

## ABSTRACT

Urbanization causes changes in social and environmental conditions with most of these changes impacting on the efficient provision of essential services such as water and sanitation. Nakuru Municipality was observed to be the fastest growing urban area in East and Central Africa. Research on patterns and trends of urban and population increase and their implication on water service provision and sanitation in urban Nakuru is very scanty. This paper presents findings from an assessment of the effects of population growth between 1999 and 2017 on urban extent and supply of water and sewerage reticulation in Nakuru municipality and surrounding peri-urban areas. Data was collected through remote sensing and administration of questionnaires to urban Nakuru residents and key informants from NAWASSCO respectively to elicit information on the water supply network and sewerage reticulation in Nakuru municipality for the period 1989-2014. Geographic Information System (GIS) was used to analyze the data on time series. The results indicate that the population of Nakuru municipality and surrounding peri-urban areas has increased by 56.8% whereas that of built-up area has increased by 182.5% in the same period through densification of the urban core and expansion to the peri-urban areas characterized by urban sprawl. The water supply network and sewerage reticulation increased by 236km and 89km respectively within Nakuru municipality. The analysis of the maps shows that water supply network and sewerage reticulation are concentrated in the area around the urban core with very little spread. This means that the residents on the outskirts of Nakuru Municipality are not well served by the water supply network and sewerage reticulation. The study recommends involvement of all stakeholders in urban planning and in the water sector in order to increase water supply network and sewerage reticulation coverage both in the urban and peri-urban areas.

**Keywords:** Urban growth, Sprawl, Water supply, Reticulation, Remote sensing, Geographic Information System (GIS)