

Natural Hazard Risks for Infrastructure in El Salvador

El Salvador is a small, densely populated country that is highly vulnerable to natural hazards.

The devastating impacts of Hurricane Mitch in 1998 and two earthquakes in 2001 catapulted disaster risk management into the public dialogue and national policy agenda. Assessing disaster risks to infrastructure is an essential step in preventing disasters and in protecting people, nature, and economic assets from loss and damage should infrastructure fail.

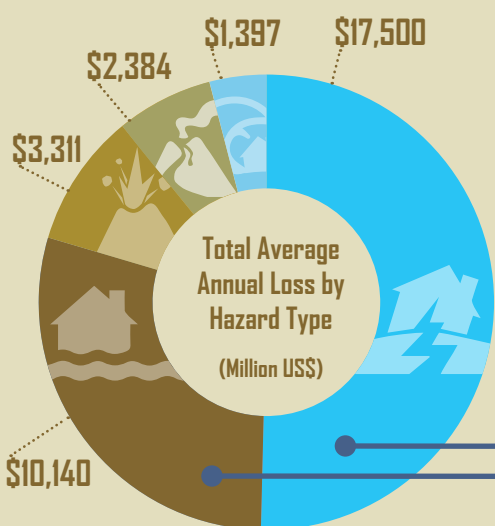


Results of a new study are helping advance disaster risk management in El Salvador.

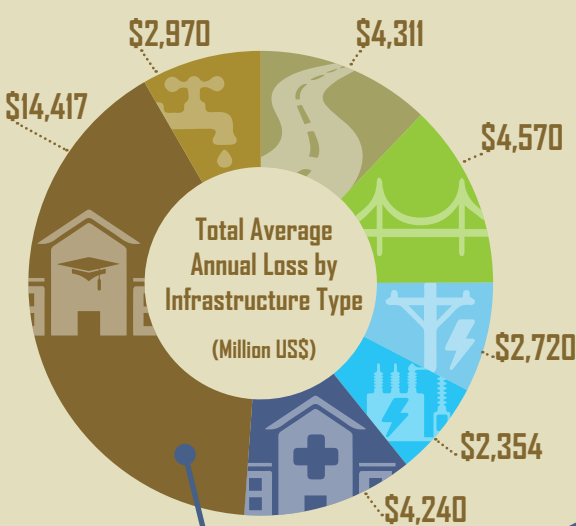
Responding to a request by the Government of El Salvador, CDKN and its partners completed a national multi-hazard study on existing infrastructure of strategic, economic and social importance for the country. The study took place between February 2015 and April 2016.

Total Average Annual Losses US \$35.5 million

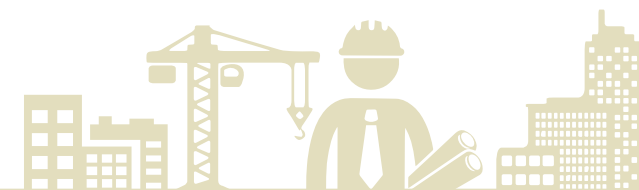
Based on historic observations, the study modelled almost 100 different hazard scenarios (landslides, flooding, tsunamis, earthquakes, volcanic) and the physical vulnerability of major roads, highway bridges, transmission towers, electrical sub-stations, water and sewer infrastructure, schools and healthcare facilities. The total average annual loss (AAL) for the seven infrastructure categories studied amounts to \$35.5 million.



Earthquakes and floods account for nearly 80% of losses



Of all infrastructure types, schools are most at risk



Comprehensive and validated mapping of natural hazards across the country is critical for land use planning and development decisions. This study compiled a hazard atlas using the best available information.

Estimated losses are significant in all regions of the country but tend to be higher in coastal areas. Coastal areas are subject to more flooding, tsunami impacts, and earthquakes which tend to be amplified on the unconsolidated soils. The example below shows AAL for Healthcare Facilities by municipality expressed as a percentage of total stock.

Multi-hazard Risk



Recommended strategies to reduce disaster risks, building on results of this study



- 1 Use initial risk estimates to set priorities for infrastructure reinforcements and retrofits
- 2 Ensure national-level results inform local planning
- 3 Broaden risk metrics beyond infrastructure replacement costs
- 4 Analyze the influence of climate change on vulnerability to flooding, landslide risk, and tsunamis
- 5 Nurture and sustain collaboration across ministries responsible for infrastructure



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REFERENCES: (1,2) UNISDR, Global Assessment Report 2015, El Salvador Country Risk Profile (3) UN Disaster Assessment and Coordination 2010, CDKN & ODI 2014, and The Future Framework for Disaster Risk Reduction based on Global Hotspots data, World Bank 2005 (4) Germanwatch Global Climate Risk Index 2016.

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