

3. ジョイントレポート

JOINT REPORT ON THE PROJECT
JAPAN PERU CENTER FOR
EARTHQUAKE ENGINEERING
RESEARCH AND DISASTER
MITIGATION
OF THE FACULTY OF CIVIL
ENGINEERING AT U.N.I.

LIMA - PERU

C.I.S.M.I.D.

FOR THE PERIOD OF NOVEMBER 1988

TO OCTOBER 1989

(REPORT Nº4)

I. OUTLINE OF CISMID

I.1 OBJECTIVES

(Please refer to Joint Report N°1 of March 16, 1987)

I.2 ORGANIZATION

This year, new authorities of the University were elected. Dr. José I. López Soria ended his five year period as Rector of UNI and Arq. Javier Sota Nadal was elected Rector and chairman at the CISMID Joint Committee on August. Also, Vice-Rectors were elected by the University General Assembly. On January, Dr. Rafael Torres Cabrejos was elected CISMID Director by the Civil Engineering Faculty Council. Also, Dr. Jorge Alva Hurtado was reelected Research Deputy Director and Dr. Javier Arrieta Freyre was encharged as Academic Deputy Director (a.i) of CISMID.

On March 20, Dr. Yuji Ishiyama, arrived to CISMID to initiate his activities as Chief Adviser of the Japanese Mission. Also, new Coordinator and Japanese Experts in the fields of Geotechnics and Planning were incorporated to advise in the Geotechnical Laboratory and Planning and Disaster Mitigation Department.

At present, it is being proposed to establish an International Relations Department in the CISMID Organization. Eng. Julio Kuroiwa former CISMID Director is taking actions organizing this Department.

General distribution of CISMID officials and their positions are portrayed in the General Organigram.

The general frame under which CISMID develops its activities is the Record of Discussions (R/D) signed between the Japanese Mission headed by Mr. Akira Takahashi and Dr. José I. López Soria, former Rector of U.N.I.

