

Earthquake Risk Transfer for Ecuador

Overview

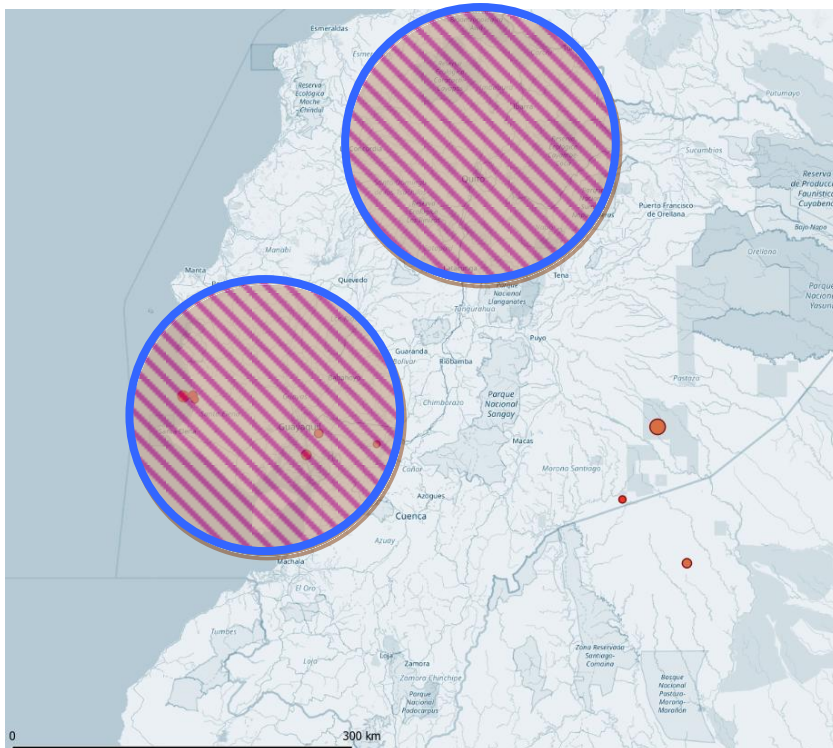


Figure 83. Ecuador undercover regions.

Ecuador, a country exposed to a high seismic hazard from megathrust subduction earthquakes and moderate-to-large shallow crustal earthquakes.

Quito the capital of Ecuador can be strongly affected by three kinds of earthquakes: (1) events with magnitude larger than 8 coming from the subduction zone located at more than 200 km (e.g. Esmeralda, Mw 8.8), (2) shallow events with a magnitude 7 to 7.5 from the Andes cordillera and originated



about 80 km away or more and (3) events with a magnitude 6 to 7 occurring on faults close to the city.

Several faults around Quito could generate damaging earthquakes. Among them, 'Quito Fault' is considered as the most important for seismic hazard purposes.

Building on the knowledge produced in the recent historical seismicity and earthquake catalogs earthquake recurrence models are developed. As a result, one of the latest preparedness alert issued for a moderate M6.2 earthquake, on September 6, 2018. The earthquake shook the region on day 6 after the preparedness alert issued by Earling.

EPA Effect on Estimated Maximum Loss

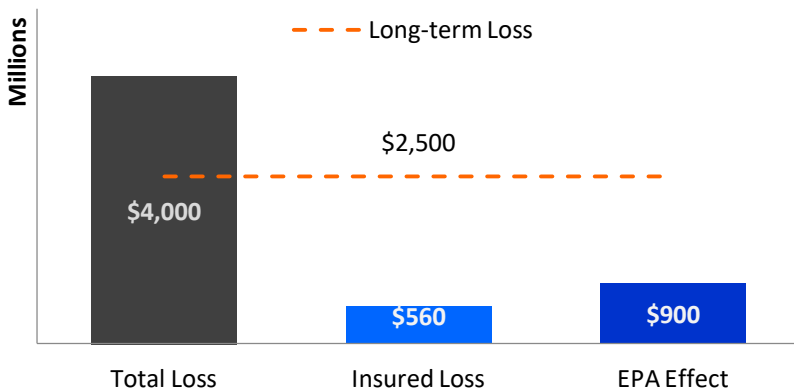


Figure 84. EPA effect on Ecuador Apr 16, 2016 earthquake (SwissRe, 2017).



