

**INVESTIGATION OF GROUND WATER
QUALITY IN COLOMBO, KANDY AND
GAMPAHA DISTRICTS USING INORGANIC
PARAMETERS**

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By

T.K.M.D.KARUNARATHNE

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Abstract

Leaching from natural occurring deposits are the natural sources of groundwater pollution. Most concern over groundwater contamination is concentrated on pollution associated with human activities. Groundwater pollution occurs when used water is returned to the hydrological cycle. Industrial and ordinary civil activities cause negative effects on environment. Investigations on groundwater are essential for the effective management of the resource including groundwater policy development and planning, water management operations, project planning, public awareness.

Colombo, Kandy, Gampaha are mainly urbanized industrial cities. Also high density of population can be seen in Colombo, Gampaha, Kandy districts. Therefore residential wastewater systems can be a source of many categories of contaminants. These can contaminate the soil and leach into the groundwater.

Water sampling was carried out randomly from seventy five dug wells from three districts. Selected districts were Colombo, Kandy and Gampaha districts. Water samples were analyzed to check inorganic water quality parameters and physical parameters. Ion concentrations and heavy metal concentrations were analyzed as inorganic water quality parameters. Distribution maps were drawn using Arc GIS software to identify the ranges of contamination at sampling locations independently. Correlations between contaminants were built using Minitab software. The results indicated that Ammonium and Nitrate pollution is higher in both Gampaha and Colombo districts. Average pH level also cross the safe Sri Lankan Standards and WHO permissible level in Colombo and Gampaha. Average Ammonium contamination level is higher in Kandy also. Heavy metal contamination in ground water is not in a risky level in all the three districts. As the conclusion overall Groundwater quality is good in almost all the sampling locations except few places. But the overall value for Nitrate, Ammonium contamination may be increased in future in these highly urbanized three districts. Remedy should be suggested for the issue of higher pollution of Nitrate and Ammonium.