I.3 ACTIVITIES

Please see Joint Report N° 1

I.4 PERSONNEL

Please see Joint Report N° 1

1.5 PARTICIPANTS

Please see Joint Report N°1

1.6 FACILITIES AND FINANCING

Please see Joint Report N°1

JAPAN PERU CENTER FOR EARTHQUAKE ENGINEERING RESEARCH AND DISASTER MITIGATION

C.I.S.M. I. D.
GENERAL ORGANIGRAM

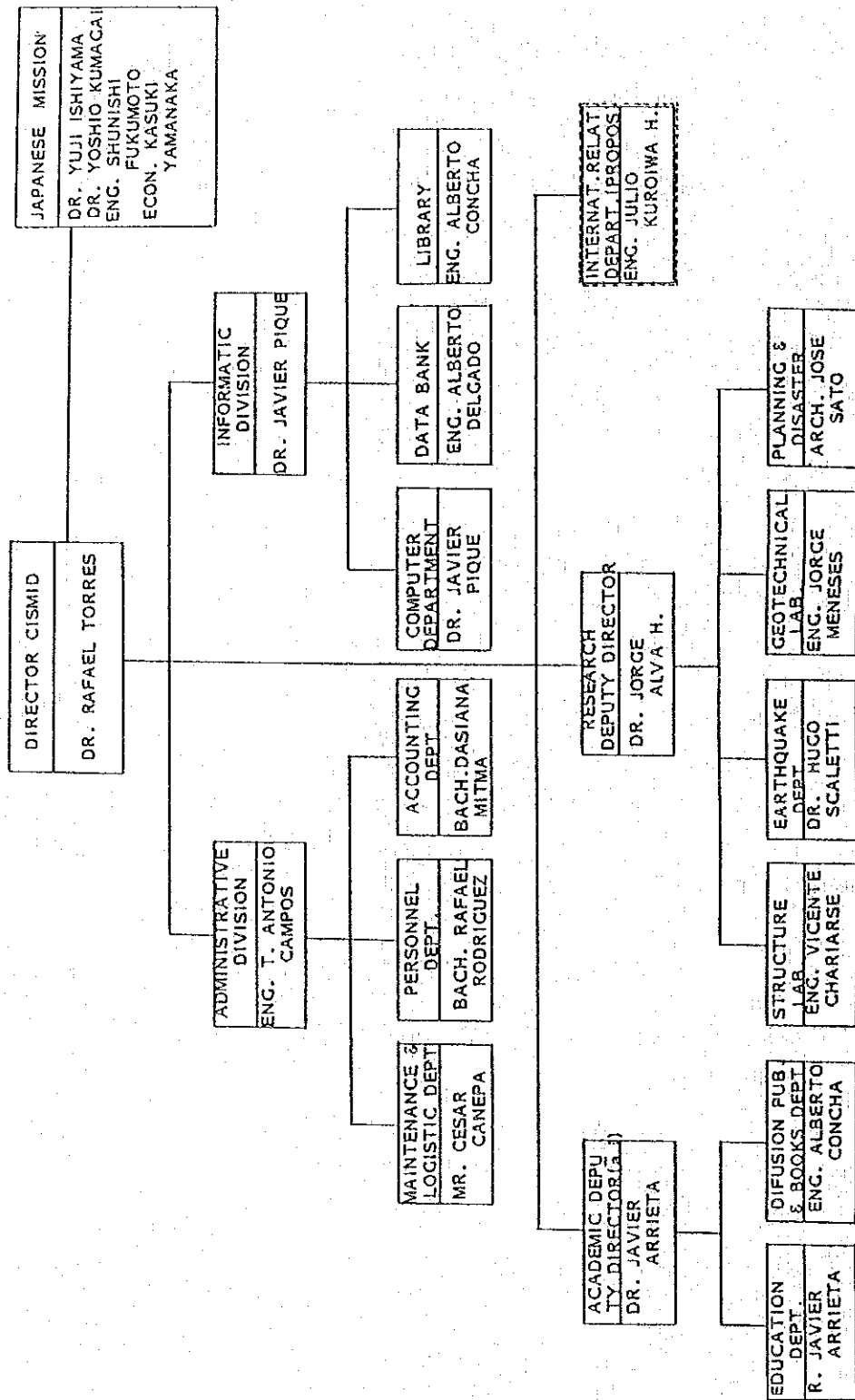


TABLE 1

THE PROJECT IMPLEMENTATION TO OCTOBER 1989

ACCORDING TO R/D ←-----→ (De acuerdo al R/D)
 ACTUALLY ←-----→ (Actualmente)

ITEM	C.Y.	1986	1987	1988	1989	1990	1991
DURATION OF PROJECT							
PHASE I							
PHASE II							
PERUVIAN ACTIVITIES							
1. Establishment of The Center							
2. Provision of Staff							
3. Construction							
A.A. (1F)							
A.A. (2F)							
Geotec. Lab.							
Struc. Lab.							
Access & Guard.							
Auditorium							
Gardening & Fence							
Residence							
4. Provision of Office Furniture/Instrument							
A.A. (1F)							
A.A. (2F)							
Geotec. Lab.							
Struc. Lab.							
Auditorium							
Residence							
5. Procedure of Receiving Equipment Provided by JICA (Custom Clearance, Carrying in the Center, Installation, Etc.)							

'87.5 '87.10 '88.10 89.10

ITEM	C.Y.	1986	1987	1988	1989	1990	1991	
6. Technology Development	Theoretical							
	Geotec. Testing							
	Struc. Testing							
7. Training Act.	Regular Course							
	Advanced Course							
8. Dissemination Act.								
Seminar								
JAPANESE ACTIVITIES								
1. Dispatch of Japanese Experts *	(a) Long Term Experts	1) Chief advisor						
		2) Coordinator						
		3) Earthquake Engineering						
		4) Geotec.						
		5) Struc.						
		6) Urban Disaster Plan						
		7) Const. Work of Reaction Wall & Floor						
	(b) Short Term Experts.	1) Inst. of Equip. and Train. of Oper						
		2) Experts for (a)-3)~(a)-6)						

'87.3 '87.10 '88.10

* Please see table 2 for detailed program of dispatching Japanese experts from April 1987 to October 1989.

ITEM \ C.Y.	1980	1987	1988	1989	1990	1991
2. Training of Peruvian Staff in Japan						
3. Supply of Equipment For A.L. For Geotec. Lab. For Struc. Lab.						
4. Construction of Reaction Wall & Floor						
6. Dispatch of Survey Team Evaluation Team Others						

'87.3 '87.10 '88.10

2. MAIN SCHEDULE IN THE PAST (NOVEMBER 1988 TO OCTOBER 1989)

2.1 JAPANESE EXPERTS

During the period being reported the following experts stayed at CISMID in Lima, Perú.

For long term period:

- | | |
|---|----------------------|
| - Dr. Yuji Ishiyama (Chief Advisor) | 89.3.20 to 91.6.28 |
| - Mr. Kazuki Yamanaka (Coordinator) | 88.12.14 to 90.12.13 |
| - Mr. Yoshio Kumagai (Expert in Disaster Mitigation Planning) | 89.7.31 to 91.7.30 |
| - Mr. Shunishi Fukumoto (Expert in Geotechnical Engineering) | 89.4.17 to 90.4.16 |

2.2 PERUVIAN COUNTERPARTS

i) The following personnel have been designated to CISMID

Dr. Rafael Torres	Director
Dr. Javier Arrieta	Academic Deputy Director (a.i.)
Dr. Jorge Alva	Research Deputy Director
Eng. T. Antonio Campos	Chief of the Administration Office

STAFF

- | | |
|--------------------------|----------------------------|
| - Eng. Juan Chavez * | - Eng. Rafael Foinquinos * |
| - Eng. Alberto Delgado | - Eng. Jorge Meneses |
| - Eng. Vicente Chariarse | - Eng. Alberto Concha |
| - Eng. Oscar Vazquez | - Arch. José Sato |
| - Eng. Alberto Zavala * | - Eng. Carlos Cuadra * |
| - Eng. Pedro Ruesta * | |

PART TIME STAFF

- Dr. Hugo Scaletti
- Dr. Javier Piqué

ASSISTANTS

Bach. David Luna	Preparing his civil engineering thesis
Bach. Luis Chang	Preparing his civil engineering thesis

Bach. José Martínez del R.	Preparing his civil engineering thesis
Bach. Oscar Anicama	Preparing his civil engineering thesis
Bach. Jorge Gallardo	Preparing his civil engineering thesis
Bach. Fredy Duran *	Preparing his civil engineering thesis
Bach. Sergio Herrera	Preparing his civil engineering thesis
Bach. Gonzalo Vazquez Chicata *	Preparing his civil engineering thesis
Bach. Juan C. Tokeshi	Preparing his civil engineering thesis
Bach. Zenón Aguilar	Preparing his civil engineering thesis
Bach. Carlos Huamán	Preparing his civil engineering thesis
Bach. Eduardo Medina	Preparing his civil engineering thesis
Bach. Martín Rodríguez	Preparing his civil engineering thesis
Bach. Milagros Castro-Cuba	Preparing his civil engineering thesis
Bach. Dina Tang	Preparing his civil engineering thesis
Bach. Alberto Reinoso	Preparing his civil engineering thesis

