

## Site selection of rural waste landfill using the AHP model and GIS software (Case study: the central part of Ejroud city)



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### Abstract

**Background and Aims:** Site selection and management of a landfill site is one of the main pillars of sustainable development. Selection of an appropriate site for the burial of rural wastes is of utmost importance in rural areas. At present there is no coherent management in the field of rural wastes. Selecting the right place for landfilling requires considering several complex factors and thus the need for use of spatial information technologies and their incorporation to other managing and planning issues are raised

**Materials and Methods:** In this study, nine important affecting parameters in locating the waste burial site including the slope, aspect, elevation, distance to the rural points, distance to the channels, distance to the roads, distance to the faults, erosion, and land use were considered to assess the appropriate site for burial of the rural wastes of the central part of Ejroud city. The identified parameters were compared by incorporating the Analytic Hierarchy Analysis (AHP) method in a pairwise manner and the corresponding weight of each factor, which indicates the effect of that factor, was calculated utilizing the Expert Choice software. All stages of this research were conducted ethically.

**Results:** Through the incorporation of weight layers obtained in the ArcGIS environment, the final locating map for burial of the rural wastes in the study area was prepared and categorized into 5 classes (completely inappropriate, inappropriate, intermediate, appropriate and completely appropriate).

**Conclusion:** The results showed that the appropriate and completely appropriate zones with 251.1 and 158.1 square kilometers had respectively the highest prefer ability for burial of the wastes in this categorization. Totally, about 41.8% of the total area of the town, was prioritized for the waste burial plans.

**Keywords:** Site selection, Rural solid waste, AHP model, GIS software, Ejroud town.

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