GEOCHEMICAL SURVEY OF UNDERGROUND WATER POLLUTION AT DITENGTENG NORTHERN CEMETERY WITHIN CITY OF TSHWANE MUNICIPALITY.

BY

KENEILWE BENEVOLENT TUMAGOLE

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Supervisor: Professor J.T. Harmse

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ABSTRACT

In a country such as South Africa, there is a rich diversity of cultural, social, traditional and religious practices. The issue of death takes on a similar diversity, as such responding to death through a burial practice differs to varying degrees with regard to burial containment, burial material and burial procedure.

The last few decades have seen an increasing recognition of the impact of human activity on the environment and the critical need to transform our approach on how we plan, lead, manage and monitor our activities. The subject of death has always been sensitive, resulting in the impact of burial remains outside the mainstream environmental critique. A sustainable development approach need to be applied to the issue of burial, and best environmental options should be adopted with sensitivity to social, religious and cultural practices.

As the need for land urban development increases, the available space for cemeteries is decreasing. Of the twenty-eight cemeteries in the City of Tshwane Metropolitan Municipality, thirteen are filled up. Therefore, more space is required to bury the dead. It is also recognized that significant increases in the number of deaths due to the HIV/AIDS pandemic is causing problems for already stretched cemetery facilities throughout many parts of South Africa.

Research by Fisher (2002) has shown that cemeteries have a fairly severe pollution potential, especially if situated incorrectly. Leachate produced in a cemetery is of a pathogenic nature and can pollute surface and groundwater if located too closely. In black rural areas, most cemeteries were sited by the chiefs and kings of the area, since no legislation existed to govern the cemetery sites. As a result most cemeteries were poorly sited and now possess potential health hazards for our groundwater. Groundwater is a hidden treasure for sustainable development and it plays a vital role in the community, especially in the rural areas.

Groundwater is a vital resource in South Africa and sufficient measures should be taken to prevent such additional pollution. This study was undertaken to establish whether poorly sited cemeteries have an impact on groundwater quality, and how can this impact be minimized or eliminated. Therefore, the groundwater quality of Ditengteng village was analyzed chemically and microbiologically.

Chemical sampling indicated that the turbidity and the colour of the water do not comply with the South African Bureau of Standards (SABS) for drinking water and the concentration of iron and manganese, which are colouring the water and may cause health hazards if consumed over a long period. Microbiological sampling results indicated that even a once-off consumption of water could cause serious health hazards. The samples collected recorded poor water quality. Despite this fact the community at Ditengteng still use this water for bathing, drinking and cooking. Since piped domestic water supplies are not available, the community depend on that water for survival. This study also indicates that an incorrectly sited cemetery can lead to the contamination of groundwater due to leachate.

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