

Solid waste disposal site selection using multi-criteria evaluation in the GIS interface: A case study of Neyyattinkara Municipality, Kerala, India

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ABSTRACT : Selection of sites for solid waste disposal is one of the biggest hitches in semi urban and urban areas because of the harmful impacts of wastes on public health. The present paper focuses on the identification of suitable site for solid waste disposal using multi-criteria decision analysis (MCDA) in the geospatial environment of Neyyattinkara Municipality, located 20km south of Thiruvananthapuram in Kerala. Eight thematic layers such as land use, geomorphology, slope, population density, distance from streams, distance from roads, drainage (stream) density and road density have been considered in the analysis. The resultant thematic maps have been allocated weightages and suitability scores. The final potential site map for solid waste disposal is developed by applying weighted overlay method by integrating the factors in the GIS software. The study revealed that a total area of 0.13 sq.km (31.76 acres) in the Neyyattinkara municipality is suitable for solid waste disposal. This very high potential area is spatially distributed in 13 out of 44 wards of the municipality. Of all, ward number 19, Thavaravila has the highest potential area of 9.52 acres for solid waste disposal. The potential site suitability map for solid waste disposal will serve as base information for locating the solid waste disposal areas in Neyattinkkara municipality. Further, this methodology can be applied to other municipalities and townships in Kerala which have similar terrain characteristics.

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