

FISCAL YEAR (FY) 2018

GEOLOGICAL HAZARDS SECTOR UPDATE



Guatemala's Fuego Volcano erupted in early June, resulting in more than 100 deaths and burying neighboring agriculture fields. Following the eruption, VDAP provided technical assistance to better monitor the volcano. *Photo courtesy of AFP.*

VDAP Responds to Volcanic Crises Worldwide

For more than 30 years, the U.S. Geological Survey (USGS) has implemented the USAID/OFDA-funded Volcano Disaster Assistance Program (VDAP), one of the world's few volcano crisis response programs. USAID/OFDA and USGS established VDAP following the 1985 eruption of Nevado del Ruiz Volcano in Colombia, which resulted in an estimated 23,000 deaths. Since 1986, USAID/OFDA has provided more than \$52.9 million to support VDAP, including nearly \$4.7 million in FY 2018. VDAP scientific teams travel to volcanoes throughout the world at the request of host governments and, using volcano monitoring equipment, work with local and national counterparts to quickly assess hazards and generate eruption forecasts. More information about VDAP is available at: <http://volcanoes.usgs.gov/vdap>.

On June 3, Guatemala's Fuego Volcano—located approximately 25 miles southwest of the country's capital Guatemala City—began to erupt, emitting rocks, gases, and ash columns rising up to 33,000 feet above sea level. The incident represented the volcano's largest eruption since 1974, according to the Government of Guatemala's National Institute for Seismology, Volcanology, Meteorology, and Hydrology (INSIVUMEH). In response to the eruption, VDAP supported INSIVUMEH to assess whether additional eruptions were likely to

USAID/OFDA Geological Hazards Activities

FY 2018 FUNDING

Standalone Global and Regional Geological Hazards Programs	\$5,187,500
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Geological Hazards Interventions Worldwide	\$1,617,274
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\$6,804,774¹

Sector Overview

Geological hazards—including earthquakes, landslides, and volcanoes—threaten millions of people worldwide and can devastate communities in a matter of seconds by destroying homes, causing food and water shortages, disrupting livelihoods, and killing or injuring numerous individuals. Although many geological hazards cannot be prevented, proper mitigation and preparedness efforts can minimize the impact of disasters by saving lives, promoting resilience, and reducing the negative economic effects of geological events.

USAID's Office of U.S. Foreign Disaster Assistance (USAID/OFDA) supports geological hazards preparedness and response activities, including disaster risk reduction programming, that emphasize a comprehensive approach to reducing the impact of geological disasters.

¹ USAID/OFDA FY 2018 geological hazards sector funding supported activities in Asia and Latin America and the Caribbean, including programs in Burma, Indonesia, Nepal, and Sri Lanka.

occur and determine which populations would be impacted by future eruptions. This information helped government agencies determine evacuation efforts, save lives, and anticipate increased humanitarian needs. VDAP also provided remote sensing and hazard mapping updates on Fuego to INSIVUMEH. In addition, VDAP staff liaised with Government of Guatemala agencies, including INSIVUMEH, to foster increased understanding of the risks posed by the volcano and encourage the establishment of a procedure for observing Fuego's activity and issuing alerts when future hazardous activities occur.

Supporting Seismic Monitoring in Earthquake-Prone Burma and Nepal

With support from USAID/OFDA, USGS is reducing the risks posed by earthquakes through the utilization of the Earthquake Disaster Assistance Team (EDAT)—comprising geologists, seismologists, and tsunami and landslide experts, as appropriate. To date, EDAT members have collaborated with scientists in Burma, China, Comoros, Haiti, Indonesia, Malawi, Nepal, and Turkey, among other earthquake-prone countries. The scientific data produced by EDAT and local counterpart assessments improves the understanding of seismic hazards and serves as the basis for the development, adoption, and implementation of appropriate building codes and land-use plans, which—when properly implemented—can reduce the adverse impacts of earthquakes.

Burma lies in a highly active seismic zone. To improve seismic hazard assessments and reduce earthquake-related risks in the country, EDAT worked with the Government of Burma in FY 2018 to strengthen the national seismic network through training on earthquake data processing and analysis, as well as technical support for earthquake monitoring equipment.

EDAT deployed to Nepal after the magnitude 7.8 earthquake on April 2015, and supported earthquake-related damage assessments, installed and upgraded low-cost seismic monitoring instruments, provided technical assistance on data analysis, and conducted trainings on seismic hazard monitoring. Since 2015, EDAT has continued to support seismic monitoring in Nepal, including technical training and mentoring for Government of Nepal disasters response officials.

Providing Technical Assistance for Landslide Hazards in Sri Lanka

USAID/OFDA also funded USGS to provide technical landslide assistance in 2018. In April, a USGS team traveled to Sri Lanka to meet with the Government of Sri Lanka National Building and Research Organization (NBRO) and discuss the organization's landslide program. Following the trip, USGS plans to support NBRO with technical assistance, including improving operational tools to issue landslide alerts, supporting the incorporation of additional factors into existing hazard mapping, and establishing protocols for landslide disaster response.

Establishing a Global Earthquake Fault Database

USAID/OFDA continues to support for the Global Earthquake Model Foundation (GEM), a public-private partnership that aims to establish uniform and accessible standards for calculating and communicating the risk of an earthquake occurring in a particular area. GEM's mission is to encourage the design, development, and deployment of state-of-the-art tools for earthquake risk assessment. GEM produces decision-making models that allow users to process earthquake risk information, inform decision-making, and reduce potential loss of life and damage to livelihoods and economies. More information about GEM is available at: <http://www.globalquakemodel.org>.

In FY 2018, GEM completed the creation of the GEM Global Active Fault Database, the world's first database of active geological structures with global coverage. The database, which was created through the compilation of existing regional fault databases as well as new regional databases, reflects a major milestone in seismic hazard and tectonic studies as ongoing efforts to develop a database since the 1980s have previously been unsuccessful. The USAID/OFDA-supported database will inform worldwide hazard and risk analysis.

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USAID/OFDA information products are available at: <http://www.usaid.gov/what-we-do/working-crises-and-conflict/responding-times-crisis>