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MINUTES OF MEETINGS BETWEEN
JAPANESE PREPARATORY STUDY TEAM AND
THE AUTHORITIES CONCERNED OF THE GOVERNMENT OF
THE REPUBLIC OF ECUADOR
ON JAPANESE TECHNICAL COOPERATION FOR
"ENHANCEMENT OF THE VOLCANO MONITORING CAPACITY IN ECUADOR"

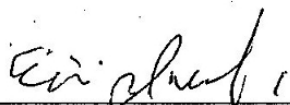
The Japanese Preparatory Study Team (hereinafter referred to as "the Team") organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA") visited the Republic of Ecuador from January 12 to 20, 2004, for the purpose of clarifying the framework of the "Project for Enhancement of the Volcano Monitoring Capacity in Ecuador" (hereinafter referred to as "the Project").

During its stay in Ecuador, the Team exchanged views and had a series of discussions with the Ecuadorian authorities concerned with respect to desirable measures to be taken by JICA and the government of the republic of Ecuador for the successful implementation of the Project.

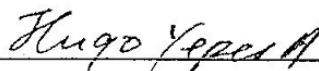
As a result of the discussions, the Team and the Ecuadorian authorities concerned agreed to recommend to their respective Governments the matters referred to in the document attached hereto. The technical members of the Team will continue to stay in Ecuador to work out more detailed activities of the Project until February 5, 2004.

Done in duplicate in Spanish and English languages, each text shall be equally authentic. In case of any divergence of interpretation, the English text shall prevail.

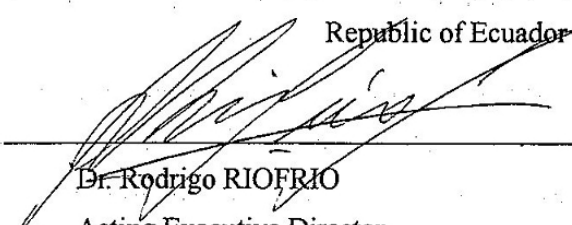
Quito, January 20, 2004



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THE ATTACHED DOCUMENT

I. Basic Framework of the Project

The team has discussed the Project proposal with Ecuadorian authorities concerned and, as a result of discussions, both sides have agreed the basic framework of the Project as follows:

1. Title of the Project

“Project for Enhancement of the Volcano Monitoring Capacity in Ecuador”

Note: The title has been changed from “Volcano risk mitigation in Ecuador based on advanced analyses of volcano seismic signals” to reflect the scope of the Project more correctly.

2. The Implementing Organization

The implementing organization is the Geophysical Institute-Department of Geophysics, National Polytechnic University.

The Project will be implemented keeping close coordination with disaster prevention authorities concerned, especially the Ecuadorian Civil Defense.

3. Overall Goal

To enhance the capacity of mitigating volcanic disasters in Ecuador.

4. Project Purpose

To enhance the capacity of volcano monitoring at Mt. Cotopaxi and Mt. Tungurahua.

5. Output of the Project

- 1) The Geophysical Institute improves its capacity to monitor the volcanic activity including long-period and very-long-period events on a real time basis at Mt. Cotopaxi and Mt. Tungurahua.
- 2) The Geophysical Institute improves its capacity to process and store volcanic activity data properly including long-period and very-long-period events at Mt. Cotopaxi and Mt. Tungurahua.
- 3) The Geophysical Institute enhances its capacity to analyze precursory signals of eruptions.
- 4) The results of the analyses are described properly in the volcanic activity reports.
- 5) The volcanic activity information from the Geophysical Institute is understood and effectively used by the disaster prevention authorities concerned.

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6. Activities of the Project

- 1)-1 To set up the volcanic monitoring equipment.
- 1)-2 To maintain the volcanic monitoring equipment properly.
- 1)-3 To operate the volcanic monitoring equipment properly.
- 2)-1 To develop the software for processing volcanic activity data including long-period and very-long-period events.
- 2)-2 To conduct training for the data processing.
- 2)-3 To collect and store the data.
- 3)-1 To conduct training on data analyzing.
- 3)-2 To interpret the volcanic activity based on the analyses.
- 4)-1 To identify points to be improved in the volcanic activity reports.
- 4)-2 To improve the volcanic activity reports.
- 5)-1 To train the disaster prevention authorities concerned to enhance the understanding of the volcanic activity reports.
- 5)-2 To identify points to be improved in volcanic disaster mitigation.

