing of mentally disordered people, children with difficulties in learning, youths with cocaine abuse, and adults with alcoholism have become dominant.

On the other hand, only mental health facility existing in this district is the psychiatric department of HOSPITAL GENERAL BASE CAYETANO HEREDIA that was completed in 1977 but this department performs consultation and treatment only for outpatients.

Because of this, it has become necessary to urgently solve the problems, as top priority problems, of the mental health increasing in this district by the Government of Peru by constructing community mental health center having outpatient department (for children and adults), daycare, emergency center, facilities for rehabilitation and for educating children with learning difficulties, and 200-beds for short-term hospitalized (patients children, adolescents and adults) in this district under the network associated with 14 health centers and other local hospitals located in the northern district of Lima.

1-3 Basic Concepts of This Project

The survey team visited Peruvian Commission, and university and hospital authorities several times for discussions to exchange views while the members of team were staying in Lima, and the basic concepts agreed with are as follows:

(1) Objectives

- In conformity with mental health plan of the Government of Peru, primary, secondary and tertiary pre-

ventive mental health cares for the residents of northern district of city of Lima will be provided as follows:

Primary prevention: To decrease the occurrence of all kinds of mental disorders in the community. In actuality, to perform preventive measures of the community mental health cares in cooperation with key person, schools and other social agencies.

Secondary prevention: To shorten the duration of patient's disorder. In actuality, to provide early detection and diagnosis for mentally disordered people in their acute stages, and to offer treatment, outpatient consultation, short-term stays for in-patients, emergency hospitalization, day care, liaison services, and family and life guidance in collaboration with other medical authorities and local government agencies.

Tertiary prevention: To reduce the limitation caused by mental abnormality. In actuality, to prevent residual impairments of social, living and functional nature caused by the mental disorders, and to offer treatment, rehabitation and day care for the above limitation already taken place.

- As a rule, treatment will be given to mentally disordered patients of all age groups, but a special emphasis will be given to the treatment of mental disorders of young generation.

- Also, activities of research and education will be carried out in the area of clinical psychiatry.

(2) Organizational status

- This center will be regarded as the organ directly controlled by MINISTERIO DE SALUD, and MINISTERIO DE SALUD will administrate the center on its own responsibility upon completion of the center. In addition, a permanent committee will be organized within MINISTERIO DE SALUD for the purpose of maintaining appropriate management and administrative measures in future.

- Under the regional health direction of Lima Metropolitana, this center will be administrated independently, maintaining close collaboration with hospitals and health centers concerned. Positive assistances for personal implementation will be provided by MINISTERIO DE SALUD, Universities and academic backing.

- Budget for personnel and administrative expenses will be provided by MINISTERIO DE SALUD.

(3) Medical equipment

For providing full functions of center and promoting activities in research and education, various kind of equipments for diagnosis, neurophysiologic and biochemical testing, clinical examination, rehabilitation, research and education will be installed.

1-4 Effects of This Project

The Government of Peru has intended and tried to promote the community mental health plan in conformity with mental health plan of 1975 but progress of this plan has been blocked because of economic restriction imposed in this country, and the government is extremely enthusiastic about the construction of this center for which Grant Aid by the Government of Japan.

The establishment of this center is a first step to promote community mental health planning, not only for the northern district of Lima but also for the whole of mental health system of Peru. It will also reinforce regional hospitals and clinics through the liaison and consultation services it can offer in close cooperation with the general hospitals. Moreover, it will be effective enough to promote regional medical services for the mountain and forest zone, thereby facilitating not only the regional mental service but also the entire national medical services planned by Peru.

Thus the present assistance program will bring about multiplying results which will profit Peru greatly, making, at the same time, a great contribution to the friendship and cooperation between Peru and Japan.

1-5 Prospect for Future of This Project and Proposals

(1) Points to be considered in construction

For the purposes of providing full functions of this center in conformity with the requirements in consideration of economic situations of Peru, particularly the rise in prices of commodities, special precautions will be required for the prices of building equipment and medical equipment. In this respect, the survey team has tried to thoroughly collect the information related to each area concerned, however, a forecast as appropriate as possible must be made concerning the price rises at the time of execution of this project in future.

(2) Administrative aspect

It is understood that the Government of Peru will fully consider the budget for the expenses required in operating this center such as personnel expenses, costs of foods for patients, treatment costs, costs for medical supplies, and maintenance costs for equipment, however, budget plan must be made in more detail from now on.

(3) Personnel aspect

For the purpose of fully utilizing this center and fully providing effects of medical equipment, the necessity of acceptance trainees and dispatching of experts is fully recognizable for this technical cooperation project. As part of technical assistance, short-term study visits by leading medical doctors who will be in charge of this project, long-term training for medical team members such as psychiatrists, occupational therapists, social workers and climical psychologists, and highly qualified related personal will be needed.

All these points stated above will be solved by the cooperation between Peru and Japan.

Dispatching of specialists as part of activities related to the construction of this center and the technical cooperation will play an extremely important role in the development of mental health in Peru.

Chapter 2
DISPATCH OF SURVEY TEAM

2-1 Purpose of Dispatch of Survey Team

The purpose of dispatch of the survey team is to perform the basic design survey for the construction of "Community Mental Health Center" which is planned in Rimac section of City of Lima, capital of Peru, by the Government of Peru with Grant Aid by the Government of Japan at the request of Peru.

2-2 List of Those Who Engaged in This Project of Peru

(1) Persons from MINISTERIO DE SALUD

Mayor General FAP. EDUARDO RIVASPLATA HURTADO
Ministro de Salud

Coronel FAP. RAUL AMPUERO RIOS
Director Superior (e)

COMISION

DRA. GLORIA VILADEGUT DE ESTRELLA
Director Asesor del Director Superior
Presidente de la Comisión

DRA. MARIA ESTHER PEREZ LOPEZ
Director Ejecutivo de la Oficina Sectorial de Planificación

DR. HUMBERTO ROTONDO GRIMALDI
Jefe del Departamento de Medicina del Hospital Hermilio Valdizán

DR. ALBERTO SABA CASIS
Encargado de la Dirección del Hospital Victor Larco Herrera

ARQUITECTO PABLO SEMINARIO TEMPLE
Dirección de Construcciones y Equipamiento de Locales de Salud

ARQUITECTO GUILLERMO CARRASCO TUPAYACHI
Dirección de Construcciones y Equipamiento de Locales de Salud

DR. ROBERTO PALIZA BECERRA
Jefe de la División de los Servicios de Salud de INAPROMEF

DR. RENATO CASTRO DE LA MATA
Médico Psiquiatra de la Universidad Peruana Cayetano Heredia

(2) Persons from Japanese Embassy in Peru

HIROSHI NAGASAKI
Embassador Extraordinary and Plenipotentiary

TOSHIKATSU HATTA
First Secretary

2-3 List of Survey Team Members

(1) Members of the Survey Team

DR. MASAAKI KATO (Leader of team)
Director of National Institute of Mental Health

DR. TOSHIO OHTSUKA (Mental hygiene)
Director of Geriatrics Mental Health Department, National Institute of Mental Health

MR. YOICHI SEKI (Coordinator)
Staff of Social Development Cooperation Department, Japan International Cooperation Agency (JICA)

MR. HAJIME MURATE (Architect)
Nihon Architect Engineers & Consultants, Inc.

MR. KOSAKU SERA (Structural Engineer)
Nihon Architect Engineers & Consultants, Inc.

MR. MASAYOSHI FUNATSU (Mechanical Engineer)
Nihon Architect Engineers & Consultants, Inc.

MR. SHOHEI KATSUMATA (Estimation)
Nihon Architect Engineers & Consultants, Inc.

MR. OSAMU SAEKI (Technical Cooperation)
Staff of 2nd Medical Cooperation Div.,
Japan International Cooperation Agency (JICA)

(2) Members of the Draft Reporting Team

DR. MASAAKI KATO
MR. YOICHI SEKI
MR. HAJIME MURATE
MR. MASAYOSHI FUNATSU

2-4 Progress of Discussions through Basic Design Survey

After arriving at City of Lima on 14th October, 1979, the Survey Team immediately visited MINISTERIO DE SALUD to pay team's respects to the MINISTRO DE SALUD on 15th October, and began discussions with DIRECTOR SUPERIOR (E) and Commission of "Community Mental Health Center" (headed by Dra. GLORIA VILADEGUT DE ESTRELLA, Director Asesor del Director Superior) on the basic design and other matters concerned.

On 16th and 17th October, the team visited the proposed construction site for the center in adjacent to HOSPITAL GENERAL BASE CAYETANO HEREDIA to review the proposed site. In addition, team exchanged views with Dr. LUIS CUADRA RAVINES, director of the Hospital and also head of Area No. 1 District of Rimac and other members concerned. Then, team visited HOSPITAL HERMILIO VALDIZAN, CLINICA DE DIA, and CLINICA SAN ISIDRO to collect data.

On 18th October, team visited EL CENTRO DE TRANS-FORMACION PESQUERA (constructed with the Grand Aid of the Government of Japan) to collect data, and discussed with the Commission concerning laws and technical levels of archistecture, structural engineering, mechanical engineering and electrical engineering.

On 19th October, informative materials concerning construction were collected and construction market survey was conducted at CAMARA PERUANA DE LA CONSTRUCCION (CAPECO), and detailed discussions with the Commission were made following the previous day on the allotment of work, site planning, floor planning for central building, grading of land and so forth.

On October 20th and 21st, the team visited construction job sites, collected data and examined unit prices and, in addition, visited construction job sites within the City of Lima to review the construction work and data obtained and collected data related to the estimate of construction costs.

On 22nd, October, the team exchanged views with the Commission on basic planning for total project, site planning, and floor planning and, later, made progress report to and had discussions and review with Lima office of JICA.

On 23rd, October, the team collected data and performed water examination and survey on unit prices of construction materials at EMPRESA DE SANEAMIENTO DE LIMA and, later, met the Commission to discuss about draft of Minutes and details of medical equipment.

On 24th and 25th, October, the team performed price survey on building materials and equipment, survey on local construction firms and data collection and, in addition, collected informative materials at SERVICIO NACIONAL DE METEOROLOGIA Y HIDROLOGIA, COMPAÑIA PERUANA DE TELEFONOS S.A and ELECTRO LIMA and conducted market survey on construction materials, equipment and methods.

At 10 o'clock on 26th day of October, at the office of MINISTERIO DE SALUD, both DIRECTOR SUPERIOR (E) Mr. RAUL AMPUERO RIOS and team leader Mr. MASAAKI KATO signed Minutes of the Construction Program of the Community Mental Health Center, "San Juan Bosco" in The Republic of Peru.

On October 27th, team visited HOSPITAL VICTOR LARCO HERRERA particularly to look at present situation of children's wards.

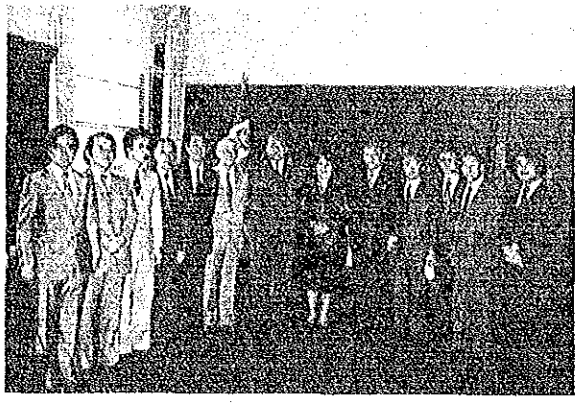
On October 28th, the team performed survey at trial hole to confirm the soil conditions in the proposed construction site and environmental survey in the area surrounding the site.

On October 29th, the team collected informative materials at OFICINA NACIONAL DE ESTADISTICA Y CENSOS, then visited Japanese Embassy to report the progress of survey activities and contents of the Minutes to Embassador Mr. H. NAGASAKI and First Secretary Mr. T. HATTA. Also, concerning the work allotted to the Government of Peru on the Minutes, the team visited the counterpart of MINISTERIO DE SALUD to make discussions in detail for the work allotted.

On 30th October, the team visited the construction job site for hospital (350 beds) under construction by the MINISTERIO DE SALUD, and obtained the informative materials on the construction work method at each phase of the construction. The progress of the survey was reported to Lima office of JICA and also information obtained was explained.

On 31st October, the soil conditions of the trial hole were confirmed and mainly the products and their prices produced by equipment and machinery manufacturers were examined.

The government authorities of Peru, the Commission and other people concerned were very cooperative and aggressively made every effort to assist the team, which indicates their great concerns with the construction of "Community Mental Health Center". Also, it was agreed that the liaison office can be temporarily located in HOSPITAL GENERAL BASE CAYETANO HERERIA adjacent to the proposed construction site until the work will be completed.



