Risk Atlas of Colombia: Revealing the Latent Disasters

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To strengthen the information systems, monitoring, and registration of potential and existing risks, the Colombia Risk Atlas: Revealing Latent Disasters presents probabilistic risk assessments for earthquakes, floods, tropical cyclones, and tsunami. These evaluations incorporate dimensions of natural and socio-natural hazards such as vulnerability, degree of exposure, and characteristics of the environment on a departmental and municipal scale.

We applied risk metrics such as average annual loss, physical risk, aggravating factor, and a comprehensive risk index. We calculated the physical risk with models that integrate hazard, exposure, and vulnerability and consider the uncertainty associated with both the variability of the event occurrence process (i.e., when, where, and of what magnitude the next event will be), and associated with the physical vulnerability of the exposed elements (i.e., quality of materials, level of seismic design, and quality of construction). The aggravating factor was related to the socioeconomic fragility and lack of resilience of the territories.

We also included indicators such as unsatisfied basic needs, unemployment, infant mortality rates, and access to health centers. These indicators are independent of the hazard and reflect the capacities and characteristics of the territories to amplify or reduce the impact of a disaster event. Finally, we calculated the comprehensive risk index (which assumes values between 0 to 2) using the physical risk and the aggravation factor, through which municipalities and departments with higher levels of risk can be prioritized to develop detailed studies and actions of risk reduction.

The Atlas has served territorial agencies to quantify disaster risk with adequate metrics, and to guide informed decision-making while responding to the Sendai Framework priority for understanding disaster risk.