



A re-analysis of Historical Disaster Scenarios: Lessons for disaster risk management

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The mission of the World Bank's Disaster Risk Management (DRM) practice is to work with national and local governments, and with communities, to identify hazard risk, assess vulnerability and mitigate the impact of disaster through structural and non-structural measures, including risk financing and risk transfer. This paper relates to assessing and quantifying the impact (to population and physical assets) of previous historical disasters if they were to reoccur in the present time, which is one of the key ways to highlight risk in a given region.

The paper highlights results of 10 major historical disasters: Armenia - Earthquake (Dec. 1988); El Salvador - Earthquake (Jan. 2001); Pakistan – Earthquake (Oct. 2005); Haiti – Earthquake (Jan. 2010); Chile – Earthquake (Feb. 2010); Dominican Republic – San Zenon Hurricane (Sep. 1930); Fiji - Cyclone Winston (Feb. 2016); Pakistan – Floods (Aug. 2010); Mozambique – Floods (Jan. 2015); and Tambora (Indonesia) – Volcanic Eruption (1815). The case studies have been selected using a multitude of criteria such as availability of data, country client interest and importance of key historical events.

The results are numerous and significant. Some key findings for Armenia are:

- The 1988 Armenia earthquake caused damage between \$150-200 million (in 1988 US dollars) to the residential sector and ca. \$900 million capital and \$500 million productive sector damage and losses.
- A reanalysis of the 1988 Armenia earthquake on today's residential exposure taking into account of changes to the building stock and updated vulnerability functions suggests around \$420 million in damage. The reconstruction costs are expected to be higher with improved construction standards needed for new buildings.

The paper also highlights the uses and limitations of other existing datasets in addition to assessing the latest scientific evidence on hazard, exposure and vulnerability to re-evaluate the historical events. This would help stakeholders to better understand limitations of the results and appreciate varying degrees of confidence in spatial loss distributions.

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