15th October
Visiting MINISTERIO DE SALUD to pay Team's respects to MINISTRO

15th October
First meeting of the Commission

23rd October
Fourth meeting of the Commission

2-5 Minutes

(1) Basic design survey

Upon consultation the Basic Design Survey Team and the Peruvian authorities concerned reached an agreement on the basic framework of the present project and the minutes were concluded on October 26, 1979, between DIRECTOR SUPERIOR(E) Mr. RAUL AMPUERO RIOS and Survey Team Leader Mr. MASAAKI KATO.

26th October
Signing of the Minutes

(2) Explanation of the draft basic design

Basic designing was carried out on the basis of the basic design survey. This was followed by the dispatch of the four-member Draft Reporting Team headed by Mr. MASAAKI KATO to obtain Perubian understanding of the results.

The Team visited Peru for a period of ten days from January 16, 1980, and the minutes were concluded on January 22 after consultation with the Peruvian authorities concerned.

MINISTERIO DE SALUD

MINUTA DEL PROGRAMA DE CONSTRUCCION DEL
CENTRO DE SALUD MENTAL COMUNITARIO "SAN JUAN BOSCO"
DE LA REPUBLICA DEL PERU

A petición del Gobierno Peruano, para ayudar a instalar el Centro de Salud Mental Comunitario "San Juan Bosco" en la República Peruana (en adelante se denominará el "Centro"), el Gobierno Japonés ha enviado un Grupo de Estudio de la Agencia de Cooperación Internacional del Japón (en adelante se denominará "JICA"), dirigido por el Dr. MASAAKI KATO, Director del Instituto Nacional Japonés de Salud Mental, para llevar a cabo un proyecto de estudio de diseño básico en un plazo de 21 días a partir del 14 de Octubre de 1979.

El equipo sostuvo una serie de reuniones con la Comisión que preside la Dra. Gloria Viladegut de Estrella del Ministerio de Salud de la República del Perú, relacionados con la construcción y equipamiento del Centro.

Como resultado del intercambio de puntos de vista, ambas partes acordaron gestionar ante sus respectivos Gobiernos la adopción de las medidas necesarias que permitan la construcción y equipamiento de dicho Centro.

26 Octubre de 1979

Lima, Perú

MASAAKI KATO
Jefe del Equipo Japonés

Coronel FAP.
RAUL AMPUERO RIOS
Director Superior (e)
Ministerio de Salud

MINISTERIO DE SALUD

1. GENERALIDADES

1.1. El Centro debe ser construído en el Distrito del Rímac, Lima, Perú.

1.2. Los objetivos del Centro son:

a) Organizar y desarrollar actividades primarias de salud de carácter preventivo, conjuntamente con otras entidades de la comunidad, como son grupos cívicos, escuelas, etc.

b) Realizar diagnóstico temprano, tratamiento intensivo y cuidado a corto plazo de casos psiquiátricos en todos los grupos de edades en los servicios diurnos y de hospitalización para el Sector Norte de Lima y convertirse en centro referencial para casos especiales.

c) Desarrollar actividades orientadas hacia la prevención de incapacidad psiquiátrica y disminución de aquellas ya producidas por desórdenes psiquiátricos.

d) Servir como centro básico de adiestramiento para los médicos residentes en psiquiatría y otros grupos de trabajadores de Salud Mental, a ser adiestrados en un modelo ecléptico ajustado a las necesidades de la población peruana.

e) Planificar, organizar y desarrollar programas de investigación en las áreas de psiquiatría comunitaria, social y clínica, asimismo en psicoterapia y psicofarmacología.

1.3 El equipo de estudio ha intercambiado puntos de vista con la Comisión peruana, con relación al Plan de Operación del Centro y la vinculación del Centro con la Cooperación Técnica de JICA.

2. MEDIDAS QUE SERAN TOMADAS POR EL GOBIERNO DEL JAPON

El Gobierno del Japón tomará las medidas necesarias para proveer los items que aparecen en el listado del Anexo I.
El plano de distribución es mostrado en el Anexo II.

3. MEDIDAS QUE SERAN TOMADAS POR EL GOBIERNO DEL PERU

El Gobierno de la República de Perú tomará las medidas necesarias para proveer los items que aparecen en el listado del Anexo III.

MINISTERIO DE SALUD

ANEXO I

Construcción y equipamiento del Centro que será donado por el Gobierno Japonés.

1) Construcción con las respectivas instalaciones eléctricas, sanitarias y mecánicas.

a. Edificio Central	Consulta externa
	Emergencia psiquiátrica
	Hospitalización diurna
	Administración
b. Centro de Rehabilitación Psiquiátrica	Rehabilitación
	Gimnasio
	Cafetería
c. Dos Unidades de Hospitalización	200 camas
d. Servicio de Mantenimiento	Cocina
	Lavandería
	Cuarto de máquinas y almacenaje

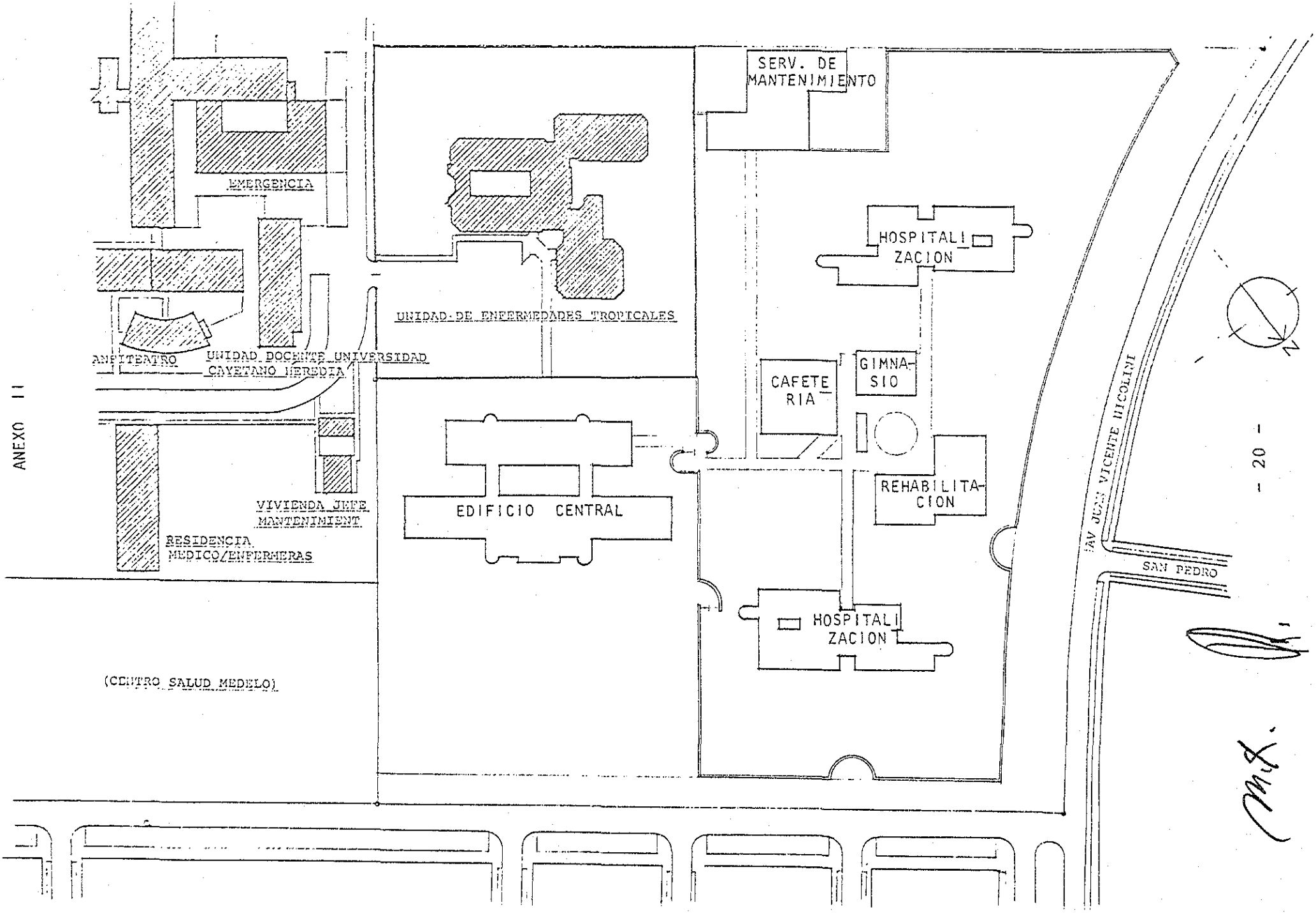
2) Equipo que va a ser usado en el Centro

3) Cerco perimetral especificado en el Anexo II

4) Pistas y veredas internas de acceso

5) Corredor libre en conexión con los edificios

M.K.

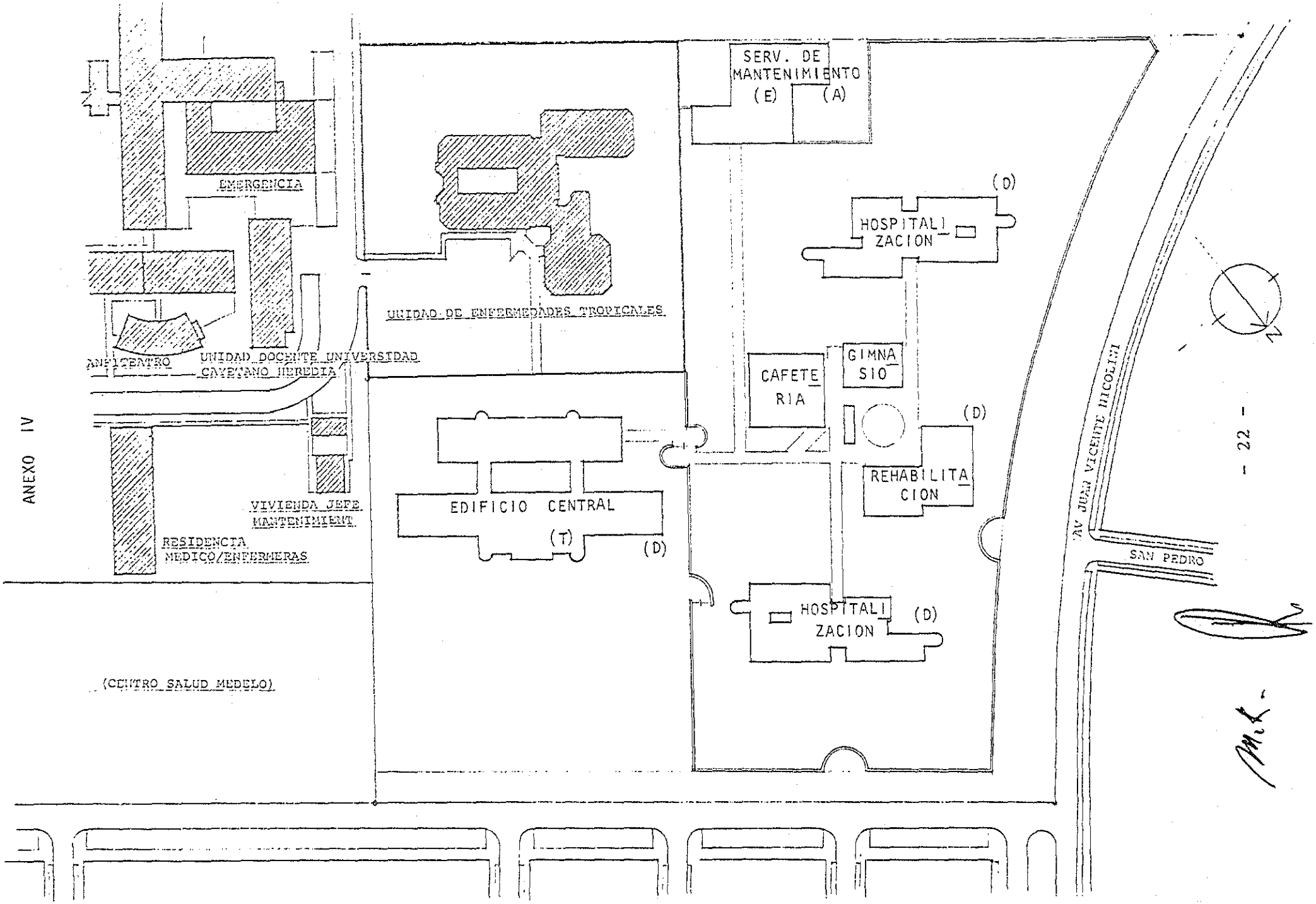

ANEXO II
SERV. DE MANTENIMIENTO
EMERGENCIA
HOSPITALI ZACION
UNIDAD DE ENFERMEDADES TROPICALES
ANFITEATRO
UNIDAD DOCENTE UNIVERSIDAD CAYETANO HEREDIA
CAFETE RIA
GIMNA- SIO
VIVIENDA JEFE MANTENIMIENT
EDIFICIO CENTRAL
REHABILITA- CION
RESIDENCIA MEDICO/ENFERMERAS
HOSPITALI ZACION
(CENTRO SALUD MEDELO)
AV JUAN VICENTE MCOLINI
SAN PEDRO
N
- 20 -

