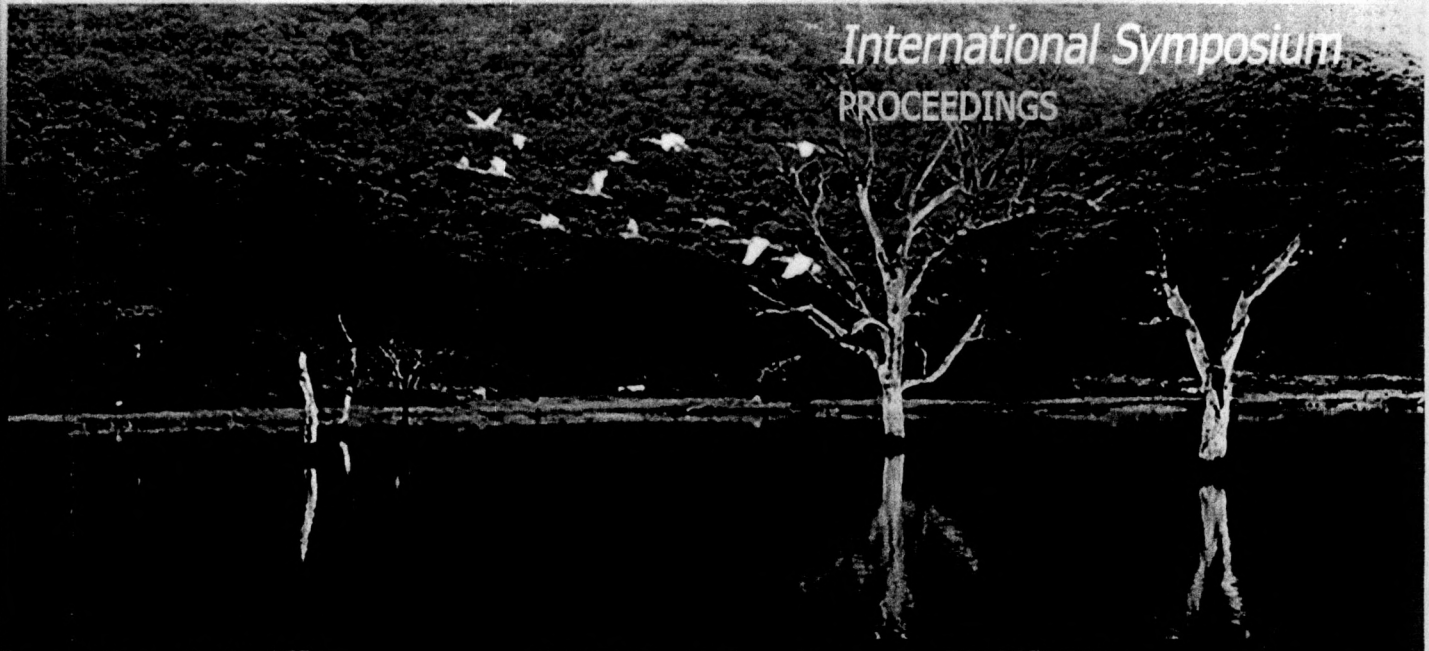


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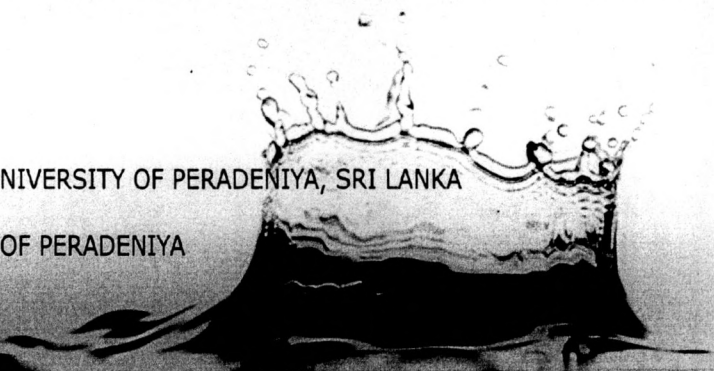
All begins with water

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ASSESSMENT OF GROUNDWATER POLLUTION BY HEAVY METALS IN KELANI RIVER BASIN, SRI LANKA

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Water demand in Sri Lanka is gradually increasing, mainly for urban and rural household consumption, industrial use and irrigation. Therefore, the demand of water directly has an effect on available groundwater. The consumption of groundwater in Sri Lanka is estimated as 22% and 72% in urban and rural populations, respectively. Groundwater can be contaminated from a number of anthropogenic activities such as domestic, industrial, municipal and agricultural pollutants. Kelani river basin, is the most industrialized and urbanized basin and it is exposed to both point and non-point pollution sources. Therefore, the present study was carried out to determine the contents of some selected heavy metals (Cd, Cr, Cu, Al, Zn and Pb) in groundwater of the Kelani river basin. Seventy two sampling locations from head, transitional and meandering zones were selected. Sampling was carried out during the first inter-monsoon period from March 2015 to April 2015. Heavy metal analyses were carried out using Graphite Furnace Atomic Absorption Spectrometry (GFAAS). Heavy metals in groundwater from the river basin ranged for Cd (0.079 - 2.498) $\mu\text{g L}^{-1}$, Cr (< 0.025 - 13.231) $\mu\text{g L}^{-1}$, Cu (0.450 - 15.460) $\mu\text{g L}^{-1}$, Al (26.172 - 264.676) $\mu\text{g L}^{-1}$, Zn (2.983 - 258.346) $\mu\text{g L}^{-1}$ and Pb (0.349 - 6.585) $\mu\text{g L}^{-1}$. Elevated concentrations of Cu, Cd, Pb and Zn were recorded from the head region where Cr concentration (0.056 - 13.231) $\mu\text{g L}^{-1}$ was high in the latter part of the transitional region. Meandering region showed high concentrations of Al (49.008 - 173.100) $\mu\text{g L}^{-1}$ and Cd (0.079 - 1.235) $\mu\text{g L}^{-1}$. However, Cd, Zn, Pb, Cr and Cu remained within the SLS and WHO standards for drinking water except for Al in some sampling locations. The results of this study provided important information of heavy metal concentration in the groundwater of Kelani river basin.

Keywords: Kelani river basin, groundwater, anthropogenic activities, heavy metals

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