

A STUDY ON WATER POLLUTION IN THE MATALE URBAN AREA

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ABSTRACT

Matale city is situated in the uplands of Sri Lanka. Urban population in Matale is growing rapidly as in all other cities of Sri Lanka. However, the expansion of the urban area is difficult due to natural barriers. Therefore, the urban environment is vulnerable to pollution. Present study was designed to understand the nutrient pollution of surface water and groundwater in Matale urban area and also to identify sources of nutrient pollution. Forty eight (48) wells and one stream were selected for sampling. Physical parameters and nutrients such as nitrate and phosphate were measured at the Department of Geology, University of Peradeniya. Spatial distributions of nitrate and phosphate within the study area were also plotted using the GIS technique.

Data analysed showed that pH and conductivity of well water are in the range of 6.0-8.0 and 95 $\mu\text{S}/\text{cm}$ - 820 $\mu\text{S}/\text{cm}$ respectively. Nitrate and phosphate values measured were in the range of 1.9 to 30.8 mg/L (Nitrate-N) and 0.06 to 0.44 mg/L respectively. Surface water is also heavily contaminated with both phosphate and nitrate in some locations (< 6 mg/L and <17 mg/L respectively). Characteristically higher amounts of phosphate and nitrate in surface water are due to releasing of liquid and solid waste from houses, hotels and slaughter centers.

The present study revealed that man made activities have significantly altered the water quality in groundwater and surface water bodies in Matale urban area. Also geological conditions and the morphological setting of the area have been promoted to accumulate higher nutrient levels in the groundwater of the study area. Specially, the cavities of the basement marble are septet reservoirs for aquifers and nitrates can be accumulated into such bodies.