ANEXO III

Items cuyos costos deberán ser solventados por el Gobierno del Perú

a) Facilitar los datos y la información necesaria para la construcción incluyendo los estudios topográficos, examen de suelo y otros reportes de estudios geológicos.
b) Asegurar el terreno necesario para la construcción
c) Eliminar desmonte del terreno hasta su nivel original antes de iniciar la construcción.
d) Acometida de agua, especificada en el Anexo IV lugar (A)
e) Redes de desague exterior, especificadas en el Anexo IV, desde cuatro lugares marcados (D)
f) Línea principal de energía eléctrica para el lugar proyectado e instalación del transformador en el punto (E) especificado en el Anexo IV.
g) Línea principal de teléfono en el punto (T) especificado en el Anexo IV.
h) Cesped y plantas
i) Incinerador
j) Muebles y misceláneas excepto camas
k) Alfombras y cortinas
l) Cumplir con los procedimientos necesarios para obtener de las autoridades competentes del Gobierno de la República del Perú, los permisos de liberación de derechos de importación y otros impuestos, para:
    * Personal Japonés asignado al Proyecto
    * Materiales de construcción, equipos, máquinas de construcción, etc.
m) Sufragar los gastos para la provisión de los servicios de la contraparte peruana, y personal necesario para el funcionamiento del Centro.
n) Proveer todos los gastos necesarios para el funcionamiento del Centro.

ANEXO IV


SERV. DE MANTENIMIENTO
(E)
(A)
EMERGENCIA
(D)
HOSPITALI ZACION
UNIDAD DE ENFERMEDADES TROPICALES
ANFICENTRO
UNIDAD DOCENTE UNIVERSIDAD CAYETANO HEREDIA
CAFETE RIA
GIMNA SIO
(D)
VIVIENDA JEFE MANTENIMIENT.
EDIFICIO CENTRAL
(T)
(D)
REHABILITA CION
RESIDENCIA MEDICO/ENFERMERAS
HOSPITALI ZACION
(D)
(CENTRO SALUD MEDELO)
AV JUAN VICENTE MCCOLINI
SAN PEDRO

MINISTERIO DE SALUD

MINUTES OF THE CONSTRUCTION PROGRAM
OF THE COMMUNITY MENTAL HEALTH CENTER
"SAN JUAN BOSCO"
IN THE REPUBLIC OF PERU

At the request of the Government of the Republic of Peru for assistance in constructing THE COMMUNITY MENTAL HEALTH CENTER,"SAN JUAN BOSCO", IN THE REPUBLIC OF PERU (hereinafter referred to as the "Center"), the Government of Japan has sent through Japan International Cooperation Agency (hereinafter referred to as "JICA") a survey team headed by Dr. MASAAKI KATO, Director, Japan National Institute of Mental Health, to conduct a basic design survey on the program for 21 days from October 14, 1979.

The team had a series of discussions with the Commission headed by Dr. Gloria Viladegut de Estrella of the Ministry of Health of Peru for exchange views concerned on the construction and equipping of the Center.

As a result of the exchange of views and discussions, both parties have agreed to recommend to their respective Governments to take necessary measures toward constructing and equipping of the Center.

October 26, 1979
Lima, Peru

MASAAKI KATO
Team Leader
The Japanese Survey Team

Coronel FAP
RAUL AMPUERO RIOS
Director Superior (e)
Ministerio de Salud

1. GENERAL

1.1 The Center will be constructed at Rimac, Lima, Peru.

1.2 The objectives of the Center are;

(a) To provide and develop primary prevention activities with the numerous agencies in the community, civic groups, schools,etc.

(b) To provide early diagnosis, prompt treatment and short-term day care or inpatient stays for psychiatric cases of all age groups in the northern section of Lima, and to become a referral center for selected cases.

(c) To provide activities oriented toward the prevention of disabilities and lessening of those already produced by psychiatric disorders.

(d) To serve as a basic place of training for the psychiatric residents and other groups of mental health workers, being trained in an eclectic model, well adjusted to the needs of Peruvian population.

(e) To organize, plan and develop research programs in the areas of social and community psychiatry, clinical psychiatry, psychotherapy and psychopharmacology.

1.3 The survey team exchanged views with the Peruvian Commission concerned on the operation plan of the Center and the relation between the Center and technical cooperation of JICA.

2. MEASURES TO BE TAKEN BY THE GOVERNMENT OF JAPAN

The Government of Japan will take necessary measures to provide such items as listed in Annex I.

The layout plan of the Center is shown in Annex II.

3. MEASURES TO BE TAKEN BY THE GOVERNMENT OF THE REPUBLIC OF PERU

The Government of the Republic of Peru will take necessary measures for such items as listed in Annex III.

MINISTERIO DE SALUD

ANNEX I

Building and equipment for the Center to be provided by the Government of Japan.

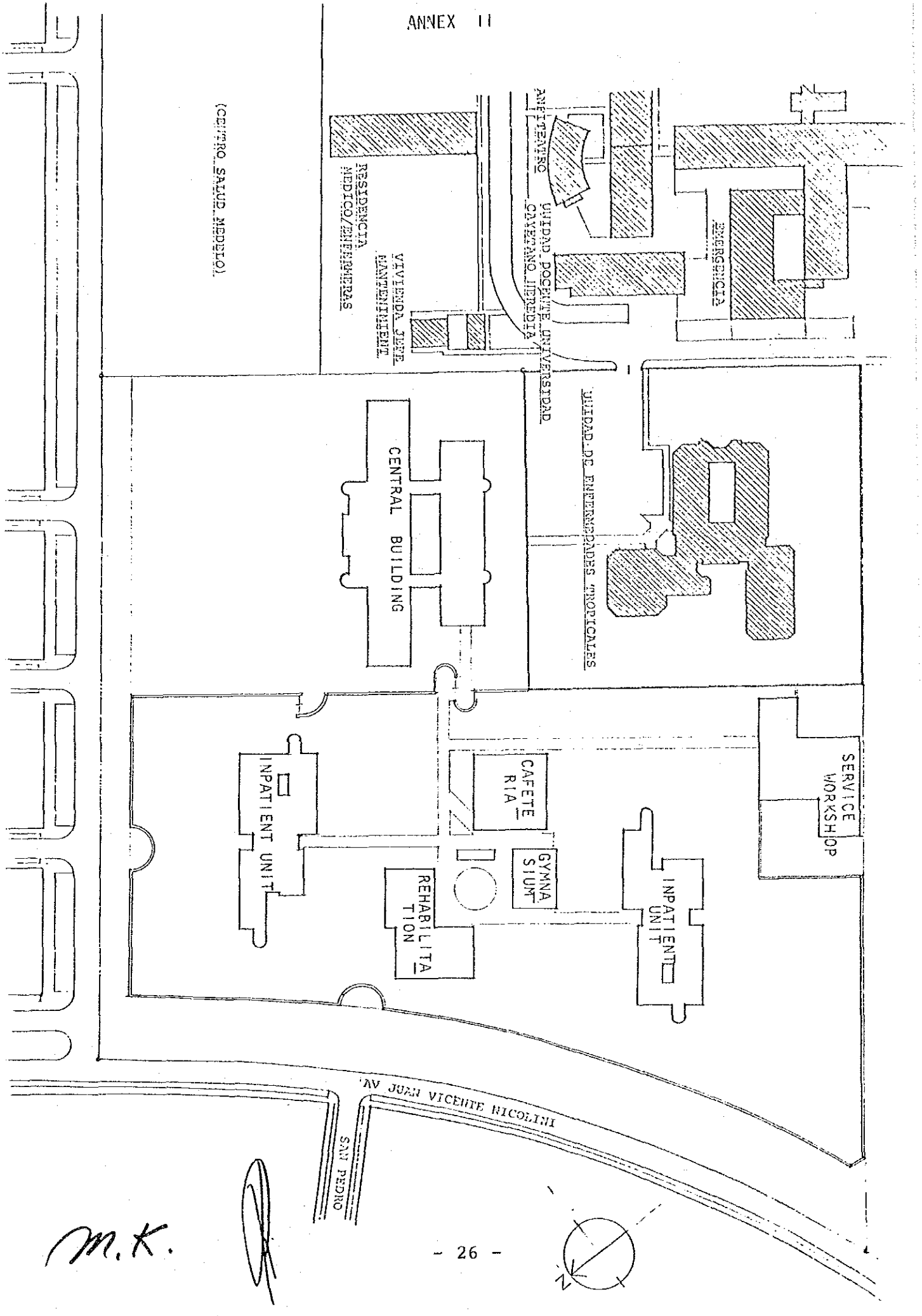
1) Buildings with related electric and plumbing works

a)	Central building	Out-patient
		Psychiatric emergency
		Day care
		Administration
b)	Rehabilitation Center	Rehabilitation
		Gymnasium
		Cafeteria
c)	2 In-patient Units	200 beds
d)	Service Workshop	Kitchen
		Laundry
		Machine room
		Storage

2) Equipment to be used at the Center
3) Fence specified in Annex II
4) Paving for approach drive
5) Paving for open corridor connecting buildings

M.K.

ANNEX II


(CENTRO SALUD MEDELO)
RESIDENCIA MEDICO/ENFERMERAS
VIVIENDA JEFE MANTENIMIENT.
ANFITEATRO
UNIDAD DOCENTE UNIVERSIDAD CAYETANO HEREDIA
EMERGENCIA
UNIDAD DE ENFERMEDADES TROPICALES
CENTRAL BUILDING
INPATIENT UNIT
CAFETERIA
GYMNASIUM
REHABILITATION
INPATIENT UNIT
SERVICE WORKSHOP
AV JUAN VICENTE MCOLINI
SAN PEDRO
N

M.K.

MINISTERIO DE SALUD

ANNEX III

Items whose costs should be borne by the Government of the Republic of Peru.

(a) To provide data and information necessary for the construction including topographic survey, soil test and other geological survey reports.

(b) To secure a lot of land necessary for the construction

(c) To clear and level the site before the start of the construction

(d) Water supply main pipe to the point (A) specified in Annex IV

(e) External sewage line from the four (4) points marked (D) specified in Annex IV.

(f) Electrical power main line to the project site and installation of transformer at the point (E) specified in Annex IV.

(g) Telephone main line to the point (T) specified in Annex IV.

