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COST-EFFECTIVENESS ANALYSIS OF DIFFERENT LANDFILL COVERS IN SEMIARID ZONES

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Abstract

In order to reduce the production of pollutants, it is most important that landfills are adapted to the climatic conditions of the area where they are located. In this sense, there are very few studies focused on how to reduce leachates from landfills in semiarid regions, which are especially sensitive to the impacts that this type of activity potentially has on water resources. The aim of this study is to identify the best type of landfill cover that reduces leachate production in semiarid regions by means of a Cost-Effectiveness Analysis (CEA). Three types of covers are evaluated: conventional multilayer, monolithic and mixed monolithic. The evaluation of the effectiveness of each alternative has been carried out with the HELP model (Hydrologic Evaluation of Landfill Performance), which allows for the estimation of the reduction of leachates. Results show that mixed monolithic cover is the most cost-effective alternative. In contrast, monolithic cover is an even worse alternative than the status quo, so its implementation may be not recommended in semiarid regions.

Key words: Cost-Effectiveness Analysis, HELP model, landfill, leachate, pollution

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