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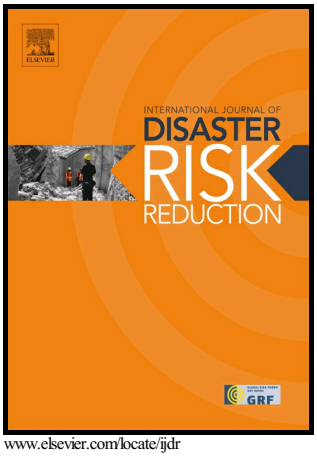


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# A Combination of the Knapsack Algorithm and MIVES for Choosing Optimal Temporary Housing Site Locations: A Case Study in Tehran

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## Abstract

In the aftermath of natural disasters, decision-makers often clash when tackling the challenge of choosing suitable temporary housing unit (THU) site locations. Site location considerably impacts temporary housing (TH) delivery time and the displaced population's (DP's) satisfaction. At the same time, selecting a suitable site is important to help increase the performance of the THUs in their subsequent life. To this end, this study aimed to design a new model for selecting site location based on sustainability concepts. The new model combines the integrated value model for sustainable assessment (MIVES) and the Knapsack algorithm to identify a subset of sustainable sites amongst the possible options based on the required area. The new model was applied to determine the best subset of sites for THUs for a seismic hazard along the Mosha fault in Tehran, Iran. The results show that weighting techniques can result in inappropriate weights for some indicators.