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IDENTIFYING AND SELECTION OF AREAS FOR LANDFILL SITE IN BRAZILIAN SEMI-ARID REGION

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Abstract

In Brazil, the location of sites for disposal in urban cities needs a lot of attention. Still, in most of the small cities, there is no waste management - which means they do not have landfill sites for waste disposal. The purpose of this paper is to evaluate the suitability of the landfills for Municipal solid waste (MSW) management in the Brazilian semi-arid region. Most of Brazil's semi-arid regions are in the northeast part of the country. One of their characteristics is the lack of practices to manage wastes disposal in small cities. Therefore, this paper employs a spatial multi-criteria analysis (Dominance-based Rough Set Approach) and spatial analysis to evaluate several site candidates for waste disposal in multiple counties located in the Angicos region (Brazilian northeast), on Rio Grande do Norte state. Our findings consist of the identification of local sites for landfills facilities, considering factors such as elevation, land use/land cover, and the distance from river bodies, urban areas. The site was selected through spatial analysis. Two sites available to receive and manage waste from eight counties were identified as a result. As suggested, the proposed analysis method may be applied in similar regions.

Key words: multiple criteria; landfill; spatial analysis; semi-arid

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