

**WATER QUALITY ASSESSMENT OF PROTECTED SPRINGS IN KIRA**

**TOWN COUNCIL, WAKISO DISTRICT.**

**BY**

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## **Abstract**

With the growth of population in urban centers in Uganda predicted to increase, there will be an increased need for clean and safe water for domestic use. It is with this in mind that suitable sources of water should be explored and their suitability to serve the masses with clean fresh water known.

This study aimed at establishing the spatial distribution and quality of water in Kira Town Council with regard to water parameters of; Electrical conductivity, pH, total dissolved solids, turbidity, phosphorus, nitrate, faecal coliforms (FC) and total coliforms (TC). Twelve sampled springs and 51 other protected springs in Kira Town Council were identified with the help of the L.C. 1/L.C.

11. The coordinates of these protected springs were picked using Global Positioning System (GPS). Water samples were collected from twelve protected springs ranked as major or minor in sterilized plastic bottles that were washed and rinsed thoroughly with nitric acid and distilled water.

Before collecting the sample, each bottle was rinsed with the water sample to be collected to prevent contamination. The water samples were preserved in a cool box and transported to Les

Ran Consult Ltd for water quality analysis. ArcGIS 10.1 program and SPSS (20.0) were used to determine the spatial distribution and Kruskal-Wallis test to analyse the water quality parameters.

Results showed that the minor site at Kira had the highest level of TC and FC and Bweyogerere major, Kira major, Kirinya minor and Kyaliwajjala minor had the lowest respectively in the dry season. During the wet season, Kirinya major had the highest level of TC and FC and Kireka minor the lowest TC and rest had Zero FC. There was no significant difference in the levels of both TC and FC in the Dry and Wet seasons between the major and minor spring water sources of the wards. The pH range was 5.0 – 6.6; nitrate (2.0 – 22.0mg/l); turbidity (1.5 – 43.5NTU); TDS (30.0 – 279.5mg/l); phosphorus (0.25 – 2.05mg/l) and EC (0 – 500 $\mu$ S/cm) in both the wet and dry seasons. TDS and EC showed the similar spatial distribution pattern in both the wet and dry seasons. pH had relatively the same distribution in both seasons. The distribution pattern of nitrate was higher in the dry than in the wet; phosphorus in the wet was higher than the dry and turbidity was higher in the dry than wet. The water in Kira Town Council has relatively acidic conditions in both seasons. Overall, the water quality is within the set standards by World Health Organization (WHO) and Uganda National Bureau of Standards (UNBS) for most of the Physio-chemical but outside these standards for the bacteriological parameters. Care must be taken to sensitize the people on safe water and proper waste management on top of qualitative assessment.