(h) Lawn and planting

(i) Incinerator

(j) Furnitures and miscellaneous except beds

(k) Rugs and drapes

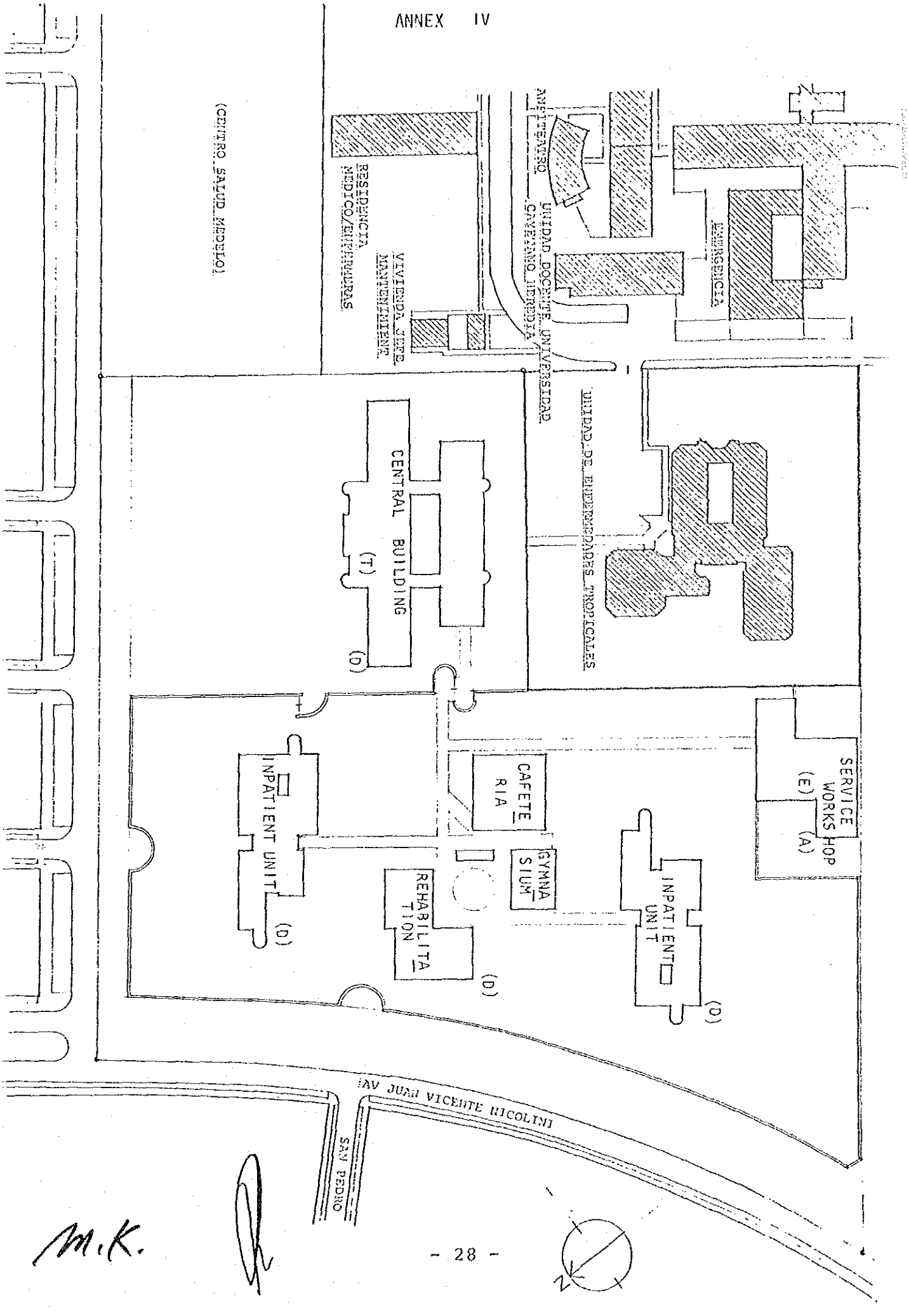
(l) Taking various necessary procedures in obtaining the permissions and exemptions of customs duties and taxes from the competent authorities of the Government of the Republic of Peru for;
- Japanese nationals concerned for this project.
- Construction materials, equipment, construction machines, etc.

(m) Securing expenses for providing services of the Peruvian Counterpart personnel necessary for the operation of the Center.

(n) Providing all running expenses necessary for the operation of the Center.

M.K.

ANNEX IV


(CENTRO SALUD MEDELO)
RESIDENCIA MEDICO/ENFERMERAS
VIVIENDA JEFE MANTENIMIENTO
ANFITEATRO
UNIDAD DOCENTE UNIVERSIDAD CAYETANO HEREDIA
EMERGENCIA
UNIDAD DE ENFERMEDADES TROPICALES
CENTRAL BUILDING
(T)
(D)
SERVICE WORKS HOP
(E)
(A)
CAFETE RIA
GYMNA SIUM
INPATIENT UNIT
(D)
REHABILITA TION
(D)
INPATIENT UNIT
(D)
AV JUAN VICENTE NICOLINI
SAN PEDRO
N

M.K.

ACTA DE CONVERSACIONES SOBRE EL INFORME
DE DISEÑO BASICO PARA LA CONSTRUCCION DEL CENTRO DE
SALUD MENTAL COMUNITARIO "SAN JUAN BOSCO" DEL PERU

El Gobierno del Japón ha enviado a través de la Agencia de Cooperación Internacional del Japón (en adelante denominará "JICA") la Misión de Diseño Básico presidida por el Dr. MASAAKI KATO, Director del Instituto Nacional Japonés de Salud Mental, del 16 al 23 de Enero de 1980, en la segunda visita para presentar el informe de diseño básico para la construcción del Centro de Salud Mental Comunitario "San Juan Bosco" del Perú.

La Misión explicó el informe a la Comisión que preside la Dra. Gloria Viladegut de Estrella, del Ministerio de Salud de la República del Perú, y ha mantenido conversaciones en detalle con el personal respectivo.

Como resultado de dichas conversaciones, la Comisión y la Misión han confirmado lo siguiente:

1.- El plan original del diseño básico propuesto por la Misión ha sido aceptado por la Comisión.
2.- JICA enviará a la Comisión diez ejemplares del informe para fines de Febrero de 1980, a través de la Embajada de Japón.

Enero de 1980
Lima, Perú

MASAAKI KATO
Jefe del Equipo Japonés

Crnel. FAP. RAUL AMPUERO RIOS
Asesor Ejecutivo del Ministerio de Salud, Encargado de la Dirección Superior.

MINUTES OF THE DISCUSSIONS ON THE REPORT OF
THE BASIC DESIGN FOR THE CONSTRUCTION OF
THE COMMUNITY MENTAL HEALTH CENTER "SAN JUAN BOSCO
IN THE REPUBLIC OF PERU

The Government of Japan has sent through Japan International Cooperation Agency (hereinafter referred to as "JICA") a basic design Survey Team headed by Dr. MASAAKI KATO, Director, Japan National Institute of Mental health; from the 16th to 23th of January, 1980, on the second visit to submit the report of the basic design for the construction of THE COMMUNIY MENTAL HEALTH CENTER "SAN JUAN BOSCO' IN THE REPUBLIC OF PERU
The Survey Team explained the report to the Commission headed by Dra. GLORIA VILADEGUT DE ESTRELLA of the Ministry of Health of the Republic of Perú and held detailed discussions.

As a result of the discussions, the Commission and the Survey Team have confirmed the following items:

1.- The original plan of the basic design proposed by the Survey Team was accepted by the commission.
2.- JICA will submit to the Commission ten printed copies of the report by the end of February through the Embassy of Japan

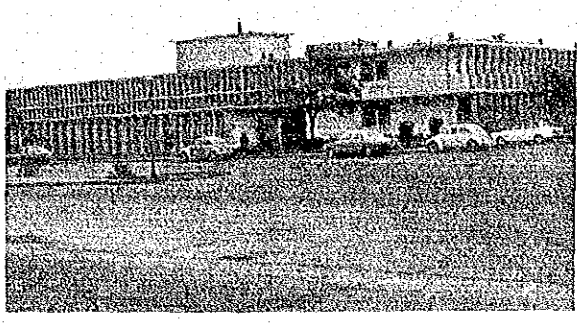
JANUARY 1980
Lima, Perú

MASAAKI KATO
Team Leader
The Japanese Survey Team

Cnel. FAP. RAUL AMPUERO RIOS
Asesor Ejecutivo del Ministerio de Salud, Encargado de la Dirección Superior.

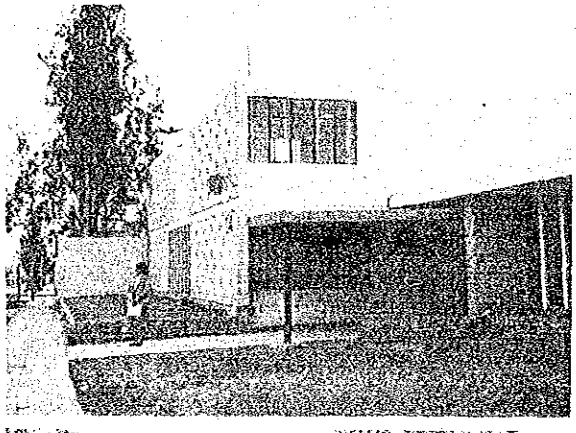
2-6 List of Hospitals Visited and Surveyed

- HOSPITAL GENERAL BASE CAYETANO HEREDIA
- HOSPITAL HERMILIO VALDIZAN
- CLINICA DE DIA
- CLINICA SAN ISIDRO
- HOSPITAL VICTOR LARCO HERRERA
- TAHUANTINSUYO
  Rimac District Health Center
- CANTO GRANDE
  Rimac District Health Center
- CAYETANO HEREDIA
  Facility Related to University for the Mentally Retarded in Tahuantinsuyo



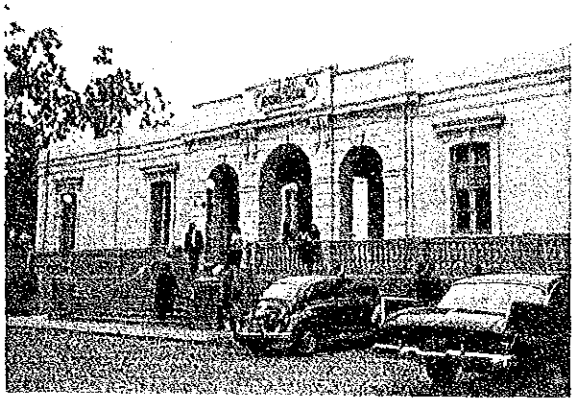
Hospital General
Base Cayetano Heredia

Hospital Hermilio
Valdizan

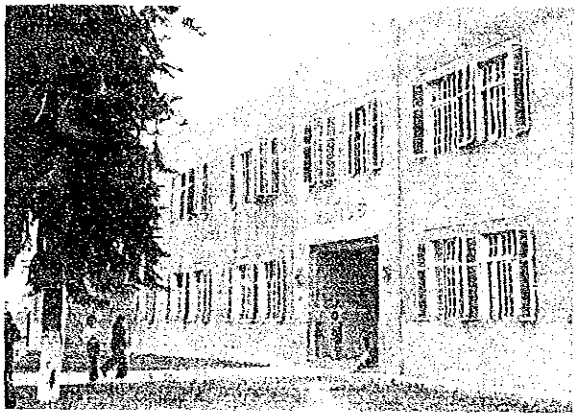


Clínica de Dia

Clínica San Isidro



Hospital Victor
Larco Herrera



Children's Ward
of Hospital Victor
Larco Herrera

Facility Related
to Cayetano Heredia
University for the
Mentally Retarded
in Tahuantinsuyo

Chapter 3
SURVEY REPORT

3-1 National Land and Weather in Lima

Items directly related to the design and construction of the center will be mainly explained and other items will be briefly outlined in this chapter.

(1) General

Peru is located approximately at the central part of the west coast of the South American Continent within the range of north latitude of 0°48' to 18°21' and west longitude of 81°21' to 68°40'. Total national land area is 1,285,215 square kilometers which is about 3.4 times of that of Japan.

Topographically, the land of Peru is divided into three zones by the Andes Mountains; coastal zone, mountainous zone and forest zone. The coastal zone is a long strip of about 2,000 km ranging from Ecuador at the north to Chile at the south, and the width of the strip is about 200 km at the widest point and cliff is formed at the narrowest point where the mountain is directly facing to the sea. This zone is all desert area except river basin. Most of mountainous area is within the Andes Mountains. And about 50% of national land is occupied by the forest zone that is covered with a huge primeval forest with plenty of rainfall.

(2) Politics

As far as political system is concerned, Peru has a constitutional republican system of government adopting the European political philosophy of the three powers but, after the coup d'état in 1968, revolutionist military government was established and the military has governed this country up to now.

However, the opportunity of transferring the power to the civilian government has ripened in recent years and present government has declared that the power will be transferred to a new civilian government at the end of July, 1980.

(3) Economy

Peruvian economy is greatly influenced by the amounts of export of products of mining, agriculture and fisheries. Major export products which support the economy of this country are:

Mining products: Copper, iron ore, lead, petroleum, zinc, silver, etc.

Agricultural products: Cotton, sugar, coffee, etc.

Fishery products: Canned fishes, fish meal, etc.

Inflation that is dominant throughout the world in recent years has given serious impact also to the Peruvian economy, and people are hoping the Peruvian economy will develop considerably after the transferring of power to the civilian government.

(4) Population

According to statistic report by the government (Informe Estadistico), population of Peru is increasing by 2.8% approximately each year, which is about 1.4 times of average rate of population increase of the world.

Thus, population of Peru rapidly grows and, moreover, population tends to move the urban areas each year as shown in Figs. 1 to 3. That is, the ratio in population between urban area and rural area was 3.5:6.5 in 1940 with more people in rural area but the ratio in 1972 was 6:4

with more population in urban area. In addition, this ratio became 6.5:3.5 in 1978 which is completely reverse to that of 1940. It is forecasted that this tendency of concentration to urban area further continues more drastically until 1990 and 2000 when the ratio will become about 7.4:2.6 and 8:2 respectively.

According to the same statistic report, the total population of Peru in 1979 is about 17.3 millions, of which population in City of Lima is 4.8 millions that is, in fact, 27.7% of total population in this country.

Population distribution of urban concentration type has created the worsened living environment caused by poor housing and earning differentials and the tendency to increase of mentally abnormal persons for which counter-measures are now needed.