* Leave on Studies

TECHNICIANS IN THE GEOTECHNICAL LABORATORY

- Mr. Roger Zumarán
- Mr. Víctor Valenzuela
- Mr. Julio Olavarría
- Mr. Tomás Guerrero

TECHNICIANS IN THE STRUCTURES LABORATORY

- Santiago Cieza-Sayaverde

SECRETARIES AND ADMINISTRATION PERSONNEL

- Bach. Rafael Rodriguez
- Bach. Dasiana Mitma
- Mr. Cesar Cánepa
- Miss Mariza Pedemonte
- Miss Hilda Gonzáles
- Miss Carolina Cisneros
- Miss Maria Salcedo
- Miss Eleana Barreda
- Mrs. Luzmila Portal
- Mr. Ronald Vidal
- Mr. Luis Tasayco
- Mr. Marco Antonio Vargas

ii) Technical training of the Peruvian Counterpart in Japan and returned from Japan

Dr. José Ignacio López Soria	89.04 to 89.05
Eng. Genaro Humala Aybar	89.04 to 89.05
Eng. Alberto Zavala	89.08 to 89.10
Eng. Carlos Cuadra	89.08 to 90.03

WILL TRAVEL TO JAPAN VERY SOON

- Bach. José Martínez del Rosario 89.11 to 90.10

iii) OTHERS

Being trained in the U.S.A.

Eng. Juan Chávez At the University of California. He finished the Master course and now is studying toward Ph.D.

Eng. Rafael Foinquinos At the University of Texas. He is studying for Master Degree.

Eng. Luis Bozzo At the University of California. He finished the Master course and now is studying toward Ph.D.

Eng. Abel Ordoñez At the Catholic University of Rio de Janeiro. He is studying for Master Degree.

2.3 CONSTRUCTION WORKS

(From November 1988 to October 1989)

(Please see Annex I for the amount of Investment)

Comments

In the period of this report, the construction works continued in CISMID. In December 1988, the Peruvian Government provided full budget for construction works for the fiscal year of 1989

(January to December).

Due to the economic crisis that hits the country; the Peruvian Government have been taking severe austerity measures, trying to control the very high inflation. This was the main reason why the construction works could not be completed as they were programmed. Most of the public works had to be stopped, except for the most important for the country.

The CISMID project is priority for the country and its construction continues.

Actions are being taken by UNI to obtain additional budget which is being requested to the Government.

Construction

- On Academic Administrative building (2^o story); the Library furniture was supplied*
- Main Square located between the buildings was named

"May 31st" in memorian of the disaster occurred in 1970, due to the An cash earthquake. This was constructed and inaugurated.

- Structures Laboratory initially scheduled to be built in 1987, its construction continued during this year.

On the first floor: the control room, materials laboratory, shaking table room and storage for actuators have been completed, except for few finishing *

On the second floor: offices and meeting room continued their construction. Also metallic roof, crane installation and window fences were completed. *

- Access No change respect to Joint Report. N°2

* JICA provided funds for their completion.

Fence

No change respect to the Joint Report N°2

2.4 EQUIPMENTS

Equipment was donated with the Japanese budget corresponding to part of 1988 and 1989 budgets.

- Structural Laboratory Equipment
- Computer for Japanese Experts
- Drilling System Equipment for Geotechnical Lab.

2.5 JOINT COMMITTEE AND STEERING COMMITTEE MEETING AND THE WEEKLY CISMID COORDINATION MEETINGS

During the period covered by this report, Joint Steering Committee had several meeting which are listed below. CISMID coordination meetings were hold every monday with the participation of all the staff and all Japanese Mission Members have shown to be very use ful. In these meetings all the problems are discussed looking for the best solution. The responsables for each task are designated during the sessions including the dead line for finishing up them, so everybody know what is going in CISMID. Detailed records of these meeting are kept during this year there has been 3 Stee ring Committee Meetings. The schedule of those meeting were:

<u>Session Number</u>	<u>Date</u>
13	December
14	February
15	June
16	October

The chairman of these meetings was the Dean of Civil Engineering. The important decissions were made about the operation of CISMID.

3.0 MAJOR ACTIVITIES IN THE PAST

The past activities of CISMID from November 1988 to October 1989 have been as follow:

From October 16 to October 25, 1988 a Japanese Advisory Team, headed by Mr. Shigenobu Koizumi visited CISMID. With the peruvian authorities, a series of working sessions and the third Joint Committee Meeting were held.

From March 1 to March 6, 1989 a Japanese Preliminary Survey Team, Headed by Mr. Akira Kumakura visited CISMID to establish the Third Country Training Program in the field of Earthquake Engineering and Disaster Mitigation Program.

The Record of Discussions was signed by the Resident Representative of JICA in Peru, Dr. Takao Mizobuchi and the President of UNI Dr. López Soria on May 12, 1989.

3.1 CELEBRATION OF THE SECOND ANNIVERSARY OF CISMID

On May 31st, CISMID celebrated its second anniversary of the inauguration of its facilities. Also it was celebrated in CISMID the "National Day for the Education and Reflexion on Natural Disasters". A Symposium was organized and the Plaza 31 de Mayo was inaugurated.

3.2 INAUGURATION OF THE STRUCTURES LABORATORY

On August 22, 1989 the Structures Laboratory of CISMID was inaugurated. The Japanese Ambassador Exc. Masaki Seo and the Minister of Housing and Construction Arq. Antenor Orrego were present for the ceremony. Also JICA representatives and Peruvian authorities were attending the inauguration ceremony.

