



Geotechnical Properties of Landfill Solid Waste in Dry Zone of Sri Lanka

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Abstract

In different climatic conditions, Landfill Solid Waste (LSW) exhibits different properties due to variations of composition and decomposition of waste body. This paper mainly focused to investigate geotechnical properties of landfill solid wastes in dry zone of Sri Lanka and influence of climatic condition to the waste degradation. Series of laboratory tests were conducted on solid waste retrieved from Hambantota landfill site. Solid wastes were collected representing new waste and old waste. The old waste is more than 10 years old whereas new waste is less than 2 years old. At each location, samples were collected at levels of 0.5 m and 1.0 m from surface of the waste layer. In addition, soils under the waste layer were collected in order to study the effect of leachate on geotechnical properties of soil. To compare the geotechnical characteristics of solid waste and soil, uncontaminated soil samples were also collected. Besides that, borehole investigation done to identify waste layer thickness and properties such as water table etc. As geotechnical properties, moisture content, organic content, bulk unit weight, consistency limits, Electrical Conductivity (EC), pH value, specific gravity and particle size distribution were determined. Based on the borehole investigation and test pit results, it was realized that there is a significant variation of geotechnical properties of landfill solid waste due to decomposition of waste body. Similarly it can be noted that due to the influence of leachate, geotechnical properties of soil under the waste layer have been significantly changed when compared with that of intact soil.

Keywords: *Degradation, dry zone, geotechnical properties, landfill solid waste, waste composition*