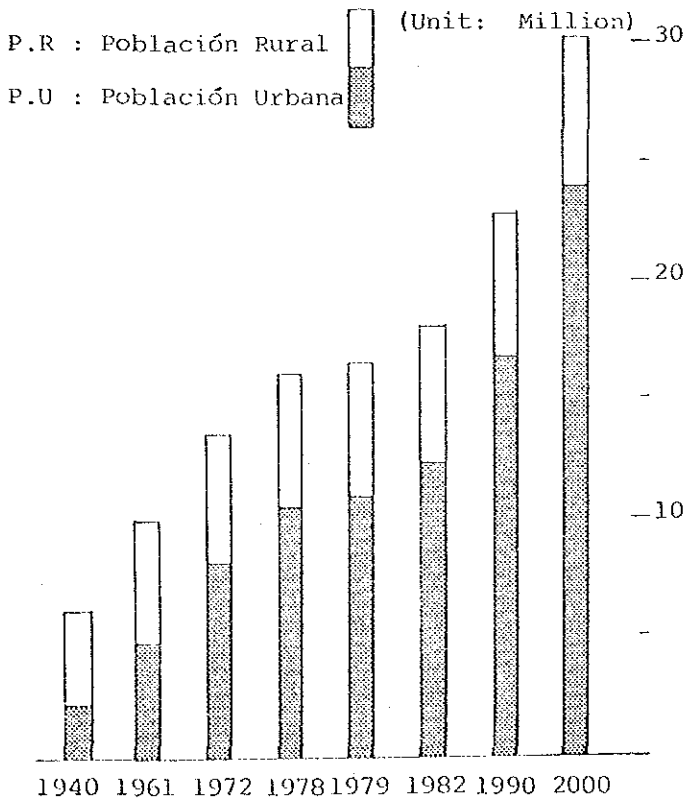


Fig. 1 Ratio in Population between Urban and Rural Areas in Peru

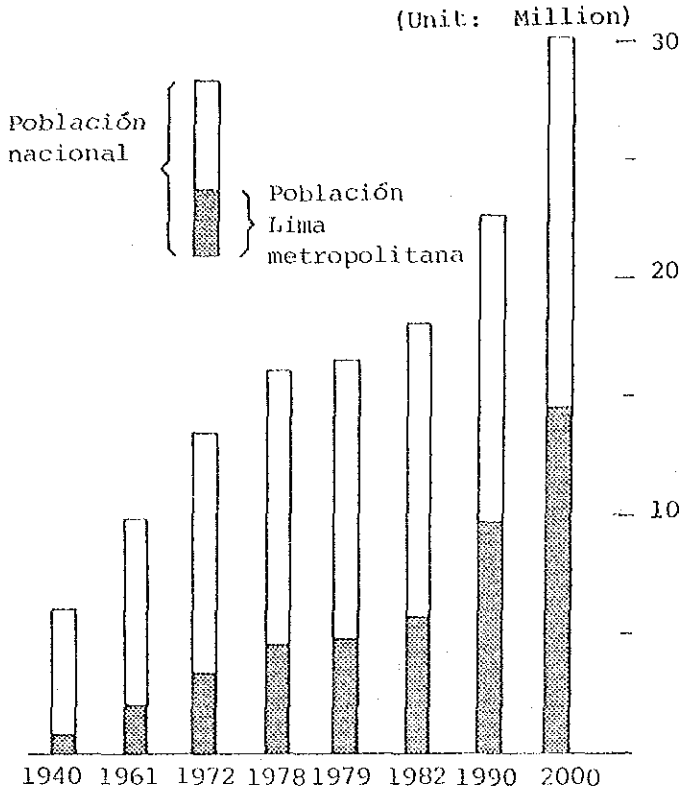


Fig. 2 Ratio in Population between National and Metropolitan Lima

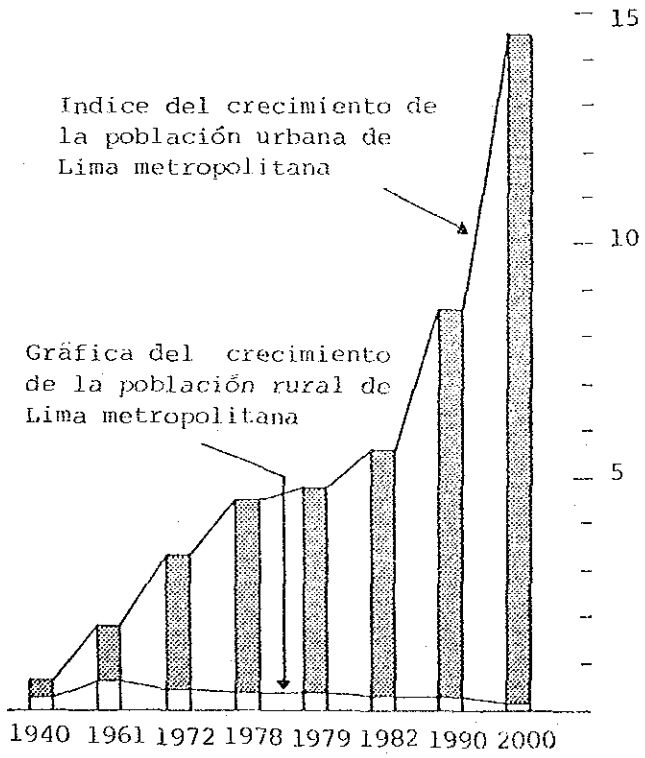


Fig. 3 Ratio in Population between Urban and Rural Areas within Metropolitan Lima

(5) Weather in Lima

Air temperature changes very slightly throughout year in City of Lima. Mean air temperature is 22.5°C in February in summer and 14.9°C in September in winter. The maximum temperature is 29°C and the minimum is 13°C in last 6 years. Relative humidity is high or about 80% throughout year.

Rainfall is low with 12.3 mm annually and the maximum is 30 mm.

Duration of sunshine is short and it is mostly cloudy in winter but, on the contrary, mostly clear during summer.

Wind is almost none in the morning but wind of about 3.5 m/sec will occur in the afternoon. The maximum wind velocity in last 6 years was 15 m/sec. Southwestern wind is prevailing throughout year.

o Annual Weather Data in Lima (Tabulation for 6 years from 1970 to 1975)

a) Air temperature in °C:

Month	1	2	3	4	5	6	7	8	9	10	11	12
Monthly mean	21.2	22.5	21.7	19.9	17.8	16.1	15.4	15.0	14.9	15.8	17.4	19.1
Monthly mean of daily maximum	24.9	26.5	26.1	24.3	21.0	18.8	17.6	17.3	17.6	18.9	20.8	22.7
Monthly mean of daily minimum	19.6	19.8	19.2	17.5	16.2	14.6	14.0	13.6	13.4	14.1	15.8	17.0
Maximum in 6 years	27	28	29	27	24	25	19	19	21	21	23	26
Minimum in 6 years	17	18	18	17	14	14	13	13	13	14	16	17

b) Humidity in %:

Month	1	2	3	4	5	6	7	8	9	10	11	12
Monthly mean	83	79	81	84	85	87	87	89	89	87	84	83

c) Rainfall in mm/month:

Month	1	2	3	4	5	6	7	8	9	10	11	12	per year
Monthly accumulative rainfall	3.1	1.0	0.4	0.2	0.8	1.4	1.6	1.1	1.1	0.8	0.3	0.5	12.3

d) Duration of sunshine in hours:

Month	1	2	3	4	5	6	7	8	9	10	11	12	per year
Monthly total duration of sunshine	172	217	234	219	111	44	37	33	40	82	123	163	1475

e) Wind in m/sec.:

Month		1	2	3	4	5	6	7	8	9	10	11	12
Maximum in 6 years	Wind direction	SW	SW	NW	NW	SW	W	SW	SSW	SW	SW	SW	SW
	Wind velocity	13	10	6	11	9	15	13	9	11	11	10	13
Mean in 7 hours	Prevailing wind direction	SW	SW	SW	SW	SW	SW	SW	SSE	SW	SW	SW	SW
	Wind velocity	0.5	0.6	0.5	0.6	0.8	0.3	0.6	0.6	1.7	1.5	0.8	1.3
Mean in 13 hours	Prevailing wind direction	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
	Wind velocity	3.8	3.7	3.2	3.3	3.2	3.2	2.8	3.2	3.3	3.3	3.7	3.2
Mean in 19 hours	Prevailing wind direction	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
	Wind velocity	3.7	3.3	3.0	2.8	2.8	2.3	3.0	3.3	3.5	3.2	3.3	3.5

(6) Disasters

- Thunder

  Thundercloud rarely occurs in City of Lima and there is no possible danger of being struck by lightning.

- Fire

  Large-scale fire scarcely occurs in the City of Lima because buildings are constructed with soil, bricks or concrete, and combustible materials such as wood are rarely used.

- Flood

  Flood has scarcely occured in Lima. Annual rainfall is 12.3 mm in average and 34 mm maximum which is too low to cause a flood.

- Damages by wind

  Wind damages rarely occurred in City of Lima, and the maximum wind velocity ever observed in Lima was 15 m/sec.

- Earthquakes

  The Republic of Peru belongs to Pacific Earthquake Zone and, thus, many earthquakes occur in this country as same as Japan. Two kinds of earthquakes exist; oceanic earthquakes that occur near the coast, and in-land type earthquakes. The former has large scales with magnitude of about M=8.0 to 8.4 while the latter has M=6.0 to 7.0, which has never exceeded M=8.0.

Major damages caused by earthquakes in the past are crushed houses built with Adobe, damages caused by tsunami, and large-scale landslides and runoff of sediment which occur in CORDILLERA district of Andes.

The largest damage ever occurred in the history of earthquake observation was caused by the earthquake taken place at offshore of CHIMBOTE (9.17°S, 78.8°W, 43 km deep) that was 350 km in north of Lima on May 31, 1970. During this earthquake, sediment flowed down from northern peak of Mt. HUASCARAN that was about 5,500 to 6,400-meter high and gave damages to the area of 65,000 km^2. The damages comprized 50,000 dead persons, 150,000 wounded persons, 200,000 crushed houses, and 800,000 people who lost their houses.

In Lima area, an earthquake with M=8.2 occurred on May 24, 1940 by which 249 persons were dead. Of the buildings crushed during this earthquake, 81% of them were made of Adobe, Quincha and brick masonry, and the remaining 19% of buildings were made of other materials. This earthquake was the largest one in recent years.

As stated above, Peru has been frequently attacked by earthquakes that brought large damages and agressively has practiced earthquake-resistant design for buildings, and Peru has already established design standards for earthquake resistance. Fig. 4 shows the magnitudes of earthquakes occurring in Peru. List of earthquakes occurred in Lima area is shown in Table 1.

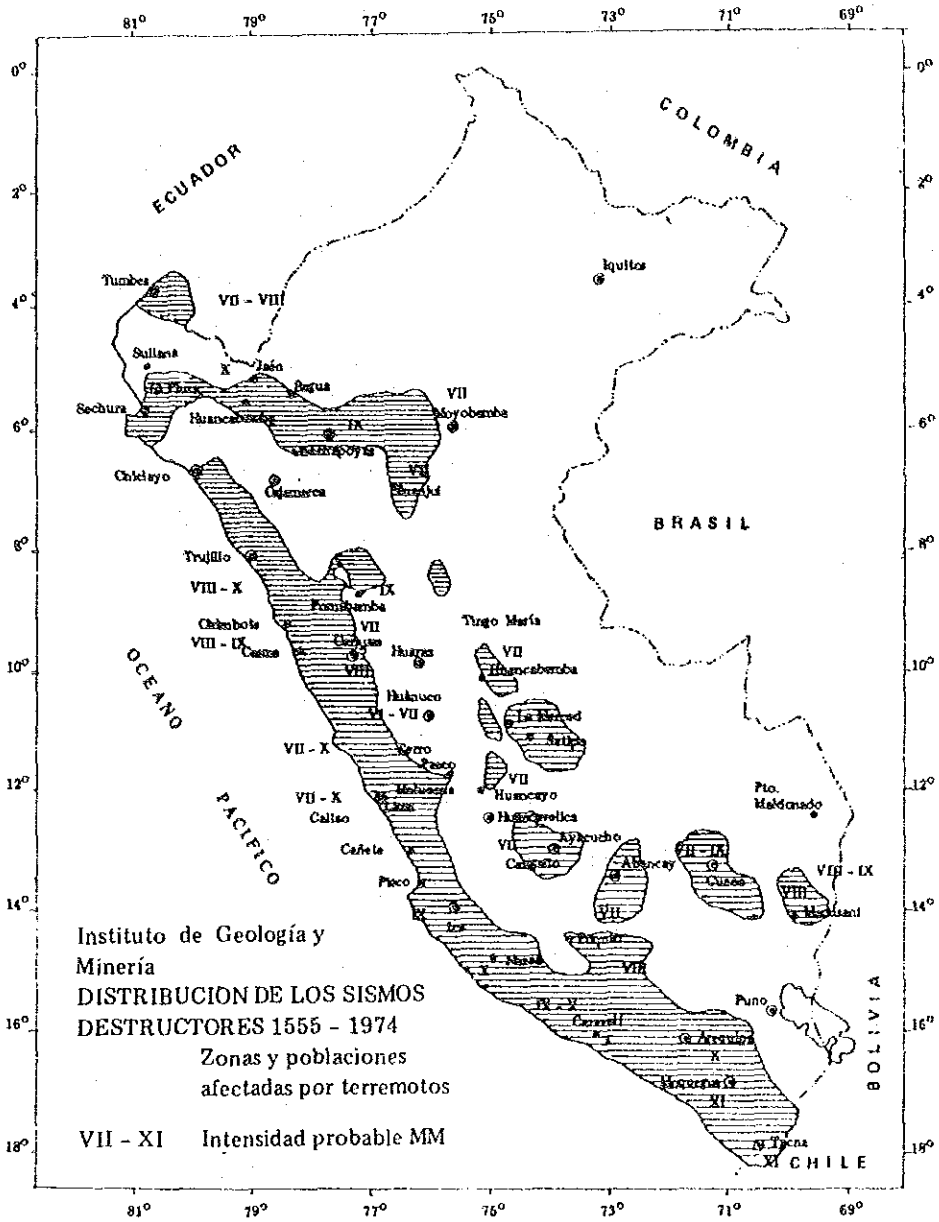


Fig. 4 Distribution Map of Destructive Earthquakes in Peru (1555 to 1974) (MM Seismic Intensity: VII to XI)