3.3 RESEARCH AND RELATED ACTIVITIES

- a) Research Reports already finished and their reports presented

- 1) "Accelerograph Network for Peru"
Responsible: Dr. Jorge E. Alva Hurtado
The report was already presented to CONCYTEC. The original 7 strong motion accelerographs provided by JICA were increased to 10. The stations already in operation are: Piura, Lima, Callao, Cuzco, Majes and Tacna. Houseings are being finished in Chimbote, La Molina and Moquegua. JICA has provided financial report for the installation of the stations. CONCYTEC budget was I/. 150,000.
- 2) "Microtremor Measurements in Tacna"
Responsible: Ing. Jorge Meneses
This project was funded partially by CONCYTEC and JICA. The field work was done in three phases, having made more than 90 microtremor measurements. In addition, some excavation pits were made to obtain undisturbed samples. Mr. Juan Carlos Tokashi is preparing his thesis on this Project. Budget of CONCYTEC was I/. 450,000
- 3) "Evaluation and Assesment of the Plan Chimbote 1988"
Responsible: Ing. Manuel Hermoza
This project was done with financial support from JICA. The report is finished. The objective was to study the situation before and after the 1970 earthquake, and the reconstruction plan for Chimbote.
- 4) "Urban Research on the Chimbote City"
Responsible: Ing. Manuel Hermoza
This project was done with financial support from JICA. The report is finished. The objective was to present population distribution, construction material available, use of land.
- 5) "Analysis of the Conditioning for Chimbote Development"
Responsible: Arq. Julio Baba
This project was done with financial support from JICA. The report is finished. The objective was to present the implementation of the Chimbote Plan and the updating of the Development Plan for Chimbote.

b) Research Projects Under Execution

1) "Microtremor Measurements in La Molina"

Responsible: Dr. Jorge E. Alva Hurtado

Advisor: Ing. Shunichi Fukumoto

The financial support during this phase was provided by JICA. A partial report was already presented. Geotechnical information on this district was compiled. Some borings were performed on La Molina University Campus. More than 150 microtremors measurements were undertaken. Mr. José Martínez is writing this engineer's thesis on this project.

2) "Geotechnical Characteristics of Talara"

Responsible: Dr. Jorge E. Alva Hurtado

This project was supported by CONCYTEC. Basically it consisted on compiling geotechnical studies in the city of Talara and obtaining undisturbed samples of the expansive shales existing in Talara. Expansion and classification test were done on this samples. The report is being prepared. Budget of 1/. 12,000.

3) "Geotechnical Properties and Water Elevation in the City of Chiclayo"

Responsible: Dr. Jorge E. Alva Hurtado

Initially this project was in cooperation with the National University Pedro Ruiz Gallo. The financial support was given by CONCYTEC. Unfortunately the funds did not continue. CISMID is finishing the work that includes field and laboratory work. Mr. David Luna is preparing his engineer's thesis under this project.

4) "Microtremor Measurements in Cuzco"

Responsible: Ing. Jorge Meneses

Advisor: Ing. Shunichi Fukumoto

This project was funded by CONCYTEC and JICA. A third campaign of microtremor measurements is being planned, already 60 microtremor measurements. Also some amplification studies are being made. Mr. Juan Carlos Tokeshi is preparing his thesis on this project. Budget

from CONCYTEC was I/. 240,500

5) "Determination of Response Spectra"

Responsible: Ing. Jorge Meneses

This project is supported by CONCYTEC. The project consists in developing software to process and portray the strong motion records registered at the CISMID network. We have the record of January 1st, 1989 being processed. Budget from CONCYTEC is I/. 1'000,000.

6) "Potential of Liquefaction Hazard in Chimbote"

Responsibles: Ing. Juan Rojas - Alberto Concha

Advisor: Ing. Shunichi Fukumoto

The project is supported by CONCYTEC. Budget of I/. 500,000. The objective of the project is to prepare a Liquefaction Hazard Map for the city of Chimbote. The project consists of field work: dutch cone and standard penetration testing, laboratory work: cyclic triaxial testing and analytical work. Mr. Denis Parra is preparing his engineer's thesis on this project.

7) "Microzonation of the City of Majes"

Responsibles: Ing. Jorge Meneses

Advisor: Ing. Shunichi Fukumoto

The project is supported by CONCYTEC with a Budget of I/. 1'605,000 and JICA. The project consists of performing soil investigations, microtremor measurements and seismic refraction. Also some collapse testing in the laboratory will be undertaken. A civil engineer's thesis is being planned on this project.

8) "Optimization of Masonry Structures"

Responsible: Dr. Javier Piqué

This is a 5 year project with experimental and analytical work to be developed in several phases. The objectives of the project are: evaluation of masonry structural behavior, development of appropriate design and analysis methods and proposal of construction systems and details to improve construction and reduce costs. Budget for the first year was I/. 6'000,000.

9) "Natural Disaster and Economical and Social Development of Grau Region.

Responsibles: Ing. Julio Kuroiwa

Arq. José Sato

Advisor: Dr. Yoshio Kumagai

This project has financial support from JICA. It is hoped that the Special Project Chira-Piura will provide additional funding. The participants on this project are: National and Private Universities of Piura, CORPIURA, P.E. Chira Piura and P.E. Puyango-Tumbes. The objectives of this project are: Microzonation and Physical Planning of Urban Areas in Grau Region, Physical Planning of Landslide-prone areas in Piura, site studies for Important Civil Engineering Works in Grau Region.

