

## Multi-disciplinary Hazard Reduction from Earthquakes and Volcanoes in Indonesia: overview

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Indonesian and Japanese researchers started a three-year (2009-2011) multi-disciplinary cooperative research project as a part of "Science and Technology Research Partnership for Sustainable Development" supported by the Japanese government. The ultimate goal of this project is to reduce disaster from earthquakes, tsunamis and volcanoes by enhancing capability of forecasting hazards, reducing social vulnerability, and education and outreach activity of research outcomes. We plan to provide platform of collaboration among researchers in natural science, engineering and social sciences, as well as officials in national and local governments.

Research activities are grouped into: (1) geological and geophysical surveys of past earthquakes, monitoring current crustal activity, and simulation of future ground motion or tsunamis, (2) short-term and long-term prediction of volcanic eruptions by monitoring Semeru, Guntur and other volcanoes, and development of their evaluation method, (3) studies to establish social infrastructure based on engineering technologies and hazard maps, (4) social, cultural and religious studies to reduce vulnerability of local communities, and (5) studies on education and outreach on disaster reduction and restoration of community. In addition, to coordinate these research activities and to utilize the research results, (6) application of the research and establishment of collaboration mechanism between researchers and the government officials is planned.

In addition to mutual visits and collaborative field studies, it is planned to hold annual joint seminars (in Indonesia in 2009 and 2011, in Japan in 2010) that will be broadcasted through internet. Meetings with Joint Coordinating Committee, composed of representatives of relevant Indonesian ministries and institutions as well as project members, will be held annually to oversee the activities.

The kick-off workshop was held in Bandung in April 2009 and the research plans from 22 different themes were explained and panel discussion was conducted. Then, the project officially started in June 2009. The first plenary workshop was held in October 11-14 in Aceh, Indonesia, at the occasion of Indian Ocean-wide tsunami evacuation drill of IOC (Inter-governmental Oceanographic Commission). Considering that disastrous earthquakes occurred on 2nd September

2009 (Mw7.0) in the south of Java and on 30th September 2009 (Mw7.5) nearby Padang, central Sumatra, special reports for these earthquakes were presented. In particular, the latter earthquake that devastated the city of Padang was of great interest because its epicenter is located in a seismic gap called "Mentawai gap" where a large interplate earthquake is expected to occur in the near future. Research teams from our project were urgently deployed to the area for investigating disasters due to the September 2009 earthquake and trying to find effective countermeasures to the coming larger event.

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