

ABSTRACT

With the prediction that South Africa will be water-stressed by the year 2025, it becomes necessary for all the cities in the country, including Johannesburg to take the necessary measures to ensure that they manage their water resources effectively in order to ensure the water security of their cities.

This research report is a secondary case study of the groundwater situation in Johannesburg, which delves into the literature on groundwater and presents a review of the groundwater problems in Johannesburg and the management strategies used in managing the problems. Some of the groundwater issues identified in Johannesburg include recharge problems due to the geological formation and nature of aquifers in Johannesburg, and the growth and urbanization of Johannesburg, which places increasing demands on water. There is also the problem of pollution, the sources of which in Johannesburg are mainly municipal waste, industrial processes and mining activities. There are also institutional capacity problems regarding the management of groundwater in Johannesburg.

The second aspect of the research report delves into the management strategies employed in the city of Johannesburg for the management of groundwater resources. Some of the management strategies or tools discussed include the National Water Resource Strategy 2 (NWRS), the Groundwater Strategy 2010, the guideline for the assessment, planning and management of groundwater resources in South Africa and the NORAD toolkit. Although these tools are well developed for the management of groundwater, there are deficiencies in implementation, which are mainly due to the undervaluation of the importance and significance of groundwater resources, shortage of expertise and adequate data, centralization of power, disregard of groundwater ecosystems and associated goods and services, and the lack of adaptive management.

In order to deal with the issues and problems surrounding groundwater in Johannesburg, some of the solutions recommended include effective administration, capacity building and cooperative governance, acknowledging the importance of groundwater-dependent ecosystems, the need for adaptive management, and integrating supply side and demand side measures in the management of groundwater, and the development of a groundwater management framework (GWMF) for the city of Johannesburg.

Key Words: Groundwater, sustainable development, management strategies, Johannesburg