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Requirements of the Master of Science Degree in Microbiology
Mathematical and Natural Sciences, University of Venda in fulfillment of the
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Student Number: 11634561

TAOMASEO SOLOMON

by

Communities

Assess Improved Water Resources in Rural

The use of Water Point Mapping (WPM) as a tool to
The use of Water Point Mapping (WPM) as a tool to assess improved water resources in rural communities

Abstract

A GPS was used to get coordinates of all borehole water points, a structured questionnaire method was used to collect information on ownership, age, and functionality. History of maintenance and hardware relating to location, ownership, age, and functionality. The information was also used for each Improved Community Water Point (ICWP) to record the information on ownership, age, and functionality. The improvement in borehole water points, a structured questionnaire method was developed to correlate with the demographic, administrative, and physical data. Microbiological and physico-chemical quality of all functional boreholes digital maps were included in the improved water point coverage and functionality and to determine the objective of the study include recording the distribution of Municipal and borehole water points in Thulamela Municipality using a global positioning system (GPS) to produce a map that will be useful to determine the extension of deficiency and determine what would be required to meet the MDG. The purpose of this research was to examine the existing water supply status in the Thulamela Local Municipality using the water point mapping (WPM) tool, with a view to experience the benefits of this infrastructure. Delivery has slowed down and where infrastructure exists, not all poor households are benefitting. Whether or not rural households have access to sufficient, safe, and affordable water. Questions relating to the functionality and the provision of safe drinking water. The social, economic, and health impacts of child malnutrition in the Thulamela rural areas, where the incidences have been occurring at more than the national average. The need for child malnutrition in the Thulamela rural areas, where the incidences have been occurring at more than the national average.

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Abstract
**Key Words:** Poor Water Point Mapping, Diarrheagenic E. coli, Colilert Quant-i-Tyme/2000

**Conclusion:** The WPM tool revealed that the drinking water borehole coverage in the assessed rural villages was unexpectedly low and periodic monitoring of water quality should be stepped up in South Africa rural areas.

Per 1000 inhabitants in wards 16, 18 and 19 respectively, WPS coverage was 0.29, 0.35 and 0.39 WPs. South Africa water assessment guidelines's functional rate was 12%, 10.35% and were microbiologically good. 16.77% were marginal and 25% were poor according to the results indicated that 58.3% of the water samples were positive for diarrheagenic E. coli. The results indicated that 58.3% of the water samples with 4 of these tested. Seven of the functional boreholes tested positive for Total coliforms with 4 of these tested.

**Results:** A total of 125 boreholes were mapped of which only 12 were functional (9.6%).

Survey results were captured using a database form prepared in Microsoft excel. Supply coverage was fairly distributed, the level of access to safe water and investment needed to improve water coverage (WPC) indicators were pressenced to quantify the degree to which resources were As part of analyses, Equity of Distribution (ED) and Water Point Protocol.

Molecular characterization of E. coli strains was carried out using a published multiplex PCR protocol. Total coliforms and E. coli were analysed using the Colilert Quant-i-Tyme/2000 (IDEXX, USA). Water samples were collected from all functional boreholes for water quality analysis. Total