

## DM2009 Project Summary

Project Number: 3191      Booth Number: 71

Bell and Bottle: Low-Cost Warning System for Flood/Slide-Prone Communities

COUNTRY: Philippines  
ORGANIZATION: University of the  
Philippines at Los Baños  
FUNDING REQUEST: \$121,560

**OBJECTIVE:** To provide early-warning systems (EWS) to 15–20 villages by installing 50 bells and hundreds of bottle rain gauges to benefit 12,500–17,500 people in remote communities. The project also aims to organize, educate, and train the local communities in order to improve their capacity to access and use hazard-risk information and therefore enhance their early-warning system. The project also aims to enhance other community-based responses to landslides and floods by providing them with information and supporting community-based activities that will reduce their vulnerabilities.

**RATIONALE:** In the Philippines, many remote farming communities are in landslide- and flood-prone areas. With climate change, heavier rains are expected; thus floods and landslides will be worse. Past experience shows that severe damage occurred in these communities because of the absence of EWS. To minimize casualties and property destruction, this project will establish a low-cost, fast, effective, and community-based EWS for floods or landslides that is appropriate and practical in remote mountain communities.

**INNOVATION:** The Bell and Bottle EWS is innovative because it combines high technology and creative approaches to make the EWS appropriate in remote areas where other warning systems are absent or impractical. It will use remote sensing to identify landslide and flood hot-spot areas. The people in those areas will use soda bottles to measure rainfall; these will serve as indicators and warn of possible landslides or floods. The bells will be used to quickly spread the warning to prepare for the threat or to evacuate.

**CONTACT:** David Manalo  
davemanalo@gmail.com  
www.uplb.edu.ph