Table 1 List of Earthquake Occurrences in Lima Area

LIMA

1	1552	Julio 2, en Lima y Arequipa, ocasionó daños.
2.	1553	Según crónica sísmica de Lima, narran de un sismo fuerte ocurrido después de 18 años de la fundación de Lima.
3.	1578	Junio 17, fuerte temblor que produjo daños en la ciudad de Lima.
4.	1586	Julio 09, a hora 19:00 (hora local); latitud 12.23 S, longitud 77.7 W. fuerte temblor en la ciudad de Lima produjo daños materiales y muertos. Maremoto o tsunami. Magnitud 8.0.
5.	1609	Octubre 19 a 20:00 temblor fuerte en Lima. Daños en viviendas e iglesias.
6.	1630	Noviembre 27 con fuertes daños.
7.	1655	Noviembre 13 a 14:45 un fuerte temblor afectó Lima y Callao, en un radio de 600 Km. de la costa.
8.	1679	Junio 17 a 19:45 fuerte temblor en Lima ocasionó daños materiales.
9.	1687	Octubre 20, terremoto y tsunami en Lima a 11:00 GMT, latitud 13.0 S, longitud 77.5 W. Y otro a las 06:30. Las campanas de las iglesias tocaban solas, ocasionaron víctimas, magnitud 8.2.
10.	1697	Septiembre 29, con daños
11.	1699	Septiembre 29.
12.	1716	Febrero 6 en Tacna un fuerte sismo que causó daños materiales y víctimas. También se sintió en Lima.
13.	1725	Enero 6, fuerte temblor en Lima.
14.	1732	Diciembre 2, hora 01:00 en Lima
15.	1746	Octubre 28 a hora 22:30, terremoto de Lima y Tsunami en el Callao lat. 11.6 S, long. 77.5 W. En Lima 3,000 casas derruidas en Callao 5,000 personas perdieron la vida. Intensidad X-XI MM.
16.	1806	Diciembre 07 a 18:00 hora local; lat. 12.0 S long. 78.0 W.
17.	1821	Julio 10, 0.5:00, terremoto que ocasionó grandes daños en los, pueblos de Camaná, Ocoña, Caravelí, Chuquibamba y valle de Majes. Se sintio en Lima.
18.	1828	Marzo 30 a 07:35 terremoto que causó gran daño en todo Lima, hubieron víctimas en el Callao, Chorrillos, Chancay, Huarochiri. Sentido también en Arequipa.
19.	1859	Sin fecha y hora, en Lima.
20.	1877	Septiembre 20, 11 horas 25 minutos Lima y Callao fue afectado por un movimiento fuerte dejando muchos daños.
21.	1904	Marzo 4, 05 horas 17 minutos. En Lima un fuerte movimiento sísmico de intensidad VII-VIII MM abarcó La Molina, Ñaña, Matucana, Chosica, Ancón, Mala.

22. 1915 Agosto 21 a 14:23 un fuerte temblor fue registrado por el observatorio de la Sociedad Geográfica de Lima, cuyo epicentro fue determinado a 83 Km. de Lima (Mala). Sintieron con poca intensidad en Ica.

23. 1915 Diciembre 27 a 10:40 en Lima (Cañete) un fuerte sismo que fue sentido a lo largo de la costa sur, Yauyos, Camaná, Mollendo.

24. 1926 Marzo 11 a 06:20, según el Observatorio de Lima, fue a unos 80 Km. de distancia de esta estación, intensidad V-VI MM afectó Lima y Callao, se sintió en Chiclayo e Ica.

25. 1932 Enero 19 a 21:30:50, hora local con epicentro 12.0 S, 77.5 W, magnitud 6.75 fuerte sismo de grado VI-VII MM, profundidad 100 Km, muy fuerte en Huacho, también afectó la ciudad de Huaraz, el Callejón de Huaylas.

26. 1933 Agosto 5 a 21:55 un fuerte temblor en Lima, Callao e Ica. Epicentro latitud 11° S, longitud 76° W, abarcó Cerro de Pasco y Puerto Bermúdez.

27. 1939 Abril 25 a 07:55 temblor de grado VI MM en Cañete, Pisco, Chincha, Lima, Matucana, San Mateo, Carretera Central.

28. 1940 Mayo 24 a 11:35 epicentro lat. 11.0 S, long. 77.5 W, magnitud 8.2 Lima fue sacudido fuertemente con una intensidad VII-VIII MM con una vasta área de percepción. Ocasionó muchos daños y víctimas (249 muertos), fue sentido hasta el Puerto de Guayaquil (Ecuador), y hasta Arica por el Sur, fue el sismo considerado el más fuerte de los últimos años.

29 1948 Mayo 28 a 00:37 hora local, ocurrió un sismo fuerte, produjo daños en Cañete, intensidad VII MM; magnitud 6.7 Richter. Epicentro lat. 13.1 S y long. 76.2 W.

30. 1951 Enero 31 a 11:39 en Lima un fuerte temblor de intensidad VI-VII MM ocasionó daños en la ciudad y alrededores.

31. 1951 Junio 12 a 00h 43m un sismo de magnitud 5.6 afectó Huaytará. Abarcó Lima, Chincha, Ica y Ayacucho.

32. 1952 Agosto 3 a 08:19 hora local, fuerte sismo sacudió Lima y Callao intensidad V-VI posición epicentral lat 12.5 S y long 78.0 W

33. 1953 Febrero 15 a 04:33 hora local, Lima fue sacudido por un fuerte sismo de intensidad V-VI MM. Epicentro lat. 12° S long. 77.5 W.

34. 1954 Abril 21 a 15h 23m hora local. Epicentro 13° S, 77° W; h = 110 Km. Lima fue sacudido violentamente, sufriendo daños en Mala, Cañete y San Antonio; intensidad VI MM. Abarcó hasta Tarma y Huancayo.

35. 1955 Febrero 9 a 11:06. 11.5° S, 77.5° W ocasionó daños en Lima y fue sentido en Huaraz.

36. 1957 Febrero 18, 18h 50m hora local. 14.43° S, 77.53° W. Profundidad 100 Km. Magnitud 6.5-6.75 (USCGS). Intensidad IV-V MM ocasionó ligeros daños en Nazca, Huancavelica y Lima.

37. 1958 Marzo 1°, 04:05:40 hora local. 13.5° S, 76.5° W, causó daños en Lima intensidad VI MM sentido fuertemente en Pisco, Ica. h = 53 Km.

38. 1961 Enero 27, 22:24:39,2s hora local; 13.6° S, 76.6° W. h = 35 Km. Magnitud 5 (Pasadena); 5.7 (Matsushiro), afectó entre Lima-Nazca con intensidad VII MM. En Ica causó daños en igual forma en Chincha, Pisco, San Luis de Cañete, Mala, Palpa.

39. 1966 Octubre 17 a 16:41:57 hora local, epicentro 10.7 S, 78.8 W; profundidad 24 Km. Este sismo fue considerado el más fuerte después de 1940. Dejó un saldo de 100 muertos y daños materiales considerables. Pasadena dio una magnitud de 7.5.
Según el trabajo del Dr. Silgado este sismo abarcó gran parte del territorio, en la zona epicentral tuvo intensidad de VII MM.

40. 1971 Noviembre 29 a 20:14; lat. 11.24 S long. 77.75 W; profundidad 54 Km.

41. 1974 Enero 5, 03:33:50.7 hora local; 12.3 S, 76.4 W; profundidad 98 Km., magnitud 6.6 (Pasadena). Este sismo ocasionó 10 muertos en distintos puntos del Departamento de Lima. Los daños materiales mayores se registraron entre Lima y Yauyos. La intensidad en Lima V MM.

42. 1974 Octubre 3, 09:21:29 hora local; 12.3 S, 77.8 W., profundidad 13 Km. Este sismo ocasionó fuertes daños en todo el Departamento de Lima con 78 muertos y 2,414 heridos. La intensidad máxima fue de VII MM. El sismo principal tuvo un total de 1,219 réplicas de los cuales 125 han sido sentidos con regular intensidad. Los mayores daños materiales en Lima fueron las zonas de La Molina, Chorrillos y Callao. Daños menores en los edificios de Lima (Por la presencia de componentes de período largo). En la zona de Cañete se ha observado grietas y problemas de licuefacción de arena en los terrenos de cultivos. Magnitud 7.5 (Pasadena); 7.6 (Berkeley).

43. 1974 Noviembre 9 a 12:59:49.7 G.M.T.; 12.5 S, 77.7 W profundidad 6 Km. magnitud 6.0 (USGS); 6.2 (Pasadena). Intensidad en Lima IV MM. Sentido desde Huacho hasta Cañete creando gran alarma en la población.

44 1979 Febrero 16 a 05 h. 09 m. 14 s. (hora local), los sismógrafos del observatorio del Instituto Geofísico de la Universidad Nacional de San Agustín, han registrado el fuerte movimiento sísmico que sacudió la ciudad de Arequipa (Boletín Sísmico No. 002-79-IG). Se informa de 13 muertos y más de 300 heridos. Se considera que sólo en el casco urbano los daños asciende a más de 100 millones de soles, y según una evaluación inicial efectuada por la Tercera Región de Defensa Civil, los daños ocasionados superan los mil millones de soles.

Defensa Civil de Lima informó que el epicentro fue localizada en Huaytepilla, comarca Arequipeña, a 15 Km. al norte de Aplao y a 12 Km. al sur de Chuquibambilla (15.96 grados latitud sur y 72.50. longitud oeste); profundidad hipocentral 49 Km.; magnitud Richter 6.6.

Los sectores más afectados por el fuerte movimiento sísmico fueron los Pueblos Jovenes, lugares en los que se produjeron caídas de numerosas viviendas. Derrumbes en algunos tramos en carretera Pan Americana que interrumpió el tránsito vehicular entre Arequipa - Lima y entre Arequipa - Mollendo.

3-2 Present Status of Construction Industry

(1) Construction firms in Peru

The Government of Peru has established ranks for building contractors when opening bids and awarding contracts for public buildings in order to restrict the maximum amounts of contracts depending upon the ranks of contractors. Limit of contract amount for each rank, and names of Rank A contractors are shown below.

