The Influence of Land Use Planning on Disaster Risk Due to Natural Hazards: Bogotá, Case of Study.

Lina María González, Luis Ángel Guzmán, Luis Eduardo Yamín and Ricardo Camacho (Colombia)

Key words: Land distribution; Land management; Land readjustment; Risk management; Spatial planning; Metronamica, ArcGIS

SUMMARY

Disaster risk is derived from the combination of natural threats and anthropogenic influence. Consequently, the social and economic impact that natural hazards have on urban areas may be massive depending on the exposure that communities in a situation of vulnerability have. For a city as Bogotá, it denotes a problem due to the high percentage of illegal urbanization that, according to the Colombian National Administrative Department of Statistics - DANE, represents 21% of its area. It reflects a problematic because of uninformed expansion in exposure, and therefore vulnerable, zones of the capital of Colombia.

This paper aims to provide insights of the influence that land use planning has on disaster risk owing to natural hazards. The analysis is supported by two software: A geographic information system: ArcGIS; and a Spatial Decision Support System (SDSS) for urban and regional planning applications: Metronamica. Based on the information obtained, it was possible to compare two scenarios, in which the exposure variation was identified according to the behavior of the land uses between 2016 simulated real uses – that considers hazard areas, and 2016 actual land uses.

The tendency obtained will be shown in the results section along with the conclusions and recommendations. It is expected to extend this study to analyze future behaviors of the land use to mitigate disaster risk consequences in Bogotá. This investigation will develop and improve the knowledge in risk assessment, to support the community and decision makers in the understanding of the impact that land administration's public policies have on the magnitude of disastrous events, based on the found tendency.