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Land Suitability Analysis (LSA) based on fuzzy logic for prioritization of candidate sites for waste management

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ABSTRACT:

Waste management is a difficult and complex process since it requires considering a huge number of different criteria and regulations. Site selection for waste management is the most important stage in this procedure. Four important steps in Land Suitability Analysis (LSA) are identification and determination of weighting criteria, mapping and overlapping standardized layers. In this study, we used different GIS datasets including topography, geology, hydrology, climate, environment and fuzzification was applied using triangulation rule. Then, layers were combined using average weighting method and defuzzification was applied for the final fuzzy map of suitability. Our results showed that environmental consideration is the most weighted parameter. However, hydrological networks can play a significant role in determining a suitable location. Based on the final map, different locations were ranked based on the suitability for waste disposal. Our results should that using fuzzy logic in GIS environment not only can help to compile the spatial data in a manner that manager can face the uncertainties, it also promotes the possibility of sanitary waste disposal.

Keywords:
Landfill, Site Selection, GIS , Fuzzy, Ghorveh

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