

## **ABSTRACT**

The study to determine the impacts of water abstraction in South West Upper Tana Basin which is part of the larger Upper Tana basin was undertaken in four major rivers, Thika, Kimakia, Kiama and Chania. Data for this study was obtained from the Kenya Meteorological department (KMD), Water Resources Management (WRA) and questionnaire surveys. The questionnaires were administered in the period between January 2018 and December 2018 to determine the impacts of water abstraction in both dry and wet seasons. Regression and correlation analysis was used to determine the nature and strength of relationships between different variables. The results of the study indicate that the main impacts of water abstraction are hydrological, environmental and socio-economic. The hydrological impacts include reduced water levels, changes in stream morphology, decreased turbidity and reduced siltation. Socio-economic impacts include increased income from crop production and conflicts while environmental impacts were mainly changes in riparian vegetation. The study established that the best combination of impacts of water abstraction in the South West Upper Tana Basin were changes in water turbidity, decline in water levels, improved crop yields, changes in channel morphology and siltation with a coefficient correlation  $r$  of 0.57 and coefficient of determination  $R^2$  of 0.52. To mitigate these impacts, there is a need for better enforcement of legislations on water abstraction and the monitoring of the river basins to curb water over-abstraction. Public awareness campaigns and involvement of stakeholders could also minimize these impacts.