147. Drivers of water pollution in Kuuru River a tributary of Tana River, Meru County

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Subtheme: Pure and Applied Sciences for Climate Action

Abstract

Water pollution is a significant concern because it affects the quality and availability of water resources essential for various purposes. Kuuru River is a tributary of the Tana River that serves as a source of drinking water, irrigation, and other domestic uses in Meru County. This study aimed to assess the drivers of water pollution in tributaries of the upper Tana River catchment within the Kuuru River. The study determined the water quality, land use, and environmental conservation activities in the riparian zone of the Kuuru River from the source to the Kathita River, a tributary of the Tana River, and evaluated the contribution of institutions provided by the legislative framework to the conservation of the Kuuru River. Standard methods were used to analyze turbidity, total dissolved solids (TDS), pH, temperature, electrical conductivity (EC), nitrates, and nitrites from 18 water samples collected along the Kuuru River. A descriptive survey using semi-structured questionnaires was administered to 384 household heads to obtain data on land use and environmental conservation practices. Key informants from relevant institutions were also interviewed using semi-structured questionnaires to gather insights into their interventions and oversight of river protection activities. The water quality of the Kuuru River met the standards set by the World Health Organization (WHO), the National Environmental Management Authority (NEMA), and the Kenya Bureau of Standards (KEBS) for drinking water. However, levels of EC and turbidity were elevated, indicating the presence of pollutants. Anthropogenic activities in Maskani, Kanthiari, and Kimachia markets were identified as the main drivers of pollution. A lack of awareness regarding riparian conservation was noted and was attributed to insufficient stakeholder involvement and inadequate technical and financial support for conservation efforts. A periodic assessment of the water quality in the Kuuru River is recommended to determine the overall impact of the anthropogenic activities in the study area. Effective stakeholder involvement to raise awareness of riparian conservation is essential.

Keywords: *Water Pollution, anthropogenic activities, pollutants*