

## Assessment of Heavy Metal Contamination and Quality of Drinking Water Sources in Kamburupitiya, Sri Lanka; A Case Study in Lenabatuwa and Iriyathota GN Divisions

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### Abstract

For most households in Kamburupitiya area, well water and pipe borne water from springs are the major source of water supply for domestic consumption. In recent years the incidences of cancer and other digestive tract ailments were rapidly increased in this area. The relationship between the presence of heavy metals in drinking water and the prevalence of such diseases is very important. Hence, continuous monitoring of drinking water quality is essential to identify the chemical toxicity in terms of heavy metals. According to the statistics, the highest number of cancer patients was found in Kamburupitiya area especially in Lenabatuwa GN division during past few years. The Iriyathota GN division has 4 natural springs in Iriyathota. Two of these are used to distribute pipe borne water to most of the households in Kamburupitiya. Therefore, the main objective of this study is to assess the groundwater quality in terms of heavy metals. Water samples from three identified water sources which are domestic wells (W1-W10), lake (L1) and natural water springs (S1-S5) used by the locality for the drinking purpose were collected separately and their heavy metals (Cu, Cd, Pb, Zn, Fe, Ni, and As), pH, electric conductivity, and total dissolved solids were chemically analyzed by using standard methods. The data were analyzed statistically. The results revealed that the drinking water quality is not according to the WHO standards. Heavy metal content also higher than WHO standard and some samples contained higher amounts of Pb, As and Fe and was exceeded permissible levels. According to the results, the average concentration of heavy metals such as Cu, Cd, Pb, Zn, Fe and As were 0.017 ppm, 0.001 ppm, 0.014 ppm, 0.009 ppm, 0.163 ppm and 0.004 ppm respectively. The pH level was very low in all domestic wells and in one water spring (S1) which was below the recommended level of 6.5-8.5. Therefore, overall low pH in majority of the samples and high level of heavy metals in some samples could impose a threat to human health. Therefore, it is recommended for a routine monitoring in potable water sources in the study area to examine its suitability for drinking purposes.

**Keywords:** drinking purposes, heavy metals, permissible level, water quality

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