

## OFFICE OF U.S. FOREIGN DISASTER ASSISTANCE (USAID/OFDA)

REGIONAL OFFICE FOR LATIN AMERICA AND THE CARIBBEAN, SAN JOSÉ, COSTA RICA



USAID/OFDA Regional Advisor Sarah McNiece observes the damage caused by flooding in Peru following the heavy rains that began in December 2016. Photo by Ricardo Herrera, USAID/OFDA

### USAID/OFDA Promotes Development of Flash Flood Guidance System

Flash floods are among the deadliest natural disasters, resulting in more than 5,000 annual deaths worldwide and significant social, economic, and environmental impacts. Flash floods—defined as floods that rise and fall rapidly with little or no warning—account for approximately 85 percent of global flooding events worldwide and have the highest mortality rate among all types of flooding.

In the LAC region, efforts to develop early warning systems were spurred by the dramatic impact of Hurricane Mitch in 1998. Hurricane Mitch produced extremely heavy rainfall over Honduras, Guatemala, and Nicaragua, resulting in flooding and landslides leading to more than 11,000 deaths and millions of people without shelter.

To assist countries in developing flash flood warning systems, USAID/OFDA, the World Meteorological Organization (WMO), the U.S. National Oceanic and Atmospheric Administration (NOAA), and the Hydrologic Research Center (HRC) partnered with National Meteorological and Hydrological Services (NMHSs) in host countries to implement the Flash Flood Guidance System (FFGS). The system was designed for interactive use by meteorological and hydrological forecasters throughout the world to provide real-time monitoring of flash flood risk. The FFGS system delivers data to support the development of national and regional flash flood warnings in response to rainfall events, using remote-sensed precipitation estimates from radar and satellite-based systems in addition to ground observations. To assess the threat of local flash floods, the FFGS allows forecasters to adjust the guidance based on their experience with local conditions and input localized data to increase the accuracy of the system.

USAID/OFDA began supporting the implementation of FFGS in the LAC region in 2011, with an initial meeting in Santiago, Chile, where participants endorsed the development of a demonstration project in the Zarumilla River basin near the Ecuador–Peru border.

In 2016, NOAA hosted a planning meeting in Peru where participants from 12 countries endorsed the implementation of FFGS in several regions in South America, beginning with parts of Colombia, Ecuador, and Peru, referred to as Northwest South America Flash Flood Guidance System.

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Members of Save the Children waded through floodwaters in Lambayeque, Peru. Photo Courtesy of Save the Children



### Stockpiling Relief Supplies in Haiti

USAID/OFDA is supporting the International Organization for Migration (IOM) in Haiti to stockpile emergency shelter kits and other life-saving supplies for rapid response. During the past few months, USAID/OFDA has supported IOM with emergency supplies—including reinforced plastic sheeting and shelter kits, blankets, kitchen kits, hygiene kits and water containers—for 10,000 households. *Photo by Jymenor Guerisma, USAID/OFDA*

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Also in 2016, WMO hosted a workshop in the Dominican Republic to launch the Haiti and Dominican Republic Flash Flood Guidance (HDRFFG) system. Participants of the workshop agreed on a plan and timeline for implementation of the project and organized the structure and terms of reference for the project’s steering committee.

In 2017, USAID/OFDA-supported expansion of the FFGS continued throughout the LAC region, as the first meeting of the steering committee for the Central America Flash Flood Guidance System (CAFFGS) took place in Costa Rica. The precursor to the CAFFGS—a USAID/OFDA-supported project developed by HRC and NOAA—launched in 2004 in response to Hurricane Mitch. In 2006, upgraded hardware and software were added, and in 2011 the project added numerical weather forecast processing capabilities. In 2016, additional upgrades to the software allowed for the use of microwave satellite observations and added new functionality to evaluate landslide susceptibility. At the meeting, the steering committee recommended placing oversight of the CAFFGS with the Central American Regional Committee for Water Resources (CRRH) to foster widespread adoption and use of the FFGS and promoting real-time data sharing between various national agencies and the regional center in Costa Rica.

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## Developing FFGS for the Río de la Plata Basin

In late July, representatives from Argentina, Brazil, Paraguay, and Uruguay met in Brasília, Brazil, to discuss coordination and potential implementation of the FFGS for the Río de la Plata basin. The basin, which includes northern Argentina, southeastern Bolivia, southern and central Brazil, Paraguay, and the majority of Uruguay, is the second-largest drainage basin in South America and one of the largest in the world. Flash floods along the Río de la Plata River and its various tributaries are a continual threat to populations living near waterways.

Meeting participants discussed how to better serve communities at risk of flash floods through the coordinated development of early warning systems and improved data exchange between the various national meteorological and hydrological services in the region, with the aim of increasing forecast model accuracy to enhance early warning potential.

“We had an excellent turnout for the meeting, as representatives from the various countries’ weather and hydrological services were present, in addition to leaders of national civil protection organizations,” noted USAID/OFDA Sub Regional Manager Antonio Pinheiro, who helped to organize the meeting. “There was widespread agreement among participants that strengthening coordination in the Río de la Plata basin is critical to save lives and reduce the impact of flash flooding.”

Participants also discussed how to develop protocols and systems to enhance the sharing of hydrological data and forecasts utilizing the WMO Integrated Global Observing System (WIGOS), as well as how to best integrate and leverage existing meteorological data and information products. Scientists provided ideas to improve the use of flood products, warnings, and forecasts in support of emergency managers at subnational levels. Attendees also considered how to facilitate flash flood preparedness by synchronizing flood warnings, developing protocols, and building capacities of communities and local governments in border regions.

USAID/OFDA Senior Hydrometeorological Hazard Advisor Sezin Tokar commented, “A critical aspect of flood warnings in trans-boundary river basins is the exchange of real-time data in among countries. All participating NMHSs are currently sharing hydrometeorological data and are motivated to increase lead times for warnings to save lives.”



Participants met in Brasília, Brazil, to discuss coordination among the various entities in the Río de la Plata Basin. *Photo by Adam McBride, USAID/OFDA*

Learn more about FFGS

