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VULNERABILITY AND RISK ANALYSIS FOR EARTHQUAKE PRONE AREAS: METHODOLOGY AND PRELIMINARY RESULTS FOR GERMANY

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The Center for Disaster Management and Risk Reduction Technology (CEDIM), established as a joint initiative of the GeoForschungsZentrum Potsdam and the University of Karlsruhe, conducts an interdisciplinary study aimed at comparative analysing different kinds of risks for Germany, including the seismic risk.
There are several earthquake prone zones in the country, where the estimated level of ground shaking intensity makes up to VII-VIII degrees (EMS-98). Though the probability of severe ground shaking is not very high, the earthquake-prone areas are densely populated, industrialized and have a high concentration of developed infrastructure. This implies a challenge for future disaster preparedness and risk mitigation activities.
The main objective of the earthquake risk subproject of CEDIM is assessment and mapping of seismic risk for Germany. The paper describes the GIS-based methodology of vulnerability and risk analysis at the national and regional scale and presents some preliminary results of the study. Seismic hazard input was estimated on the basis of the D-A-CH map. Vulnerability analysis of the existing building stock of German communities and damage assessment was conducted in terms of the European Macroseismic Scale (EMS-98). Analysis shows that the seismic risk in Germany represents a problem with a low earthquake occurrence probability, yet potentially high consequences. If a major earthquake occurs, the total monetary losses can amount to billions of Euro. Therefore, the results of seismic risk analysis are indispensable for planners and decision-makers for preventing possible future seismic disasters.

1. Session 4: Seismic Hazard Mitigation and Earthquake Engineering
2. Vulnerability of the existing building stock, EMS-98, Damage and risk assessment
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