

Bridge Over Troubled Water: Tsunami Disaster Prevention In Java

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Students (21) and faculty (9) from Universitas Pembangunan Nasional Jogjakarta, Brigham Young University and Utah Valley University teamed with several staff from local disaster mitigation agencies (i.e. BPBD) to conduct collaborative research in forecasting and communicating tsunami hazards along the southern coast of Java. The research involved training in: 1) trenching and auguring for tsunami deposits of past mega-thrust earthquake events, 2) Ground Penetrating Radar (GPR) to image the shallow sub-surface for possible deposits, 3) constructing high-resolution DEM's from drone and differential GPS surveys, 4) tsunami modeling using GeoClaw, 5) developing tsunami inundation maps, 6) assessing local awareness of tsunami hazards through surveys and 7) conducting evacuation drills.

These mitigation activities built capacity at the local level to recognize the threat of an approaching tsunami (earthquake shaking for > 20 seconds), and know how to respond (evacuate in 20 minutes to 20 meters elevation). This 20-20-20 principle was used as the primary instrument for education and outreach. The team made over 30 presentations to schools and community organizations. These presentations and other outreach activities unified community groups of different socio-economic status, culture and religion in a common cause.

Some communities have continued to organize and pursue the educational outreach activities we initiated, such as tsunami awareness parades, theatrical performances, music festivals, contests and evacuation drills.