- Limit of contract amount for each rank (in Soles)

Rank A:	50 times gross capital;	39 firms
Rank B:	500,000,000	19 firms
Rank C:	250,000,000	36 firms
Rank D:	125,000,000	43 firms
Rank E:	62,000,000	65 firms
Rank F:	31,000,000	182 firms
Rank G:	15,500,000	20 firms

- List of Rank A Construction Firms

RAZON SOCIAL	Capacidad Máxima de Contratación (en Millones de Soles)
Alva Centurión Julio. Ing.	600'
Alvarado Cisneros S. A.	450'
Arturo Villanueva Ferrero S. R. Ltda.	550'
Aramayo S. A. Contratistas Generales	843'
Bruce S. A. Contratistas Generales	1,800'
Caduras Contratistas Generales S. A.	1,500'
Caceres & Piaggio Contratistas Generales S. A.	450'
Canepa Tabini S. A.	870'
César Fuentes Ortiz Ingenieros S. A.	954'
CIEMSA Contratistas Generales	660'

RAZON SOCIAL	Capacidad Máxima de Contratación (en Millones de Soles)
Cilloniz - Olazabal - Urquiaga S. A.	900'
Compañia Constructora Industrial y Comercial Vulcano S. A.	952'
Compañia Constructora Pedro Salaverry Rivera S. A.	450'
Construcciones Villasol S. A.	1,200'
Constructora Jano S. A.	450'
Constructora Panamericana S. A.	468'
Constructora Peruana de Caminos S. A.	480'
Constructora Upaca S. A.	1,500'
Corporación de Ingenieria Civil S. A.	1,050'
COSAPI S. A.	6,750'
FEVAC S. A. Contratistas Generales	450'
Fujita Gumi S. A.	480'
Graña y Montero S. A.	1,530'
Guiulio Constructora de Caminos S. A.	1,212'
Haaker, Velaochaga, Florez - Estrada S. A. Contratistas Generales.	450'
Impresit del Pacifico S. A. (Empresa Exranjera).	1,380'
Ingenieros Civiles Contratistas Generales S. A. (ICCGSA).	1,129'
Ingenieros Ejecutores S. A.	510'
J. & J. Camet Ingenieros S. A.	1,200'
Jaime Olaèchea S. A. Contratistas Generales	531'
Jorge Torres Vallejo S. A. Ingenieros	450'
Laos & Bolzmann S. A. Ingenieros Contratistas	780'
Martinez & Linares S. A.	1,371'
Octavio Bertolero y Cia. Contratistas Generales S. C. R. L.	3,480'
Suministro de Equipos S. A.	1,500'
Superconcreto del Perú S. A.	942'
Vera Gutiérrez S. A. Contratistas Generales	2,791'
Woodman & Mohme Ingenieros Contratistas S. C. R. L.	2,100'
C. Tizón P. S. A. Ingenieros	1,712'

(2) Population of construction workers in Lima

The number of employments of construction workers in city of Lima is decreasing since 1977, and decrease in 1978 was very outstanding. Thus, working hours of construction workers are gradually decreasing each year, and amount of works of construction industry is also decreasing. Therefore, presently there is surplus supply of labor force and this tendency seems to be continued for a while in the years to come. Refer to Table 2.

Table 2 Labor Force Demands by Occupations in Lima

ENERO-JUNIO 1979

Ocupaciones	Demanda de Mano de Obra en Lima Metropolitana															
	1976					1977					1978					1979	
	I Trim.	II Trim.	III Trim.	IV Trim.	Total	I Trim.	II Trim.	III Trim.	IV Trim.	Total	I Trim.	II. Trim.	III Trim.	IV Trim.	Total	I Trim.	II Trim.
Total	40 470	48 063	31 469	37 559	157 561	29 591	32 139	27 176	34 637	123 537	27 222	26 103	25 045	28 646	107 016	31 014	39 403
Prof. Téc. y Trab. Asim.	1 502	1 695	1 058	1 184	5 437	1 408	1 264	1 476	1 267	5 434	1 255	1 004	826	869	3 954	1 362	1 556
Administradores y Gerentes	544	606	344	305	1 799	447	500	448	410	1 805	422	346	381	385	1 534	480	736
Trabajadores de Oficina	4 202	4 599	2 389	2 296	13 486	2 755	2 917	2 442	2 846	10 960	3 276	2 490	1 601	2 311	9 678	3 289	3 449
Trabajadores en Ventas	4 667	3 612	3 605	4 156	16 040	4 978	4 290	4 374	5 838	19 440	4 172	2 875	3 387	5 225	16 269	3 660	5 051
Agricult., Caza y Trab. NCBOE	72	72	65	84	313	68	37	68	33	206	47	20	41	29	137	16	69
Trab. de los Transp. y Comunic.	2 751	2 134	1 236	1 543	7 664	1 309	1 706	986	1 272	5 355	903	1 050	861	802	3 636	1 041	1 144
Art. y Trab. Ocup. en los Diversos Procus. de Prod. y Peones NCBOE	14 033	17 118	13 945	16 408	59 502	9 792	10 890	8 937	11 584	40 202	8 877	10 612	8 325	9 922	37 736	10 218	15 498
Peones y Jornaleros	742	1 128	789	1 410	4 069	1 693	1 031	767	1 134	4 625	629	829	1 636	1 414	4 508	725	1 011
Trabajadores de los Serv. y Divers.	7 469	11 085	3 637	4 751	26 948	4 440	4 469	2 865	4 775	16 559	3 218	2 455	2 122	3 477	11 272	4 501	4 534
Trabajadores del Hogar	4 151	5 423	4 152	4 513	18 239	3 422	4 123	3 686	3 514	14 749	2 950	2 935	3 380	2 690	12 155	2 491	4 039
Ocupaciones no Bien Especificadas	331	593	231	909	2 064	409	902	1 127	1 764	4 202	1 273	1 487	1 865	1 522	6 147	3 231	2 317

FUENTE: MINISTERIO DE TRABAJO - Dirección General del Empleo - Oficina Técnica del Empleo (Obtenidas en base a la información de los diarios)

(3) Present status of construction work in Lima

a) Building construction work

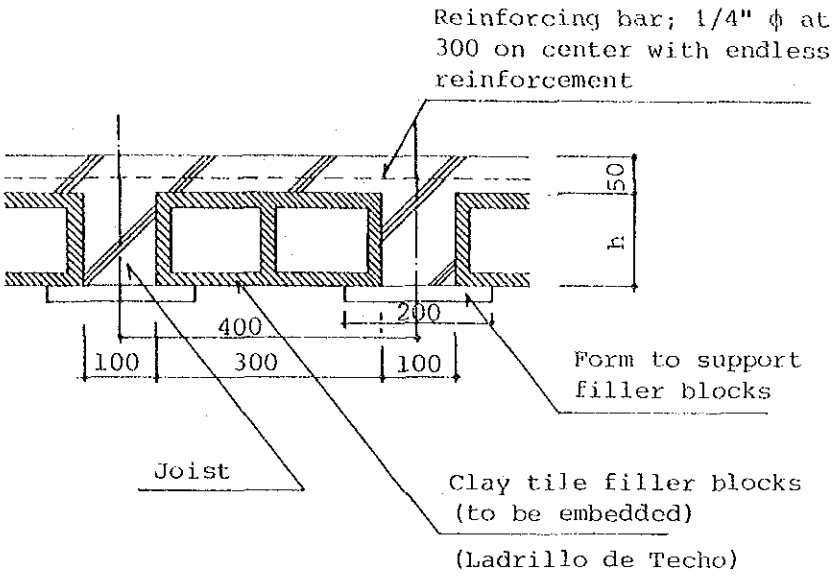
Tendency of inflation in Peru began in 1975, and rises in commodities prices become more furious each year and reached to a peak in 1978. Accordingly, strikes of workers increased and economic recession became severer. Under such circumstances, public investments to buildings have been decreased and the number of buildings under construction in Lima has been also decreased recently.

As far as a few of construction job sites which team members visited in Lima are concerned, it is found out that they are not too much different from those of Japan. For example, in excavation, job sites in Lima are also using construction machinery such as back hoes and wheel type clamshells. In concrete work, reinforced concrete structural system is being used even for buildings higher than 30 stories so that their work method is basically right and very reliable. Plywood as well as steel is widely being used as concrete forms. It is said that about 40% of job sites are using pumps for transporting ready mixed concrete. Also, concrete plants provided at the sites are using large concrete mixers and other excellent equipment. Crushed stone is mainly being used as coarse aggregate and mountain sand is widely used as fine aggregate.

In placing reinforcing steel bars, hooks for hoops and stirrups are being formed exactly as illustrated in text books and assemblies of steel bars are made very accurately.

However, there are few construction methods which are customarily different from those of Japan, and they will be described hereinafter.

Firstly, as temporary fences for temporary works, large panels of woven bamboos called "Quincha" are used in Lima. These panels are also used as sheathing materials for walls of houses and for other purposes, and their applications are relatively wide. For exterior scaffolding, scaffold boards suspended by wires from top structure are being used. They are used for installation of windows, laying of bricks bulkheads, plastering work, painting work and so forth. In Peru, columns are constructed separately from floor slabs and beams in reinforced concrete work, which is different from the method being practiced in Japan, but this seems to be common practice in South America. When constructing floor slabs after placing concrete for columns, solid slab method same as that of Japan is being used but, more frequently, Aligerado Method in which clay tile filler blocks (Ladrillo de Techo) are employed is being used. This is the joist slab method where the filler blocks are used in order to reduce the amounts of forms and concrete. Joists are occasionally laid out in grid pattern but joist slab method seems to be more advantageous. The outline of this method is illustrated below.

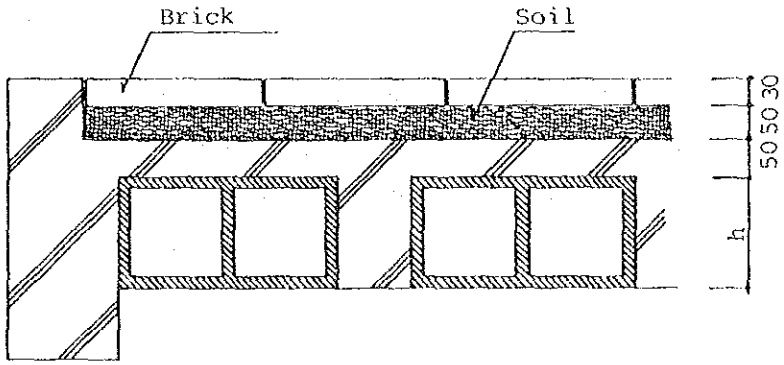


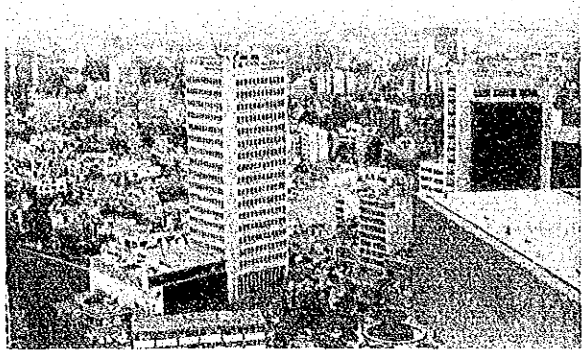
h = 120 mm span
h = 150 mm up to 3,500 mm span
h = 200 mm up to 5,000 mm span

Concerning ceiling system, suspended ceiling is normally not used and, instead, exposed ceiling system is more frequently used in which mortar or other finishing material is directly coated with pressure to the bottom of Aligerado for firm anchoring then finished with steel trowel. In this case, lighting fixtures will be recessed in filler blocks after breaking Ladrillo de Techo.

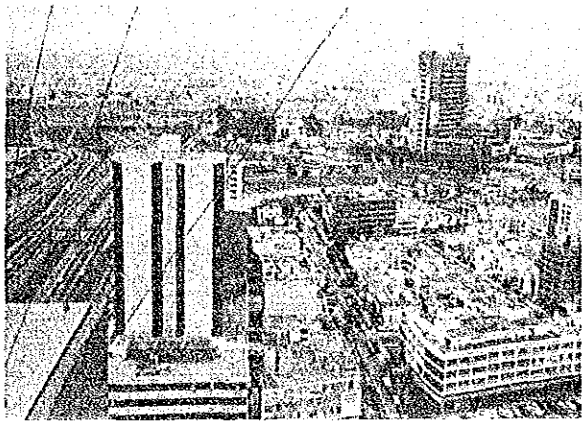
For roofing, special Peruvian method shown in the figure is being used in which soil of about 50 mm thick is filled directly over the concrete slab and fully compacted. Roofing is completed by this compaction in some cases but roofs are also finished with 30 mm thick bricks called Pastelero laid over the compacted earth with mortar filled in the joints. Waterproofing is absolutely not used and, thus, roof gutter will not be required.

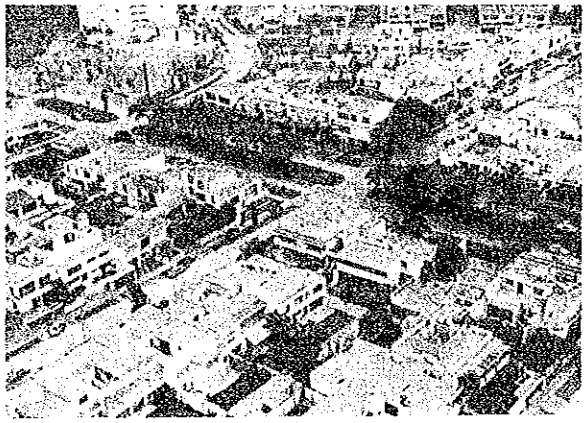
For exterior finishes, most of buildings and houses of intermediate-scale and small-scale employ brick masonry walls finished with mortar and paint or with plaster. Large-scale buildings have exposed concrete finish in many cases but some of them use tile finish or curtain walls. Surfaces of exposed concrete finish is usually coated with cement paste.