10) "Vulnerability Assessment In Lima Metropolitan Areas"

Responsibles: Arq. José Sato

Ing. Julio Kuroiwa

Advisor: Dr. Yoshio Kumagai

This project is financed by JICA and ININVI in the initial phase. Additional funds will be provided by CONCYTEC. In this project is participating the Urban Development Department of the Ministry of Housing and Construction. The objective is to evaluate the critical areas of old Lima subjected to disasters.

c) Consulting Services

- 1) Geotechnical studies for ENCI in Salaverry. Budget of I/. 9'000,000
- 2) Geotechnical studies for ENACE in Antonio Moreno de Cáceres. Budget of I/. 13'000,000
- 3) Technical assistance for the construction of the Pasto Grande Dam for INADE-MOQUEGUA. Budget of I/. 50'000,000
- 4) Special Laboratory Testing for the Feasibility Study of the Palo Redondo Dam, Chavimochic Project. Budget of I/. 10'000,000
- 5) Plate Load Tests for the city of Majes, AUTODEMA. Budget of I/. 4'000,000

d) Special Agreements and Nominations

- 1) Special Agreements were signed with local universities and institutions to house the strong motion network of CISMID in Peru. Agreements were signed with: Universidad de Piura, Universidad Nacional del Santa, Universidad Nacional Agraria La Molina, Servicio de Hidrografía y Navegación de la Marina de Guerra del Peru, Universidad Nacional San Antonio Abad del Cusco, AUTODEMA, Universidad Nacional de Tacna
- 2) The Ministry of Housing and Construction notified the nomination of Eng. Julio Kuroiwa H., member of the board of Directors in ININVI in May 1989.
- 3) The Regional Center of Seismology for South-America CERESIS, nominated Dr. Jorge Alva H. as representative of the country in May 1989.
- 4) Dr. Jorge Alva H. was nominated representative of CISMID in the National Committee for the International Decade for Hazard Reduction in July 1989
- 5) Dr. Rafael Torres C. was nominated Delegate of Peru in the International Association of Earthquake Engineering in August 1988
- 6) The National Council of Science and Technology-CONCYTEC ratified the nomination of Dr. Rafael Torres C. as member of the National Consultive Commission of Earth Science in February 1989.

e) International Activities

During the period November 1988 to October 1989, the following CISMID members have traveled to foreign countries.

- 1) Dr. Jorge Alva H. traveled to Rio de Janeiro to participate in the XII International Conference on Soil Mechanics

and Foundation Engineering sponsored by the Japanese Counterpart in August 1989.

2) Dr. Jorge Alva traveled to Santiago de Chile to participate in the Annual Meeting of the Board of CERESIS in July 1989.

3) Dr. Ichiro Tanahashi traveled to Japan to participate in the leaders of Japanese Mission Meeting celebrated in Japan on January-February 1989.

3.4 ACADEMIC AND RELATED ACTIVITIES

i) Seminars and Symposiums

a) October - November Seminars

From October 24 to November 3, CISMID carried out the following three seminars:

- "Seismology and Seismic Microzonation"

Topics related to seismicity and seismic risk on the cities of Chiclayo, Arequipa and Cusco were presented. Techniques on microtremors were presented by Japanese experts. Also Lectures by Peruvian professionals on experiences on Soil Mechanics were presented. This Seminar was attended by 49 participants.

- "Earthquake Resistant Design of Buildings"

Lectures on masonry structures, adobe dwellings and reinforced concrete were given by CISMID members and peruvian professionals. Japanese experts presented recent experiences in Japan on these topics. The Seminar was attended by 166 participants.

- "Physical Planning for Disaster Mitigation"

Lectures were oriented to treat land use planning to reduce the vulnerability of the construction in important cities of the country. The lectures related to experience on Planning and Disaster Mitigation in Japan were presented by Japanese experts. The Seminar was attended by 72 participants. The three Seminars were sponsored by JICA and CONCYTEC.

b) "Workshop Seminar on Soil Mechanics Techniques"

This event was held in CISMID from March 6 to 10, 1989. The main objectives of this workshop was to train professionals and technicians on recent Laboratory tests and geotechnical methods of analysis. The Lectures were given by CISMID members of the Geotechnical Laboratory. The participants came from different parts of the country, specially from university and National Institutions among those were Tacna, Piura, Trujillo (Project Chavimochic), Cusco, etc. This event was sponsored by CONCYTEC and difussion was provided by JICA.

c) "Third National Symposium on Disaster Prevention"

This Symposium was held in CISMID as part of celebration of its Second Anniversary, from May 31st to June 2nd 1989. Techniques on Disaster Prevention were presented. Huayco Phenomena occured in Rimac Valley and Arequipa were discussed. Also studies connected to Lima demographic expansion and other cities were presented. This Symposium was attended by 130 participants most of them professionals coming from differents Institutions, some of them from outside Lima. The Symposium was sponsored by JICA and CONCYTEC.

d) "Short Course on Graphics Applications by Computers"

This short course had as a main objective to disseminate the advanced technology on the use of computers to generate graphic applications. Geographical information (maps) and Architectural Design and Engineering design were among these applications. two Japanese experts Dr. Kawanaka from BRI and Mr. Tajima from Kawasaki City office presented Lectures in this course. Also CISMID members offered lectures. This course was attended by 80 participants. Among them were members from IBM Peru, ONERN and University members.

e) International Seminar on Planning, Design, Repairing and Administration of Hospitales In Seismic Zones

CISMID organized this Seminar under the Third Country Training Programme in the field of Earthquake Engineering and Disaster Mitigation Planning. Our Center will develop this programme for next 4 years. This Seminar was sponsored by JICA, Panamerican Health Organization (PAHO) and CONCYTEC from the Peruvian side.

