

عنوان مقاله:

Management of Municipal Waste Storage and Transportation Systems Based on Passive Defense Principles: A Case Study in District 6 of Tehran Municipality, Iran

محل انتشار:

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خلاصه مقاله:

Background: Effective waste management is critical during crises, as it can lead to the release of toxic waste and the mixing of hazardous substances, which can have detrimental effects on the environment and public health. Proper storage and transportation of waste during critical times can significantly reduce vulnerability through the implementation of passive defense measures, as examined in this study. Methods: This descriptive-analytical research was undertaken to identify passive defense principles and location criteria for waste storage and transportation systems in District 6 of Tehran municipality, Iran. After determining the effective factors in the socioeconomic, physical-spatial, hydrological-climatic, geological, and passive defense sectors, the identified criteria were subdivided into 35 sub-criteria across seven main criteria. These were evaluated by 28 experts in waste management and crisis management using the Delphi method over two stages and subsequently prioritized using the Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS). Results: The criteria "Population density", "Distance to fault", and "Distance to power substation", with similarity to ideal solution (cli) values of 0.861, 0.774, and 0.771, respectively, were identified as the top priorities. Conversely, "Distance to gas pressure-reducing stations" (cli = 0.134) was determined to be the least significant risk factor in the location of the mechanized systems. Conclusion: Intelligently locating mechanized waste storage and transportation systems based on the coefficients of the prioritized effective factors, following the principles of passive defense, can not only mitigate the vulnerability of the urban area during critical conditions but also enhance environmental and health conditions during normal times.

کلمات کلیدی:

location criteria, Waste Management, mechanized collection system, Passive Defense, Delphi, TOPSIS

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