

**Abstract:**

The Central Kenya Rift contains small soda lakes such as Nakuru, Elmenteita and Bogoria, freshwater Lake Naivasha, and the partly (spatially) freshwater Lake Baringo. The hydrology of this area is controlled mainly by climate, tectonically controlled morphological and volcanic barriers, faults, and local water-table variations. Much of the area relies on groundwater for human and industrial use, though there are widespread quality issues particularly in relation to fluoride. Despite the huge demand for the resource, little is known about the highly complex groundwater systems; lacking monitoring data, an assessment is developed on the basis of regional geological, hydrogeological and hydrochemical analyses. Significant hydrological changes have taken place in the region over the last 10 000 years as a result of global, regional and local changes, but the impacts on groundwater resources are still largely unknown. The IPCC projects a 10–15% increase of rainfall in the area, but it may not necessarily result in a proportional increase in groundwater recharge. High groundwater recharge periods appear to be anchored on a decadal cycle.