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Spatial analysis of physical-social vulnerability of Urmia city to earthquake crisis

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Abstract

From the past until now, the occurrence of earthquakes has always been a widespread threat, and the need to reduce the vulnerability of cities to earthquakes is considered one of the main concerns of urban planning. In this regard, the pathological zoning of the amount and type of response to the earthquake with the help of effective methods can significantly increase the resilience of the city in the face of the earthquake. In the present study, the physical-social pathology of Urmia city against the earthquake crisis was investigated. The type of this research is applied in terms of purpose and descriptive-analytical in terms of research method. 15 indicators were used to measure the physical and social vulnerability of Urmia city. The required data are also extracted from comprehensive plans and statistics of 2015. Spatial statistics and spatial autocorrelation models have been used in GIS software for data analysis. The results obtained to answer the research question indicate that the central parts of Urmia city are more vulnerable than the peripheral parts in terms of physical index. The state of social indicators at the level of Urmia city shows moderate vulnerability. This vulnerability was estimated at 58% in the physical dimension and 41% in the social dimension. The results of the RDJ model also show that the distribution of physical and social vulnerability is clustered in the regions of Urmia. Considering the degree of vulnerability of the city of Urmia, in order to reduce the loss of life and money caused by the earthquake, it needs to reduce the consequences of this crisis with efficient planning and effective measures.

Key words: natural hazards, vulnerability, spatial statistics model, Urmia city

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