EPA Effect on Insurance Penetration Rate

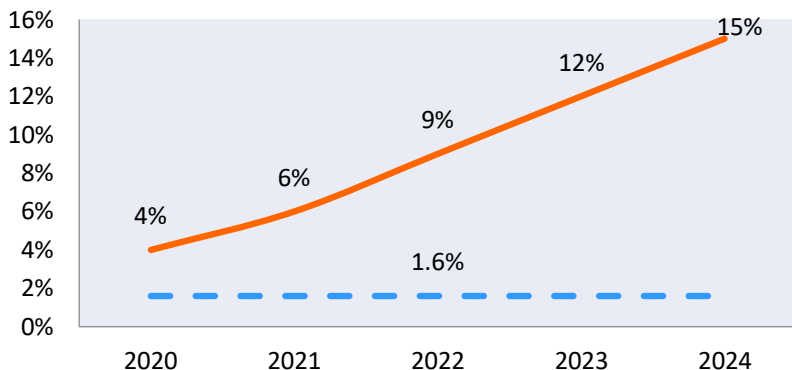


Figure 85. Effect of EPA on Ecuador earthquake insurance penetration rate. In 2018, the Ecuador earthquake penetration rate was about 1.8% (Insurers Face Minimal Losses from Peru and Ecuador Earthquake: A.M. Best, 2019).

EPA Effect on Probable Maximum Loss

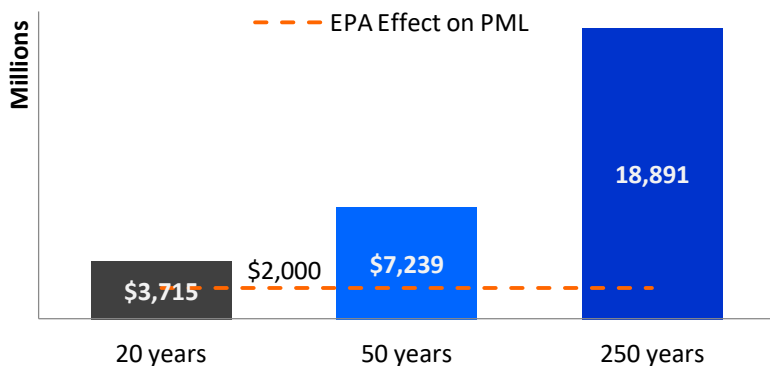


Figure 86. Probable Maximum Loss - Mean return period in years (Ecuador Disaster & Risk Profile, 2014). EPA can help to extend the earthquake insurance penetration rate. Ecuador earthquake Average Annual Loss is \$1,248.84 million.



Ecuador Documented EPAs

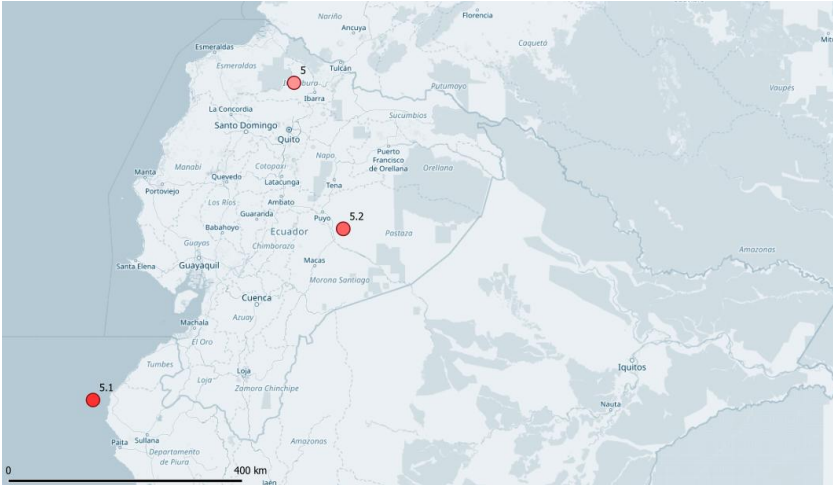


Figure 87. Three earthquakes > M5.0 rocked Ecuador in 2018. One of the documented EPAs mentioned below. EPA alert can remarkably extend the earthquake insurance penetration rate by 20% in the short-term, by preparing citizens for a probable earthquake in the forthcoming hours and days. On the other hand, insurance companies that didn't receive a First Notice, which exclusively issues for the insurance industry, experience remarkable loss in such events. Insured losses can be up to the average annual loss.

EPA Issued Date	Earthquake	Mag	Status	Avg Annual Loss AAL (Million)
Aug 30, 2018 ³⁴	Oct 7, 2018 ³⁵	6.2	Hit	\$1,248.84

Table 10. Documented EPA(s) issued for Ecuador.

³⁴ <https://www.instagram.com/p/BnFWojelBV4/>

³⁵

<https://earthquake.usgs.gov/earthquakes/eventpage/us2000ha13/executive>



Ecuador recent major earthquakes

Place	Date	Magnitude
Pastaza	22-Feb-19	7.5 Mw
Muisne, Manabi	16-Apr-16	7.8 Mw
Pichincha	12-Aug-14	5.1 Mw
Riobamba	12-Aug-10	7.1 Mw
Esmeraldas	31-Jan-06	8.8 Mw

