## Assessment of fecal coliform contamination in domestic wells used for drinking purpose: A case study at Sopalapuliyankulum, Vavuniya District, Sri Lanka

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## Abstract

Groundwater is the main source of drinking water at Sopalapuliyankulum village. It is not treated and generally gets contaminated due to unsanitary practices. This study was conducted to identify the common unsanitary practices causing fecal coliform contamination and to count fecal coliform in drinking water sources. The unsanitary practices were identified with verbal communication of village people and fecal coliform was counted by most probable number method. Besides this, pH, EC and biological oxygen demands were also analyzed to show the existence of fecal coliform contamination. The information regarding unsanitary practices were collected from 60 houses and 30 water samples from different sources were randomly collected for the identification of fecal coliform. The results revealed that fecal coliform counts were not within desirable limits zero by World Health Organization and main causes of contamination were observed as poor wells construction and maintenance (47%), using common rope and buckets to withdrawn the water (50%), shallow wells with low head (48%), close distance between latrine pit and groundwater sources (91%) were observed as risk practices for water contamination. Leachate from solid waste dumping site, animal manure, open defecation and other sources of vector such as insects and birds were also observed as a contributing factors for contamination. Only tube wells water were free from contamination found to be suitable for drinking purpose. The level of fecal coliform counts was significantly (p<0.05) decreased with the depth of groundwater sources. So that, shallow dug wells (6m-8m) were highly affected by fecal coliform contamination. In conclusion, the groundwater sources commonly used in this area are not suitable for drinking purpose due to high level of fecal coliform counts. It is recommended that water treatment system such as disinfection, boiling should be used prior to utilization as potable water. Awareness for good hygienic and sanitary practices should be conducted and implemented to avoid unsanitary issues. Further monitoring is essential to ensure the environment and public health.

Keyword: Fecal coliform, Sanitation, Tube well

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