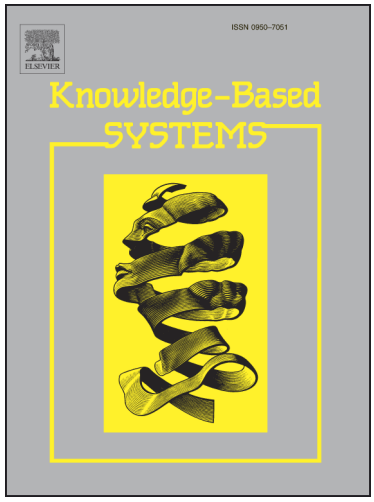

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A Prioritization Model for Locating Relief Logistic Centers Using Analytic Hierarchy Process with Interval Comparison Matrix

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Abstract. When natural disasters happen, relief logistic centers (RLCs) and the quality of their services become absolutely important. In other words, choosing proper locations for RLCs has a direct impact on operating costs and timeliness of responses to the rising demands. This paper aims at proposing a decision support system for prioritizing RLC's locations to facilitate providing emergency helps when natural disasters occur. The present study, focuses on considering availability, risk, technical issues, cost and coverage in locating RLCs. It is assumed that applying analytic hierarchy process (AHP) can facilitate the problem of locating these centers. The most important step in this process is establishing pair-wise comparisons for the criteria and alternatives. As it is more logical to use interval comparisons instead of crisp ones in real-world problems due to some considerations, this paper has used two decision-making methods known as lexicographic goal programming (LGP) and two-step logarithmic goal programming (TLGP) to derive priorities from pair-wise matrices. To assess the proposed method, a case study of Tehran, the capital city of Iran has also been discussed.

Keywords: Disaster, relief logistic centers, AHP, Lexicographic goal programming, Two-step logarithmic goal programming

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