7. Duration of the Project

The duration of the Japanese Technical Cooperation for the Project shall be three (3) years.

8. Tentative Project Design Matrix (PDM)

The tentative Project Design Matrix (PDM) for the Project is shown in Annex I.

II. Measures to be taken by JICA

1. To dispatch short-term experts

- Expert on seismography.
- Expert on analysis of long-period and very-long-period events.
- Expert on volcanic disaster prevention.

The title and the Terms of Reference (TOR) of the expert have not being finalized yet.

2. Training of counterpart personnel in Japan

JICA will provide counterpart personnel with training in Japan, if necessity arises.

3. Provision of equipment

The tentative list of major equipment necessary for the implementation of the Project is shown as follows:

- 1) Eleven (11) Broadband seismometers with data logger and digitizer (five (5) sets for each

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- volcano and one (1) set for maintenance and training purpose)
- 2) Ten (10) Microphones (5 sets for each volcano)
- 3) Telemetering system
- 4) Computer system including software
- 5) One (1) Vehicle

Note:

1. The above-mentioned equipment is limited to equipment necessary for the technical cooperation by the Japanese experts.
2. The contents, specifications and quantity of the above-mentioned equipment to be provided each year will be discussed in principle every year between the teams or the Japanese experts dispatched by JICA and the Ecuadorian counterpart personnel based on the annual plan of the Project, within the allocated budget of each Japanese fiscal year.

III. Measures to be taken by the Government of Ecuador.

1. Assignment of Personnel

1) Counterpart personnel

The Ecuadorian side agreed to assign a sufficient number of counterpart personnel in order to ensure effective operation of the Project. Tentative list of counterpart personnel is shown as follows:

(1) Counterpart

- Investigators for seismography and seismic analysis. 2
- Staff for operation and maintenance of the equipment
above mentioned in II. 3. 4

(2) Sub-Counterpart

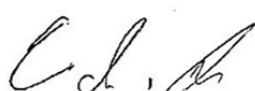
- Staff for seismography and seismic analysis. 3

2) Administrative Personnel

The Ecuadorian side will assign administrative personnel to ensure effective operation of the Project.

2. Buildings and facilities

The following will be prepared by the Ecuadorian side for the initiation of the Project: the building and facilities necessary for the implementation of the Project, including electricity and telecommunications, Japanese Experts' room and space for the installation of the monitoring equipment both in the field and the Geophysical Institute.

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3. Furniture and consumable materials

The Ecuadorian side will provide furniture, consumable materials and basic tools necessary for the implementation of the Project.

4. Budget allocation

The Ecuadorian side will ensure operational expenses necessary for the implementation of the Project, including expenses necessary for storage and transportation of the equipment within Ecuador as well as installation, operation and maintenance.

5. Customs clearance

The Ecuador side will be responsible for customs clearance of the equipment and bear the necessary expenses.

IV. Administration of the Project

1. Project Director

The director of the Geophysical Institute will bear overall responsibility for the administration and implementation of the Project as the Project Director.

The Ecuadorian side and Japanese side will meet at least once a year or whenever the necessity arises, in order to fulfill the following functions;

- 1) To formulate the annual work plan of the Project;
- 2) To review the progress of the annual work plan;
- 3) To review and exchange opinions on major issues that may arise during the implementation of the Project;
- 4) To discuss any other issue(s) pertinent to smooth implementation of the Project.

V. Schedule before the commencement of the Project

1. Project Design Team

When the Project is found viable, the Japanese Project Design Team will be dispatched to finalize the content of the technical cooperation and record it in the form of the Record of Discussions (R/D) in the end of February, 2004.

LIST OF ANNEX

ANNEX-I PROJECT DESIGN MATRIX

ANNEX-II PARTICIPANTS LIST

N. X
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