A View in City
of Lima

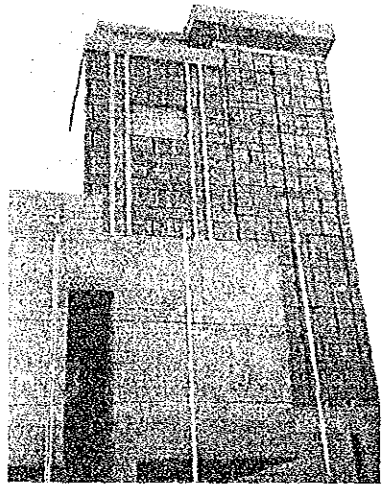


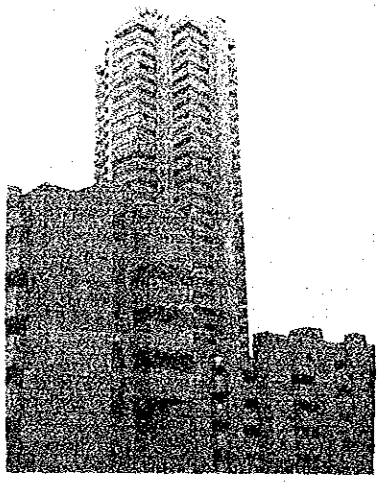


A View of
Housing in Lima

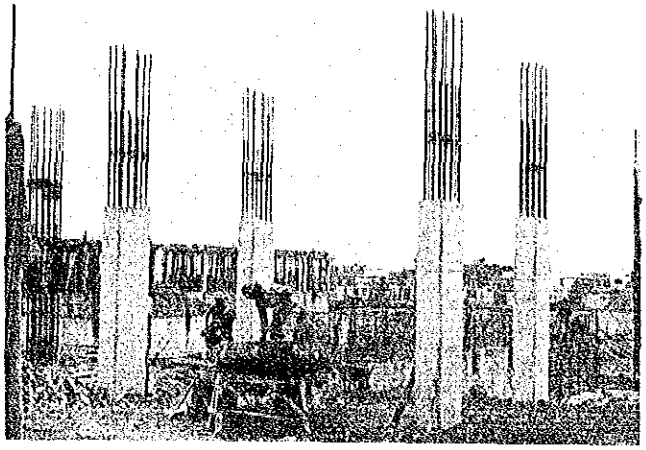
High-rise Apartment
Buildings in Lima

High-rise
Buildings Employing
Exposed Concrete
Curtain Walls

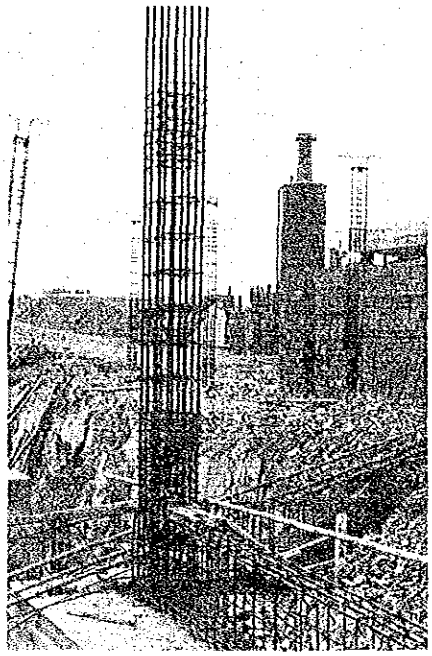




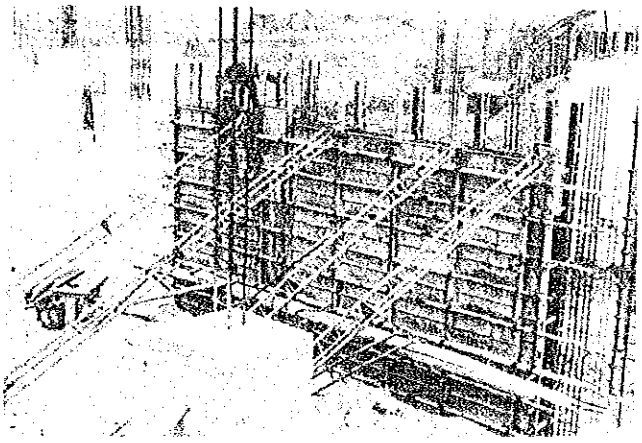
High-rise
Building with Exposed
Concrete Finish



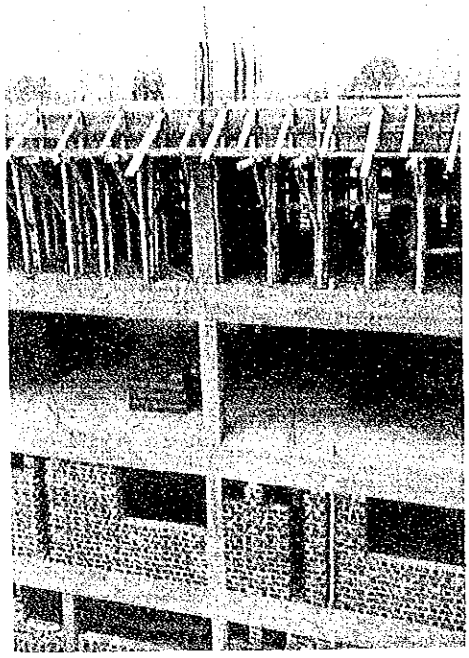
A View Showing Completion of Concrete Placement for Columns



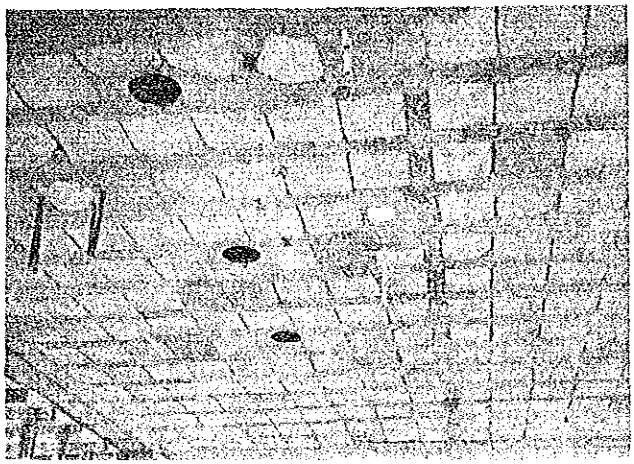
A View Showing Reinforcement for Columns and Tie Beams



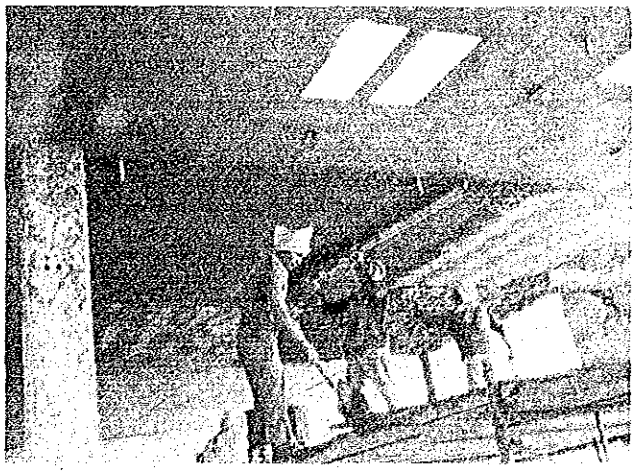
A View Showing Steel Form Installation Work for Wall



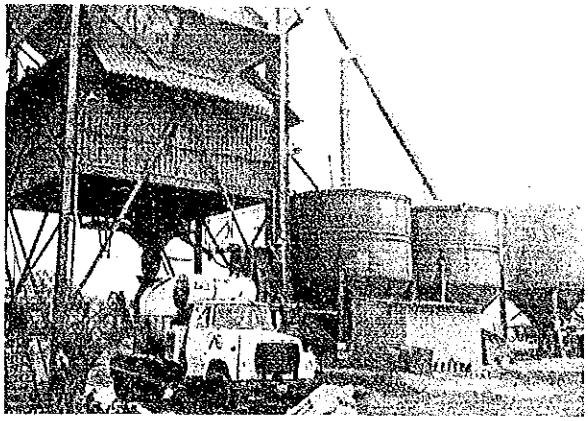
Block Laying
Work for Exterior
Walls



A View Showing
Floor Slab Completed
by Aligerado Method

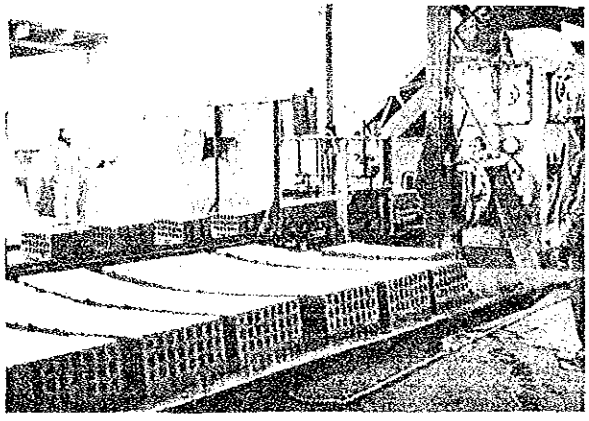


Applying Finish
Directly to Ceiling

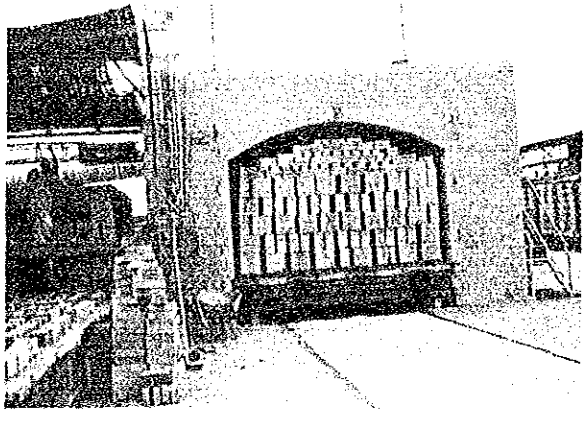


Ready Mixed Concrete Plant

Borrow Area for Sand and Crushed Stone



Manufacturing Plant for Clay Tile Blocks



b) Electrical work

U.S. Standards are adapted and electrical work is being performed in conformity with such standards. Rust-proofing and anticorrosion means has been fully taken into consideration since City of Lima has grown along the coast line, and automated maintenance method is also seen for electric equipment. Methods of electrical work mainly used are described hereinafter.

- Embedded conduits

  Electric conduits and boxes embedded in concrete structures and brick masonry are mostly made of polyvinyl chloride. Exterior underground cable is mainly installed through polyvinyl chloride pipes or perforated clay pipes, and metallic tube is not used.

- Lighting fixtures

  Office buildings mainly use fluorescent lamps while houses use mostly incandescent lamps. Lighting fixtures with fluorescent lamps have lamp covers in many cases and recessed into floor slabs for installation. Poles for exterior lights are mostly made of metal as well as concrete.

- Fire prevention and fighting facilities

  Fire fighting equipment or fire prevention devices such as those required in Japan by laws are rarely installed, but automatic fire detectors are occasionally installed to new buildings.

- Communication equipment

  Main functions presently employed are public address and interphone systems and television antennas, and other special electronic devices are not being used.

c) Mechanical work

- Air conditioning

  Weather in Lima is so mild that air conditioning are not required. However, ventilation equipment are frequently seen for toilets and kitchens but most of them consist of vertical shafts for natural ventilation.

- Water supply and drainage facilities

  City water service line is extended to building site, and water is supplied through concrete receiving tank, concrete receiving tank, elevated water tank and white gas pipes in many cases. For water drainage, both sewage and drain water are combined together and discharged through a common line. No roof gutter and downspout are used since small amount of rainfall is expected. Galvanized iron pipe and PVC pipes are used as interior vent pipes and drain pipes while cast iron pipes are used for sewage. Exterior sewer pipeline is made of concrete pipes. Public sewer system is available throughout city, and sewer pipes from building sites are connected to underground city sewer lines installed below public roads.

- Fire prevention and fighting equipment

  Installation of various kinds of fire fighting equipment is required by laws depending upon the scale of the building. Generally, fire extinguishers filled with carbon dioxide gas and interior fire hydrants are mainly used.