The earthquake risk index map of Europe illustrates the relative distribution of risk due to earthquakes across Europe through an index. This index combines quantities of average annual economic loss and average annual loss of life, calculated from the 2020 European Seismic Risk Model, normalised by the GDP per capita to account for the varying levels of resilience across Europe.

Low-risk areas are coloured from white to light blue, moderate risk areas from blue to red and high risk areas appear in dark red. The “very high” risk index areas could have an average annual economic loss of up to 65 M EUR and could reach over 2 fatalities per year.

The map above combines earthquake hazard and soil conditions (pink colour scheme, vertical) and exposure (turquoise colour scheme, horizontal). The exposure variable presents the geographic distribution of the number of commercial, residential and industrial buildings. The hazard and soil conditions variable illustrates the distribution of ground shaking intensity at the surface of the earth.

**HAZARD, EXPOSURE & SOIL CONDITIONS**

Since the effects of the local soil conditions are included, layers of soft soil near the ground surface can intensify the levels of shaking. This combined map shows, for example, if large earthquakes occur in areas without exposure, the earthquake risk is limited (e.g. most of Iceland). Instead, the seismic risk will be high where the hazard and exposure are both high (e.g. Istanbul).

**VULNERABILITY**

Mid-rise reinforced concrete buildings constructed before the 1980s and low-rise unreinforced masonry houses, subjected to high levels of hazard, are the main drivers of the earthquake risk in Europe.

Although European countries have recent design codes and standards that ensure adequate protection from earthquakes, many older buildings still exist and they pose a high risk when earthquakes occur.