Participants from thirteen countries attended the Seminar, they were professional architects, engineers and medical doctors specialized in Hospitals Administration and came supported by JICA. They were from Argentina, Bolivia, Colombia, Costa Rica, Chile, Ecuador, El Salvador, Guatemala, México and Venezuela. Also participants from Cuba, Nicaragua and República Dominicana came supported by PAHO. On the opening ceremony, came Dr. David Tejada, Minister of Health Dr. Takao Mizobuchi, Representative Resident of JICA, Eng. Carlos Cúneo, Representative of PAHO in Peru and authorities of public institutions and universities were present.

Japanese Experts in the field of Planning, Earthquake Engineering and Hospitals Administration during emergencies presented lectures on those fields. Also, Experts from U.S.A. and Latin American countries presented lectures on the topics related to the Seminar.

More than 25 lectures were offered during the Seminar for 2 weeks. An study trip to visit Hospitals in Cusco and Arequipa was organized at the end of the Seminar.

On August 26th, it was held an International Meeting of Experts in which the advanced technologies and experiences of recent research work was presented by experts from Japan, U.S.A. and CISMID members. More than 300 professionals attended this Meeting.

The participants presented their countries report. The papers were printed and distributed to the participants and lecturers. We have received very positive opinions of this Seminar because the high success, in spite of the difficulties mostly economical that we had at that time and due also to the very short time taken in its organization.

ii) Regular and Advanced Course

- Master Course on Structural Engineering is being offered by the Faculty of Civil Engineering with the participation of CISMID Staff Members and using its facilities: classrooms and JICA donated equipment. The number of participants has substantially increased with respect to previous years.
- The regular course on Earthquake Engineering is not being offered yet. The reasons and the situations referred to this course remain the same as it is described in the Report N° 3.

iii) Dissemination Activities

- a) The Staff Members of CISMID have participated in a large number of lectures offered at the Faculty of Civil Engineering of UNI, and other institutions of Lima; and also many have been given outside Lima in the most important cities of the country: Piura, Arequipa, Cuzco, Huaraz, Trujillo, Tacna, among others.

The young members of CISMID have also participated in the lectures.

Some lectures were also given in foreign countries invited by international agencies.

- b) Papers and articles have been published by CISMID staff members. The main publications are given in the following list:

Publications:

- "International Seminar on Planning Design, Repairing and Administration on Hospital in Seismic Zones", held in Lima from August 20 to September 8, 1989.

- 1) "Site selection of Hospitals considering the prevention and disaster mitigation"

Eng. Julio Kuroiwa

- 2) "Methods of analysis to determine earthquake resistance of buildings"
Dr. Hugo Scaletti
- 3) "Safety considerations in the seismic design of hospital facilities."
Dr. Yuji Ishiyama
- 4) "Design criteria of lifelines of hospitals in seismic zones"
Dr. Rafael Torres Cabrejos
- 5) "Retrofitting techniques in seismic damage of hospitals"
Eng. Jullo Kuroiwa
- 6) "Advances on microzoning in Peruvian cities"
Dr. Jorge E. Alva Hurtado.
- 7) "New design criteria for seismic safety in buildings"
Dr. Javier Piqué Del Pozo.

c) PARTICIPATION in TV & RADIO PROGRAMS AND PRESS MEETINGS.

Some members of CISMID were invited to participate in TV & radio programs on natural disaster and their prevention and mitigations which were accepted, because it is one important way to reach to the general public. CISMID members also participated in press meeting to give opinions on some specific problems which were of preoccupation of the public in that time.

4.0 ACTIVITIES PLANNED FOR NEXT YEAR (NOVEMBER 1989 - DECEMBER 1990)

4.1 RESEARCH AND DEVELOPMENT

a) Techniques for Research on Microzoning

- A second district will be undertaken in Lima Metropolitan Area. This district will be Callao and La Punta. The microzonation investigation will include: soil investigation borings (up to 10), microtremor measurements (up to 200) and recopilation of geotechnical studies in the area.
- The installation of strong motion accelerographs will continue. Special efforts will be made to install the equipment in Chimbo te, La Molina and Moquegua.
- The microzonation investigation for the cities of Chimbote, Huaraz, Majes and Cuzco will continue. Also a city in the jungle as Iquitos will be incorporated to study residual soil behavior and soil stabilization.

b) Construction and Material Technology Development

- The general objective of the Research in this area is to develop for urban areas a building of five floors as economical as possible. The scope of the project is:
 - a) Planning for the usage of soil to Mitigate Disasters.
 - b) Urban Development to minimum cost
 - c) Feasibility of availability, characteristics and cost of construction materials.
 - d) Design, construction and costs of the building components.
 - e) Laboratory testing of models and components.
- Because the neighboring countries have adopted the policy of densifying the urban areas already in existence and because of seismic considerations, it is sought international participation in this project. The International Relations Department will promote this activity.
- Dynamic behavior of adobe houses (models) in shaking table.
 - Behavior of masonry walls made of concrete blocks.
 - Rural housing made of local materials

c) Danger Degree Assessment and Disaster Planning Methods in Urban Areas

- The work on the Urban Renewal for the old parts of the Lima Metropolitan Area will continue. This project is performed in coordination with the Ministry of Housing and Construction. The Monserrate Area will start as a pilot zone. The main emphasis is disaster planning.
- The work on Natural Disaster and Economical and Social Development for the Grau Region will continue. The participation of the universities, development corporations and special projects in the region are assumed for this project.

