

## Assessment of Groundwater Contamination at Jaffna Municipal Council Solid Waste Dumping Site

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Groundwater is the major natural water resource in the Jaffna Peninsula, and it is used for domestic, agricultural and industrial purposes. Disposal of solid waste is increasingly affecting the quality of the limited groundwater resources of this part of the country. This study investigates the groundwater quality around the Kaakkaithivu landfill site in Jaffna in order to assess the impact of leachate percolating into the underlying aquifer. Groundwater samples were collected from fifty dug wells. Various physicochemical parameters including pH, Temperature, Electrical Conductivity (EC), Total Dissolved Solids (TDS), nitrate ( $\text{NO}_3^-$ ), phosphate ( $\text{PO}_4^{3-}$ ), heavy metals (Cu, Cd, and Cr) and bacteriological contamination were measured. Their spatial distribution patterns were plotted using ArcGIS software 9.0 - 9.1. The results show that, groundwater of the study area was found to be heavily polluted with Cd. EC, TDS and E- Coli levels are excessively high comparing SLS standards.  $\text{NO}_3^-$  and Cr concentrations in 20% of the wells exceed the maximum acceptable levels. It can be concluded that Kaakkaithivu landfill is leading to significant groundwater contamination. Therefore, separation of solid waste method could be an alternative method to solve the landfill leachate issue.

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