

Abstract

Since the implementation of the water sector reforms in Kenya in 2006, Ngaciuma-Kinyaritha catchment of Mount Kenya Region has seen the emergence of a Water Resource Users' Association (WRUA) amid dozens of Water Service Providers (WSPs) and hundreds of Community Water Management Systems (CWMSs). These new legal institutions were mandated to enhance water security through good management of the catchment's land and water resources and provision of adequate water services to all the stakeholders with their participation in water resources management. This study sought to assess the status of the water balance and security in Ngaciuma-Kinyaritha Catchment prior and after the establishment of a WRUA therein. This would thus elicit the contribution of CWMSs to water security in Ngaciuma-Kinyaritha under changing legal and climatic environments. For that purpose, the study used descriptive statistics, OLS regression and hydrological modelling to compute the streamflow, water demand and balance from 1990 to 2012, and predict the future water security from 2013 to 2035 under the NOR scenario (normal weather conditions), XLOSS scenario (flooding) and XSCAR scenario (drought) using BasinIT software, SPSS and MS Excel spreadsheets. Most of the results were pointing out to water shortages in Ngaciuma-Kinyaritha from 1993 and onward, generally without enforcement of an Ecological Base Flow (EBF) of 30% by the WRMA. There is therefore need for contingency plans to curb unexpected drought, which should be implemented by the WRUA with participation of existing CWMSs. However, further attribution studies are needed to explain the failure or success of the new legal institutions mandated to manage and supply water in Ngaciuma-Kinyaritha, namely WRMA, WRUA and WSPs