Evaluation and planning of urban passive defense using GIS (a case study: district of city of Kerman)

Abstract

In today's world, it is necessary to prepare for unexpected situations. In the seismicity country like Iran need to pay attention to this issue. Therefore, aim of this research is assessment of vulnerability urban seismic structure, passive defense planning and shelter location. At this investigation, first district of Kerman city has been studied. Research method is based on descriptive- analytical and based on library and field studies and data analysis using Karmania Hazard Model (KHM) that is a GIS-based application, Index Overlay Model and Fuzzy Logic. For the first time, simulation done by Karmania Hazard Model and in this research, structural and population vulnerability has been calculated. First district of city, has six types of building structures; first type mud brick buildings with high vulnerability, the second brick structure with arched roof, a third type of non-armature buildings, fourth type armature buildings and fifth and sixth types, respectively consist of metal and reinforced concrete structures with low vulnerability. Micro zonation seismic results show that, this district is located in one of the most active tectonic blocks of Iran, because of high sediment thickness, the rate of seismic hazard to X^{+} MMI. Also the occurrences of earthquake whit intensity of Richter magnitudes 6/3, 93% of buildings were damage over 50% and are at high risk approximately 51% of district population. In the chapter passive defense planning and urban shelter location, results show that, beacause of disharmonic and weedy growth of urban, neighbourhood shelters of whole district population (126159 person) just cover 36863 person and there is $\frac{2}{3}$ amount space deficiency. In the section shelters location of district, there isn't shelter in this scale at present situation. In the ideal situation planning, there is 37 square meters amount space deficiency that far from of per person 40 square meters.

Key words: Vulnerability, Passive defens, GIS, Seismic risk, Kerman city

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