

Project Title: Project for Enhancement of the Volcano Monitoring Capacity
Tentative Project Design Matrix (20/Jan/2004)

Narrative Summary	Objectively Verifiable Indicator	Means of Verification	Important Assumption
<p>Overall Goal To enhance the capacity of mitigating volcanic disasters in Ecuador.</p>	<ol style="list-style-type: none"> 1. More proper measures are taken when the abnormal volcanic activities of Mt. Cotopaxi and Mt. Tungurahua are observed. 2. Early warning information system is improved. 3. Volcano monitoring system of the Geophysical Institute is strengthened. 4. Provincial development master plans include the concept of volcanic risk prevention. 	<ol style="list-style-type: none"> 1.-1 Records of the Civil Defense. 1.-2 Articles and programs of mass media. 2. Disaster mitigation plans of the Civil Defense and local governments. 3. Research papers of the Geophysical Institute. 4. Provincial development master plans. 	
<p>Project purpose To enhance the capacity of volcano monitoring at Mt. Cotopaxi and Mt. Tungurahua.</p>	<p>The quality of the volcanic activity information to the disaster prevention authorities is improved.</p>	<p>The volcanic activity reports (by HP, FAX, e-mail, etc.).</p>	<ol style="list-style-type: none"> 1. The mission of the Geophysical Institute in volcanic disaster mitigation system does not change. 2. Priority of volcanic disaster prevention is maintained in the policies of governments.

<p>Outputs</p> <ol style="list-style-type: none"> 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. 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. The Geophysical Institute enhances its capacity to analyze precursory signals of eruptions. The results of the analyses are described properly in the volcanic activity reports. The volcanic activity information from the Geophysical Institute is understood and effectively used by the disaster prevention authorities concerned. 	<ol style="list-style-type: none"> The data of volcanic activity including long-period and very-long-period events are acquired on a real time basis at the Institute. Continuous volcanic activity data are systematically monitored and locations of the events are determined. Continuous data are stored and wave form are systematically cataloged. Two investigators are capable of more advanced quantitative analyses of long-period and very-long-period events and associated signals. Two other investigators can conduct same analyses under the guidance of the two investigators. Capacity of analyzing other data is enhanced. Results of the analyzed data including long-period and very-long-period events are written in the volcanic activity reports. Improved volcanic activity reports are comprehended by the disaster prevention authorities concerned. 	<ol style="list-style-type: none"> acquired data at the Geophysical Institute. Stored records of volcanic activities and event location maps. Research papers Volcanic activity reports. Interview with staff of Disaster prevention authorities Articles and programs of mass media. 	<p>The mission of the Geophysical Institute for volcano monitoring system does not change.</p> <p>Major staff of Disaster prevention authorities continue to stay in their position.</p>
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<p>Activities</p> <p>1.1 To set up the volcanic monitoring equipment.</p> <p>1.2 To maintain the volcanic monitoring equipment properly.</p> <p>1.3 To operate the volcanic monitoring equipment properly.</p> <p>2.1 To develop the software for processing volcanic activity data including long-period and very-long-period events.</p> <p>2.2 To conduct training for the data processing.</p> <p>2.3 To collect and store the data.</p> <p>3.1 To conduct training on data analyzing.</p> <p>3.2 To interpret the volcanic activity based on the analyses.</p> <p>4.1 To identify points to be improved in the volcanic activity reports.</p> <p>4.2 To improve the volcanic activity reports.</p> <p>5.1 To train the disaster prevention authorities concerned to enhance the understanding of</p>	<p>Inputs (Ecuador side)</p> <p>1. The placement of counterpart staff</p> <p>1) Counterpart</p> <ul style="list-style-type: none"> - Investigators for seismography and seismic analysis. - Staff for operation and maintenance of the equipment <p>2) Sub-Counterpart</p> <ul style="list-style-type: none"> - Investigators for seismography and seismic analysis. <p>2. The provision of facilities and equipment</p> <p>3. Local cost</p>	<p>(Japan side)</p> <p>1. Dispatch of Japanese experts</p> <p>Short-term Experts</p> <ul style="list-style-type: none"> -Expert on seismography. -Expert on analysis of long-period and very-long-period events. -Expert on volcanic disaster prevention. <p>2. Counterpart training in Japan</p> <p>3. Provision of equipment</p> <p>1) Eleven (11) Broadband seismometers with data logger and digitizer</p> <p>2) Ten (10) Microphones</p> <p>3) Telemetering system</p> <p>4) Computer system including software</p> <p>5) One (1) Vehicle</p> <p>4. The project implementation cost</p>	<p>1 The volcanic activities do not give a heavy damage to the monitoring equipment.</p> <p>2, 3 Staff members instructed by Japanese experts continue to stay in their position.</p> <p>Precondition</p>
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<p>the volcanic activity reports. 5.-2 To identify points to be improved in volcanic disaster mitigation.</p>		
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Annex-II

PARTICIPANTS LIST

(Ecuadorian Side)

Ecuadorian Institute of International Cooperation, Ministry of foreign affairs
Executive Director: Emb. Juan Diego STACEY

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Ing. Marco Rivera (Technical Department)

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Ing. Hugo Yepes (Director)
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In Tungurahua state:

Mr. Hugo Pineda (Mayor of Baños city)
Colonel. Mauro Rodríguez
Mr. Javier Bermeo (Coordinator of COE in Baños)

In Cotopaxi state:

Major. Oswaldo Navas
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(Japanese Side)

Embassy of Japan

His excellency ambassador. Hiroyuki Hiramatsu
Mr. Masahiko Nakano (Second secretary)

JICA

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Preparatory Study Team

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