

On the historical account of disastrous landslides in Mexico: the challenge of risk management and disaster prevention

I. Alcántara-Ayala

Instituto de Geografía, Departamento de Geografía Física, Universidad Nacional Autónoma de México, Circuito Exterior, Coyoacán, 04510, México, D.F. (irasema@igg.unam.mx / 5255-5616-22-39)

Landslides disasters in Mexico caused more than 4000 victims between 1935 and 2006. Disasters have been mainly associated to intense precipitation events derived from hurricanes, tropical storms and their interactions with cold fronts, although earthquake triggered landslides have also occurred to a lesser extent. Impact of landsliding in Mexico is basically determined by the geomorphic features of mountain ranges and dissected plateaus inhabited by vulnerable communities.

Flash-floods and mudflows generated by the collapse of a six-meter dike due to the intense rainfalls of Hurricane Liza in 1976 produced approximately 1000 casualties in La Paz in the worst known episode. The second-worst disaster occurred in Minatitlán, Colima, a town located on an alluvial fan in 1959. Human losses were estimated in 800, also as a result of rainfall triggered landslides and mudflows. Similar cases include the first recorded event -a series of rainfall triggered landslides- which took place in Mexico City in 1935 and had an aftermath of 150 deaths and 146 people injured, and the last event of the period of evaluation, which occurred in Durango in September 2006 producing 10 fatalities.

The worst single landslide event took place in Teziutlán, in the Sierra Norte de Puebla during the autumn of 1999. The interaction of a tropical storm and a cold front produced intense precipitation and hundred of slope processes were triggered. Casualties were as high as 247 for the whole Sierra Norte, whereas in the neighbourhood of La Aurora, 109 people died on a single event.

The present contribution provides a temporal assessment of historical landslides disasters in Mexico, in addition to exploring the future directions to reduce the impact of such processes on populations, as a result of the influence of climatic change, urban sprawling, land use change and social vulnerability.

All the historical accounts of landslides disasters during the period 1935-2006 suggest that on one hand, there is still a lack of structured knowledge on landsliding nation-wide, and thus on adequate strategies to mitigate and cope with the impact of landsliding; and that on the other hand, vulnerability has determined not only the past

and actual disaster effects, but the potential-future scenarios. Consequently, based on transdisciplinary efforts, risk management and disaster prevention in Mexico can be regarded as a critical challenge to be achieved in the forthcoming years.