4.2 ACADEMIC ACTIVITIES

- a) A new Geotechnical workshop will be held in March 1990. The topic will be related to the Design of Earth Dams.
- b) It is planned the Fourth National Symposium on Disaster Prevention and Mitigation on May 31st to June 2nd. Japanese and Peruvian experts will be involved in this Symposium as lecturers.
- c) Another workshop on Graphical Application on Computers will be held in July 1990.
- d) The Second International Seminar on "Microzonation and Seismic Design of Lifeline Structures" will be held on August 23rd to September 8th.
- e) In November the Fourth Seminar on Microzonation, Earthquake Engineering and Disaster Mitigation will be held. Japanese and Peruvian experts will be involved in this Seminar.

4.3 DISSEMINATION PROGRAMS

During 1990 the following activities are going to be held.

- National Symposium on Disaster Mitigation.
- Seminars on Microzonation, Earthquake Engineering and Disaster Mitigation.
- International Seminar on "Microzonation and Earthquake Design of Lifeline Structures.

- CISMID will also have a very active participation in the celebration of the 2nd anniversary of the declaration of May 31st as the "Day for Education and Reflexion on Natural Disasters".
- From April st. to May 31st an intense difussion program will be made by the Ministry of Education and Peru Civil Defense using TV & radio stations, newspapers and magazines.
- CISMID members will travel to outside Lima to give lectures on different topic related to natural disasters.

4.4 PERSONNEL

i) Peruvian Staff

All the persons, listed in 2.2 will continue working in CISMID. Some change will occur in the assistant group preparing their thesis. It is foreseen that their number is to be increased.

Additional personnel will be nominated for the Structural Laboratory and the member of external consultant attached to specific projects will be substantially increased.

ii) Japanese Experts

Japanese experts to CISMID will be allocated according to R/D and construction schedule of testing facilities.

4.5 CONSTRUCTION AND BUILDING DESIGN

i) Construction

- . The Structures Laboratory (2nd floor), offices, meeting room and services will be finished by October 1990. Also storage for materials and equipment will be finished by July 1990.
- . The Auditorium will continue its construction. Its planed to be completed by September 1990.
- . Other external facilities and installation are planned to be finished by the end of the year.

ii) Building Design

The third floord of the Academic-Administrative building, as well as the service facilities design will be undertaken in the next period.

5.0 PROVISION

i) Furniture (Peruvian Side)

Special budget was requested to the Peruvian government to provide furniture for the Structures Laboratory. Also some requests were made to provide furniture for the geotechnical laboratory.

ii) Equipment (Japanese Side)

Telephone system was requested for CISMID. Also the audio and Projection for the Auditorium was requested. Spare equipments for the Geotechnical and Structures Laboratories are being requested to the Japanese side.

6.0 OTHER ACTIVITIES

From November 1989 the following activities will be conducted

i) Consulting services

- The Geotechnical and Structures Laboratories will continue providing consulting services to other official agencies, to the private activities, to continue training new personnel, and to pay for the maintenance fee.
- The Computer Center will develop software for the CISMID research necessities, adapt and learn those of the software provided by JICA and donated by IBM and to provide consulting services with the same aim than the Geotechnical Laboratory.

ii) Natural Disasters Data Bank

A natural disasters data bank will be organized at CISMID, using the excellent facilities of the Computer Center equipped by JICA.

Other institutions like: IGP - Geophysical Institute of Peru, INGEMMET Geological, Mining & Metallurgic Institute, SENAMHI - National Service of Meteorology and Hydrology, DHINA - Direction of Hydrography and Navigation of the Peruvian Navy, etc. will be invited to organize together a National Data Bank on Natural Disasters.

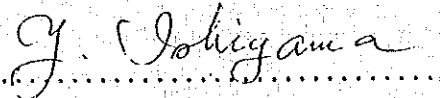
iii) Preparation of academic material

Material to be used in future lectures will continue to be prepared. Three publications made in Japan is now being translated into Spanish. Other written materials is also being prepared together with TV cassettes.

7.0 DRAFT OF PLANNING OF RESEARCH AND DEVELOPMENT FOR THE PERIOD OF NOVEMBER 1989 TO JUNE 1991.

No essential change has been made in the March, 1987 report. For detail please refer to Joint Report N° 1. However some adjustment will be needed, that will be made at appropriate time.

Lima, October 31, 1989



DR. YUJI ISHIYAMA
CHIEF ADVISOR



DR. RAFAEL TORRES
DIRECTOR, CISMID

ANNEX I
 ABSTRACT OF THE REPORT OF THE
 ADMINISTRATIVE DIVISION

1.0 Investment from January to June 1989 Peru Government Project 900-090-CISMID.

1.1	Presented Budget for 1989	I/.	126'848,200
1.2	Authorized Budget		
07.00	Studies		1'000,000
08.00	Construction Works		
	Authorized in January-'89		<u>180'000,000</u>
	SUB-TOTAL	I/.	181'000,000

- Additional budget received on May 1989, first supplementary credit.

08.00	Construction Works		<u>82'594,000</u>
	TOTAL	I/.	262'594,000
	EXECUTE	I/.	<u>262'594,000</u>
	REMAINDER	I/.	-----

- An additional budget of I/. 227'406,000 has been request to compensate the devaluation.

