

“Treated Wastewater Disposal as a Determinant of Water Quality in River Ruvingaci in Manyatta Subcounty, Embu County”

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ABSTRACT

Dumping sewage into water bodies such as rivers not only creates a human health hazard but also negatively disrupts the river ecosystem. Pollution causes the quality of the water to deteriorate and affect aquatic ecosystems. The objective of this research work was to determine the effects of waste water on water quality parameters that dictate the water quality in river Ruvingaci. Sampling was done from January 23rd 2017 to February 5th 2017 and a total of 27 samples were analyzed. The parameters that were studied include Biological oxygen demand (B.O.D), Carbon oxygen demand (COD), Total dissolved solids (TDS), Total suspended solids (TSS), Conductivity, Turbidity, PH, Temperature and Test for bacteria. Water samples were collected from three different locations along river Ruvingaci. The collected samples were analyzed in the EWASCO laboratory facility and data were subjected to analysis of variance(ANOVA). Means separation were done using least significant difference(LSD) at $p=0.05$. Unpaired Student t-test($p=0.05$) were used to compare means of water quality standards with the laboratory results. Turbidity, BOD, COD, Conductivity, Bacteriological test, TSS,TDS were significantly different along the three sampling points from Mwiria,100m before wastewater disposal and 100m after wastewater disposal at ≤ 0.05 .while PH and temperature were not significantly different along the three sampling points from Mwiria,100m before wastewater disposal and 100m after wastewater at $p\leq 0.05$.the recommended strategies for dealing with wastewater disposal in river Ruvingazi are industries connected to the main sewer should invest in treatment at source mechanisms and the authorities should come up with stringent rules which consequences for the treatment plants which are meant to enforce the adherence of water quality standards set prior to the discharge of wastewater.