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OPTIMUM LOCATION FOR LANDFILLS SITES BASED ON GIS MODELING FOR AL-DIWANIYAH CITY, IRAQ

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ABSTRACT

Nowadays, solid waste is one of the major problems that affecting the environment. The selection of a landfill is a complex task related to many factors and regulations. Currently, there is no landfill site in Al-Diwaniyah city which the capital of Al-Qadisiyah province that meets scientific and environmental standards. Geographic Information System and analysis hierarchical process method were used to provide the optimum location for the landfill for Al-Diwaniyah city. In this study, fourteen appropriate criteria are selected which are: depth of groundwater, city centers, rivers, clans, soil types, elevation, wind, roads, slope, land use, archaeological sites, power grid, gas pipeline, and railways. These criteria were employed in the Geographic Information System, which is highly capable of managing and analyzing various data. Moreover, the analysis hierarchical process method is used to derive the weighting of the criteria by using a pair comparison matrix. The weighted overlay tool is then used to obtain a map of the relevance index for selected landfill sites. Seven suitable sites for landfills are selected for each region. All these sites met the scientific and environmental criteria adopted in this study. The areas for the selected sites are adequate to accommodate solid waste from 2020 to 2040.

Key words: Municipal Solid Waste, GIS, AHP, Al-Diwaniyah, Landfill site.

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