

Archives of SID **Investigating the physical and social resiliency against earthquakes (A Case Study of Izeh City)**

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Abstract

Today, one of the most important hazards that always threatens cities is the risk of an earthquake. Therefore, the city of Izea will remain like many cities, taking into account several acute faults, including areas susceptible to the dangers of an earthquake that will sooner or later lead to such a challenge. Therefore, reduction of damage and crisis management and ultimately resilience of cities to such hazards as earthquakes are necessary and therefore, the aim of this study is to evaluate the degree of physical and social resilience of Izeh city against earthquakes. The present study is descriptive-analytic in terms of its nature, theoretical-practical and, as far as the study method is concerned. In order to achieve the research results, in addition to the library method and the use of statistics and documents, the field method has been used based on a researcher-made questionnaire (in Likert scale).The sample size was determined using Cochran method and the sampling method was carried out using simple random sampling without substitution.To analyze the data, Fuzzy Hierarchy Analysis (AHP FUZZY), GIS, SPSS and Promethee Decision Making Model were used in this study To measure physical dimension, 8 indicators were used.The results of the physical dimension showed that the situation of Izeh city is low against possible earthquake occurrence.The results of social dimension also showed that the

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central region with a value of 0.667 and western region with 0.50 in the first and second places, northern and northern areas with a net flow of 0.333 in the third place and in the eastern region The net amount of 500/0 is at the last place; Therefore, it can be said that there is a difference between the areas of Izeh city in terms of social resilience.

Introduction

Today, cities and communities of residence are often built or built in places that are exposed to natural disasters as a result of natural hazards or due to technological advances (Mitchell,2012:2). In response, individuals and communities are working to reduce the outcomes of these accidents and to scale up their initial impact, respond to needs after accidents and return to initial conditions (Sheikh Dareh -New, 32: 1396). An earthquake is considered as one of the natural disasters that is important both in terms of occurrence and unpredictability of other hazards. Over the course of the twentieth century, more than 1,100 destructive earthquakes occurred in different parts of the planet, resulting in more than 1,500,000 deaths. 90% of them were mainly due to the collapse of buildings that were based on engineering principles And they did not have enough safety (Lanatada, 2008: 2). In fact, what makes the earthquake a threat is the lack of human readiness to deal with it (Naimi et al., 1394: 2).Among the cities with high seismicity potential is the city of Izeh. In terms of earthquake hazard zonation, the city of Izeh has two zones with a medium and high risk that the city of Izeh and the sphere of direct influence in the high risk zone: therefore, due to the inappropriate situation of the city of Izeh and the records of the earthquake in this city, the goal The present study evaluates the physical and social resilience of Izeh city against earthquake.

Materials and Methods

This research is based on the applied purpose and based on the descriptive-analytical nature. The body index, which in terms of its assessment requires experts, is analyzed using the AHPFUZZY model and using ARCGIS software. The statistical population of this study was the number of households living in the city of Izeh and Maqam, determined by the Cochran formula of 350 households. Social index data from libraries and libraries (questionnaire) was collected. Data analysis was performed using a prophetic model (in a software environment)

Results and Discussion

The final prioritization of earthquake resilient zones is ascribed to the map shown in 5 spectra (very high, high, moderate, low and very low vulnerability). In fact, these classes represent the final ranking of the study area, which indicates which of the studied areas are resilient to earthquakes. . Accordingly, the priority of the vulnerability is very large part of the area of the area, which is marked red, and is particularly distributed in other parts of

the range, much of it is located in the central region of the eastern part of the city, and this suggests The high level of buildings and the low quality of construction in this area, but according to the southwest map, Izeh has a high earthquake resilience potential, which is characterized by a bright green color and located in the south of the area, indicating high quality and the use of Construction materials are relatively better in comparison with the entire construction of the studied area Issue. To rank the areas for social resilience based on three output analyzes (positive ranking, negative ranking and net ranking). When a criterion has the highest positive values and the lowest negative values, this option is higher than the other options, and indicates more value and vice versa. The central region with the value of 0.667 and the western region with 0.50 were placed first and second respectively. Thus, the two regions are better placed than socially and economically due to their centrality and social and economic conditions.

Conclusion

Natural hazards have become one of the main concerns of planners and urban managers in recent years due to the severity and short duration of impact on urban communities. The results of the study and other researchers' research may lead to lessons in preparation for increased resilience to reactions and crises. So that city safety against dangers is considered as a goal at all planning levels, which reduces the vulnerability and increase the resilience in cities.

Keywords: Resilience, Physical-social dimensions, earthquake, Izeh city

References

1. Adger, W. N., Hughes, T. P., Folke, C., Carpenter, S. R., & Rockström, J. (2005). "Social-ecological resilience to coastal disasters". *Science*, 309(5737), 1036-1039.
2. Cutter, S. L., Burton, C. G., & Emrich, C. T. (2010). "Disaster resilience indicators for benchmarking baseline conditions ". *Journal of homeland security and emergency management*, 7(1). 1-22.
3. Mitchell, T., & Harris, K. (2012). *Resilience: A risk management approach*. Overseas Development Institute, 1-7.
4. Hadi, E (1395) Feasibility of urban resilience against earthquakes, Sustainable Development Approach, Master thesis, Department of Geography and Urban Planning, Tabriz University, Supervisor: Dr. Mohammad Reza Pourmohammadi.
5. Ketabchi, E, Resayipour, M (1397) Urban resilience: Providing a conceptual model of urban planning and management, *Dedicated Journal of Architecture and Urban*, First Year Number1, October 1397.98-104

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6. Rose, A. (2004). “Defining and measuring economic resilience to disasters”. *Disaster Prevention and Management*, 13: 307–314.

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