



Naida Ademović¹

HIGH MAGNITUDE EARTHQUAKES TRIGGER LANDSLIDES AND FLOODS

Summary:

The most devastation natural disasters are earthquakes, landslides and floods aside from hurricanes, tornados, volcanic activity, drought etc. It is the interaction of these effects and their mutual cause and effect relationship that are investigated. Earthquake-induced landslides have been the source of significant damage and loss of people and property. These interactions are being investigated through the world and special attention is given to the earthquakes which happened numerous years ago. Ground shaking due to earthquakes destabilizes cliffs and steep slopes, causing landslides and rockfalls as a significant side-effect. Nearly 60% of all landslides are triggered by earthquakes. Landslides set off by the devastating earthquake in 1949 in Ecuador of $ML=6.8$ proved to be the deadliest feature of the disaster. The landslides also caused some flooding by changing water-flow patterns. Heavy rain and unconsolidated or fractured rock are exacerbating factors. 1970 Peru earthquake $M_w=7.9$ caused a huge rock avalanche that killed almost 54,000 people and buried two cities. Kaikoura earthquake in New Zealand which occurred in 2016 of magnitude $M_w=7.8$ triggered over 80,000 landslides and brought up a reinvestigation of the 1929 Murchison earthquake $M_w=7.3$. This was a major event that probably triggered even more landslides than the most recent earthquake. The shallow quake that occurred in the region of Maca in south Peru, $M_w=6.0$ in July 2013 led to ground subsidence causing numerous landslides and flooding. It has been suggested that there is an analogy between the mechanics of ground movements and tectonic faults, opening up new avenues for research into the dynamics of these faults.

Key words:

Earthquakes, Landslides, Floods, Magnitude, Peak Ground Acceleration, Focal Depth, Landslide Affected Area.

¹Assistant Prof dr. sc. Naida Ademović, civil eng. structures, University of Sarajevo, Faculty of Civil Engineering, Patriotska liga 30, Sarajevo, Bosnia and Herzegovina, naidadem@yahoo.com