

## **METHODOLOGY FOR QUICK ASSESSMENT OF THE QUINDÍO EARTHQUAKE EFFECTS IN ARMENIA, COLOMBIA**

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On January 25th, 1999, a 6.5 Richter Magnitude earthquake struck the south part of the Quindío Department, Colombia. The hypocentre was located at a depth ranging between 10 to 20 km. The earthquake was found to be a product of the neotectonic activity of a part of the Sylvia-Pijao fault, known locally as the Armenia fault. The event yielded 1200 casualties and all sorts of damages to buildings and houses, in Armenia and other towns around the epicentral area.

Right after the event nobody knew even approximately neither the size and location of the earthquake effects nor its geological context and source. A methodology for the quick assessment of damages was developed and performed, by using both geological-geotechnical criteria and the register of the post-earthquake condition of the houses, slopes and infrastructure; for doing so, two teams made up of geologists and geotechnical engineers were organized.

The field teams covered the city, using maps on 1:10,000 scale. A damage zonation was produced with 3 zones: A- Total Collapse (about 30% of the area), B- Partial Collapse (45%) and C- Unaffected zones or light effects (25%, concentrated in the North). It was found that the zones where most of the damages were concentrated (central and south part of the city) were located or coinciding with the path of the Armenia fault or near the Danubio fault, or in small hills where topographic amplification of the seismic signal was meant to be possible; also damage to buildings was associated to poor quality fills, and to houses lacking aseismic design.

The resultant zonation map was of big help to the local authorities and the decision-makers of local and national level, to understand the magnitude and technical reasons for the damages.