

# **Risk and resilience monitor: development of multiscale and multilevel indicators for disaster risk management for the communes and urban areas of Chile**

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## **Abstract**

Chile is a country faced with a variety of natural hazards, such as earthquakes, tsunamis, and volcanic eruptions, which often test its coping capacity. Disaster risk management plays a critical role in the protecting the welfare of society as well as in preserving the governability of the country. This work introduces multilevel indicators for measuring dimensions of risk and resilience, to identify and quantify spatial disparities among communes and urban areas in a multiscale perspective. The indicators summarized in the Risk and Resilience Monitor (RRM), are developed using techniques of Principal Component Analysis combined with Varimax Factor Analysis.

The results introduce evidence for the consideration of an adequate scale of risk management. Despite middle-sized communes appearing in first places of RRM, extended urban areas exhibit a greater potential for resilience strategies. Given the methodology used, the structure of the indicators suggests how to adjust risk management for different scales. Furthermore, the indicators allow the identification of areas and dimensions that have been left relatively unprotected and require disaster risk management actions.

## **Keywords**

Multiscale indicators, Multilevel indicators, Disaster risk management, Urban áreas, Communes