



Leachate migration analysis of landfill in Bishkek, Kyrgyzstan

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Contamination of water resources by landfill leachate is a growing problem. The threat of migrating leachate originating from landfill sites is an important issue for water quality and waste management. Because of this, waste management companies often struggle with the challenge of containing and controlling leachate migration. This study of leachate migration is carried out for a landfill site in Kyrgyzstan, Central Asia. During the study, field investigations like geophysical methods supplemented with laboratory works are executed. From the investigations the soil layers, their thickness and properties and the level of groundwater are identified and determined. The SEEP/w, hydrogeologic model, and CTRAN/w, contaminant transport model, are simultaneously used to construct a finite element, two-dimensional simulation of the problem of the landfill site. From the analysis, leachates from the landfills are migrating downstream and the contaminating potential for groundwater is high. This contamination is found to have a relative value of 20 to 30% of the initial concentration of the contaminant in the landfill. Moreover, the time span required to attain these concentration value are determined from the analysis.