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***Title: Stability analysis of a bioreactor landfill**

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***Abstract:**

Main objective of this paper is to evaluate the slope stability of a bioreactor landfill under different working conditions. Bioreactor landfill is an artificially-built embankment structure in which organically rich fraction (so-called methanogenic fraction) of mechanically and biologically treated (MBT) municipal solid waste (MSW) is disposed in dry conditions. After the landfill closure, anaerobic degradation of landfilled waste is recommenced with forced recirculation of leachate within the landfill body, with the intent of biogas production.

In order to assess the influence of leachate recirculation process on the slope stability of the bioreactor landfill, coupled analysis using SEEP/W and SLOPE/W software packages, was performed. The distribution of pore water pressures within the landfill body was obtained using SEEP/W package. Obtained results served as input data for the SLOPE/W package. Safety factors were assessed using limit equilibrium methods assuming validity of the Mohr-Coulomb failure criterion. Shear strength parameters of methanogenic fraction, cohesion and shear friction angle, were derived from the results of the large direct shear tests. Obtained results reveal significant influence of wetting process on the safety factor of the landfill slopes.

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***Biography:**

Nikola Hrcic, MSc Civil Engineering and MSc Environmental Engineering, was born in Varazdin, Croatia. He completed his master’s degrees at the University of Zagreb, Croatia and is currently working on his PhD thesis in the field of Environmental Engineering. He is the author of several technical and scientific papers in the subjects of Civil and Environmental Engineering and is currently employed as a teaching and research assistant at the Faculty of Geotechnical Engineering in Varazdin, Croatia.



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