



ASSESSMENT OF HEAVY METAL DISTRIBUTION IN WATER BODIES AROUND KARADIYANA SOLID WASTE LANDFILL SITE, SRI LANKA

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Chemical composition of leachate may vary from time to time and site to site due to variables such as waste composition, temperature, moisture content, climatic changes etc. This study focuses to understand the distribution of some of the selected heavy metals at the water bodies surrounding the Karadiyana landfill which directly has a connection to Weras Ganga. Leachate, surface water and ground water samples were collected and in order to assess the interaction of leachate with natural water bodies. Groundwater samples were collected from two monitoring wells each (5 feet deep) which were drilled at the landfills site. Surface water samples were collected from the water canal running close to the site. Selected seven sites were continuously monitored over a period of eight months. Water sampling was done monthly and was analyzed according to the Standard Methods for the Examination of Water and leachate analysis. Zn, Cu, Mn and Fe concentrations of ground water samples ranged in between 0.0178-0.0969, 0.1346-0.1949, 0.0121- 0.0619, 1.2258-3.4072 mg/L respectively. Concentrations of Zn, Cu, Mn, and Fe in leachate samples varied in the range of 0.0192-0.1625, 0.1263-0.1589, 0.2701-0.6023, and 2.7052- 5.8446 mg /L. High metal concentrations are observed in leachate samples rather than surface and ground water. For surface water samples Zn, Cu, Mn, Fe concentrations vary in the range of 0.0690-1.1502, 0.030-0.1789, 0.2007-0.5821, 0.2939-8.4901 mg/L. Cr levels in the samples were at non detectable level and it can be because the site does not accept industrial waste. High concentration of Fe in the leachate may be from Fe scraps dumped on the landfill. Concentrations of Zn may indicate the presence of fluorescent tubes, batteries and a variety of food wastes. Even though some heavy metals are present in trace concentrations, the potential risks of these contaminants cannot be ignored due to their adverse effects on ground water and plants. As it is very likely to be sequestered in the long-term proper treatment prior to disposal is recommended

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