

Applying GIS Site Suitability Analysis to Optimize Landfill Selection in Mozambique

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Proper selection of landfills is a complex task. However, with the application of GIS technology, it is possible to aid in the selection of an optimal site, one that ensures environmental and social standards for potential landfills. In Maputo city, site selection of landfills is difficult due to land restrictions resulting from the land conflicts and groundwater presence. However, in the need of improving waste disposal conditions, a new landfill site has been selected. The goal of this study was to identify potential areas for landfill and evaluate the suitability of the new landfill. Environmental and social criteria were combined to firstly identifying potential disposal sites. By making a cross-reference of criteria map, three types of areas were selected, unsuitable, subjected to special evaluation and suitable areas. It was possible to estimate how the current landfill is in terms of environmental and social safety, based on the AHP ranking process. GIS and its aided tools were proved to be efficient in this process and of great value for the improvement of the municipal solid waste management in Maputo, however, due to the characteristics of the area, on-site studies are still necessary in order to validate landfills.

Keywords: Landfill, Selection, GIS