Current status risk assessment activities in emme – Pakistan

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The latest available data on the building typology of Pakistan is the "Building and Population Census of Pakistan, 1998". This housing data was synthesized and transformed to make it useful for acquiring estimates of seismic vulnerability. The distribution of buildings throughout the country is shown in the GIS environment.

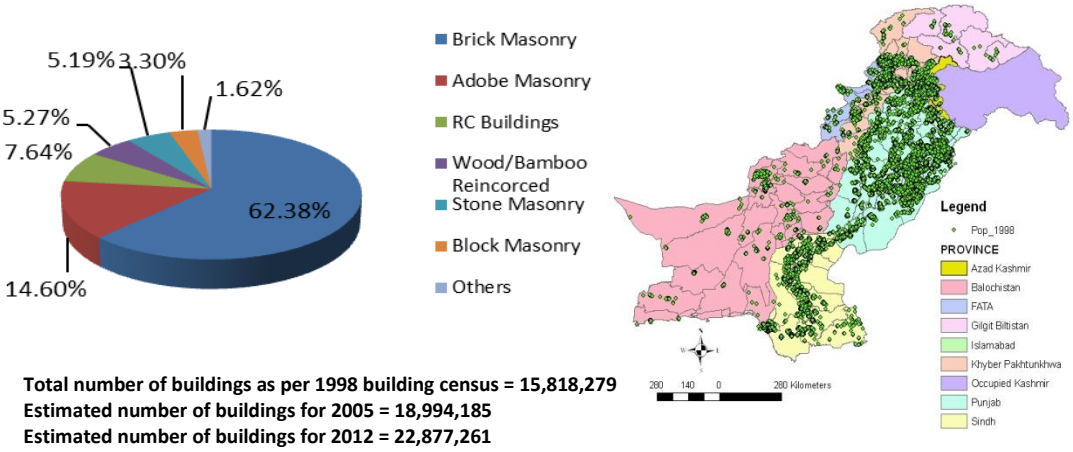

Fig. 1: Building typologies and its distribution along Pakistan.

Intensity based fragility curves for above identified building type were developed using the post-earthquake data from Kashmir earthquake 2005. To develop the fragility curves the method suggested by Giovinazzi (2005) was adopted.

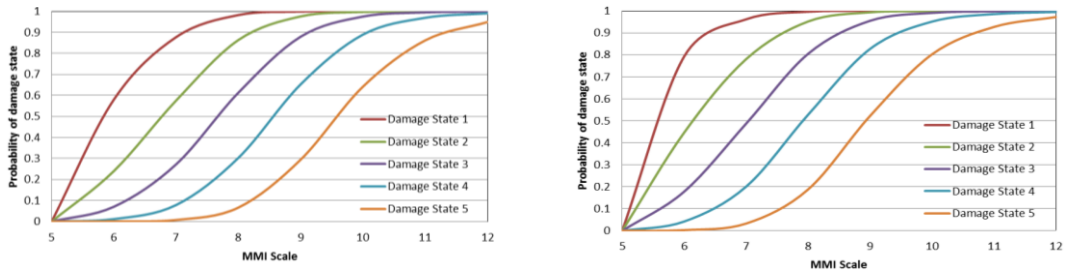

Fig.2.Fragility Curves for Brick and for Adobe Masonry Buildings.

Validation of the developed model was carried out using ELER for 2005 Kashmir earthquake. Reported number of damaged buildings due to 2005 Kashmir Earthquake was 454,905 whereas simulation from ELER estimated was 383,772 damaged buildings, about 15% less.

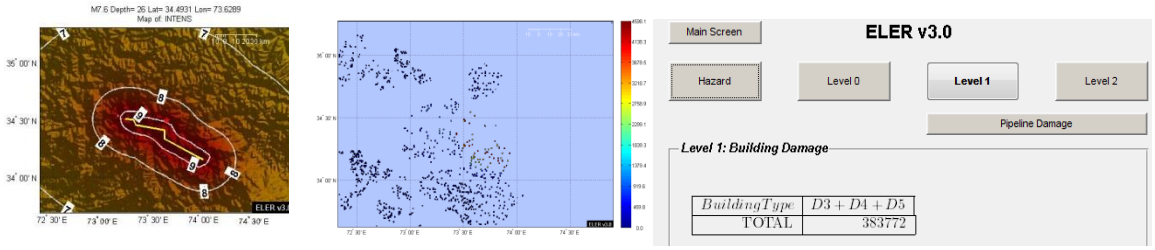

Fig. 3: 2005 Kashmir Earthquake Building Damage Simulations and its Geospatial Distribution.

Reference

Giovinazzi, S. 2005. The vulnerability assessment and the damage scenario in seismic risk analysis. PhD thesis, University of Florence (I) and Technical University of Braunschweig (D).