

Natural and Technological Risks: Geological Hazards Update

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GEOLOGICAL HAZARDS OVERVIEW

Geological hazards—including volcanoes, earthquakes, and landslides—threaten millions of people worldwide and can devastate communities in a matter of seconds by destroying homes, causing water and food shortages, adversely affecting health, and disrupting livelihoods. Although geological hazards cannot be prevented, proper mitigation and preparedness efforts can minimize the effects of these disasters and promote resilience, potentially saving lives and reducing the negative economic effects of a geological crisis. USAID’s Office of U.S. Foreign Disaster Assistance (USAID/OFDA) supports geological hazard disaster risk reduction (DRR) programs, which emphasize an “end-to-end” approach that ranges from identifying hazards to informing communities and households how to reduce the impact of geological disasters. USAID/OFDA geological hazard DRR activities include monitoring events, supporting early warning systems, and educating at-risk populations and community leaders on proper response processes.

VOLCANO DISASTER ASSISTANCE PROGRAM: A VOLCANO CRISIS RAPID RESPONSE TEAM



Two observers from CVGHM climb a radio mast to service antennas used to receive seismic data during the October–November 2010 eruptions of Indonesia’s Mt. Merapi volcano. (Courtesy of CVGHM)

Following the 1985 eruption of Nevado del Ruiz volcano in Colombia, which resulted in approximately 23,000 deaths, USAID/OFDA and the U.S. Geological Survey (USGS) established the Volcano Disaster Assistance Program (VDAP)—the world’s only volcano crisis response team. During the program’s 27-year history, USAID/OFDA has provided nearly \$24 million to support VDAP, including more than \$1.9 million in Fiscal Year (FY) 2013. To date, VDAP has responded to 27 major crises and helped to build capacity in 12 countries. VDAP scientific teams travel to restless volcanoes throughout the world at the request of host governments and, using volcano-monitoring equipment, work with counterparts to quickly assess hazards and generate eruption forecasts. In FY 2013, VDAP helped the Government of Indonesia’s Center for Volcanology and Geological Hazard Mitigation (CVGHM) install monitoring equipment, as well as collect and analyze data, on Dieng volcano to track seismic activity and potentially deadly gas emissions that are hazardous for people living in the densely populated surrounding area. In cooperation with the University of Hawaii, VDAP also co-sponsored an eight-week course on volcano monitoring, hazard assessment, and eruption forecasting to build the technical capacity of scientists from developing countries in Latin America and Southeast Asia.

REDUCING RISKS THROUGH EARTHQUAKE DISASTER ASSISTANCE TEAMS

USAID/OFDA works with USGS to reduce risks posed by earthquakes through Earthquake Disaster Assistance Teams (EDATs) comprising seismologists, geologists, and tsunami and landslide experts, as appropriate. EDAT members have collaborated with scientists in countries such as China, Haiti, Indonesia, Malawi, and Turkey. The scientific data produced from EDAT and local counterparts’ assessments are used to help improve understanding of seismic hazards and serve as the

basis for the creation, adoption, and implementation of appropriate building codes and land-use plans by local and national governments in affected countries, ultimately reducing the adverse impacts of earthquakes.

During FY 2013, an EDAT worked with the Government of Burma (GoB) to improve seismic hazard assessments and reduce earthquake-related risks in the country, which lies in a highly active earthquake zone. EDAT conducted trainings in basic seismology and hazard assessment for staff of the GoB Department of Meteorology and Hydrology (DMH) and other GoB offices, the Myanmar Earthquake Commission, the Myanmar Engineering Society, professors, and local students. In addition, the EDAT began working with DMH to provide earthquake monitoring equipment to enhance Burma's national seismic monitoring network, building on lessons learned from an EDAT that helped Government of Haiti counterparts develop a similar network in the aftermath of the 2010 earthquake that struck near Haiti's capital of Port-au-Prince.

PROTECTIVE ACTION GUIDANCE FOR EARTHQUAKE-PRONE DEVELOPING COUNTRIES

In FY 2013, USAID/OFDA provided support to a new program through GeoHazards International (GHI) to enhance safety procedures during earthquake shaking in developing countries. The initiative provides guidance on how to craft appropriate, effective, and accurate public safety messages in earthquake-prone low- and middle-income areas. As a part of the program, GHI will bring together professionals responsible for delivering earthquake-related safety messages in developing countries with various technical specialists to discuss appropriate safety measures. GHI will also develop and disseminate guidance outlining criteria and processes for developing local, context-specific messages on protective actions. Through the project, USAID/OFDA and GHI hope to reduce injury and loss of life, particularly among vulnerable populations, due to earthquake hazards.

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