

**STUDY ON GROUND WATER QUALITY OF SOME SELECTED
WELLS DURING DRY SEASON IN THE MUNICIPAL COUNCIL
AREA OF BATTICALOA**

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Groundwater is the only source for drinking, irrigation and household purpose in the municipal area of Batticaloa. It is important that this source of water must have the acceptable quality in accordance with the WHO recommendation. Quality of groundwater in terms of biological and chemical properties has influences on the healthy conditions of mankind, animals and crops.

It has been suggested that the dental health, especially the strength of teeth be directly influenced by the fluoride concentration of the drinking water.

In view of the above, some wells in the Batticaloa municipal area were selected at random for assessing the quality of groundwater presently used by households. Important quality parameters such as pH, COD, turbidity, fluoride, chloride, electrical conductivity, hardness, phosphorus, nitrite and nitrate were measured to compare with the international drinking water standards.

Among the parameters measured, pH, electrical conductivity and Fe were within the allowable limits. Thiruperunthurai and Navatkudah areas showed higher amount of turbidity than permissible limit. It may be

due to high concentration of the suspended solids. The values of COD were between 2 – 7.5 in most of the locations and it is within the acceptable level (10mg/l). But Thandavanveli and Pillaiyaradi areas showed higher values for this parameter as 15.5 and 34mg/l respectively. Amirthakali and Kalladi areas only showed the calcium concentration within the permissible limit (600mg/l). The Mg concentration was within the limit in these areas along with Thiruperunthurai and Navatkudah. The high combined concentration of Ca and Mg in the other locations is manifested by the high level of hardness of groundwater. Chloride concentration was very much low and negligible in all the parts of experimental areas. It may be contributed to the chloride sources such as detergents dumped with the garbage, which is transported to garbage dumping grounds elsewhere. Navatkudah and Arasadi areas exceeded the permissible level of phosphorus (2mg/l). In Arasadi area it is due to the drainage of supplied water as phosphorus is widely used in municipal and private water treatment systems. In Navatkudah it may be considered in terms of biological waste and residues. Fluoride concentration was very much low in all locations (permissible level is 1.5mg/l) and was found less than 1 mg/l. Most of the areas showed less than 0.5mg/l. It is a vulnerable condition in terms of dental health. Usually 1mg/l has to be maintained in public drinking water supplies for the prevention of dental caries. Nitrate concentration was high in Thandavanveli area only. But nitrite concentration was extremely high (3.5mg/l) in all areas (permissible limit is 0.01mg/l), which may be possibly due to partial decomposition of organic wastes in the water.

This preliminary study reveals that the quality of the groundwater in the municipal limit of Batticaloa had allowable limits for some parameters and some others have to be rectified, using the appropriate methods.