2.0 BUDGET FOR 1990

For 1990, CISMID has presented a budget for I/. 2,070'512,821, as follows

2.1 General Expenditures

01.00	Salaries *	I/.	78'516,000
02.00	Goods		188'179,452
03.00	Services		39'676,880
04.00	Transfers		4'485,800
			<hr/>
		SUB-TOTAL	310'858,132

* Do not included the salaries of most professor of CISMID who are under the cost of the Faculty of Civil Engineering.

2.2 Capital expenditures

07.00	Studies	I/.	5'500,000
08.00	Construction Works		1,646'600,000
09.00	Capital Goods		107'554,689
			<hr/>
		SUB-TOTAL	1,759'654,689

TOTAL BUDGET FOR 1990 *

$$2.1 + 2.2 = \text{I/} . 310'858,132 + 1,759'654,689 = 2,070'512,821$$

Adequate additional budget will be requested at appropriate time to compensate the devaluation.

3.0 DONATION OF JICA

3.1 CONSTRUCTION WORKS

- Metallic roof, windows, floor slabs and instalation of metallic beam for crane in Structures Laboratory	I/. 375,700,000
- Computer for control room of Structures Laboratory	I/. 128,700,000
- Steel bors for essays	I/. 15,200,000
	<hr/>
Sub Total	I/. 519,600,000

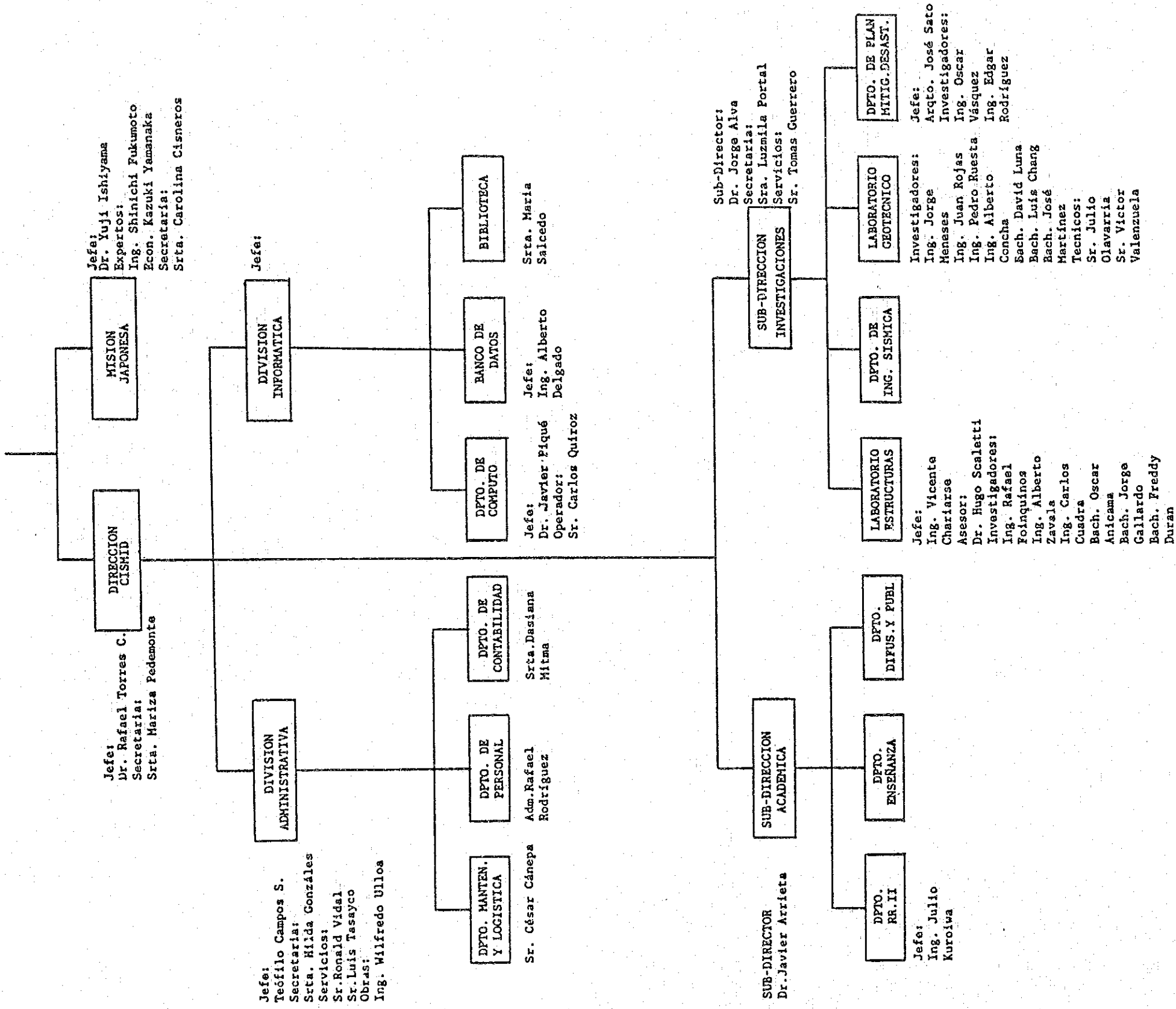
3.2 OTHERS

- Drill equipment	I/. 742,750,000
- Toyota Station Wagon Land Cruiser	I/. 33,940,000
- Books	I/. 120,000,000
	<hr/>
Sub Total	I/. 896,690,000

TOTAL: 3.1 + 3.2 = I/. 519,600,000 + I/. 896,690,000
= I/. 1,416,290,000
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4. CISMID組織図

ORGANIGRAMA DE ASIGNACION DE PERSONAL



JICA

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2007