Improving communal resilience using a personal seismic-risk and readiness self-evaluation and mapping tool

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In the remote towns of the Negev desert, there are specific preparations that families may partake to significantly lessen their stress and risk in the aftermath of a large earthquake (e.g. assure emergency water and supplies). Municipalities can better prepare by identifying high risk neighborhoods of old and fragile houses in which more vulnerable people and families often reside. Improving personal, familial and communal preparedness may significantly reduce the level of suffering and 'secondary damage' due to harsh conditions following a natural disaster where self-reliance is crucial. The Israeli National Emergency Authority has long realized that in order to improve communal resilience and self-reliance during harsh post-earthquake conditions, it must promote personal and familial readiness. While active personal preparedness and public engagement in risk mitigation programs are considered effective ways to improve community and national resilience, authorities are struggling to find new tools to motivate and engage the public. In particular, there are no practical tools for individuals to assess their readiness and identify gaps where more work needs to be done.

We present a newly developed self-evaluation tool for assessing risk and readiness. The online application provides personalized risk assessment based on national seismic risk data and user input regarding the location and simple structural characteristics of their home. A questionnaire is used to identify weaknesses in familial readiness and gives immediate personalized feedback (based on Israeli Home Front Command's recommendations deemed most relevant to the specific respondent). The risk and readiness data collected provides a basis for innovative mapping of urban readiness patterns (by neighborhood). We believe that the use of a popular interface to social networks will promote comparison between homes among friends, and will attract a broad sector of the public to take part and assess their risk and preparedness.

A pilot study was conducted in the town of Mitzpe Ramon (the most remote town in Israel with 5000 inhabitants). The evaluation tools were used to map spatial patterns of risk and preparedness within the town. Identification of neighborhoods with relatively high-risk and low communal preparedness is proposed as a tool for improving municipal and regional emergency planning and risk reduction efforts.