ABSTRACT

Kenya is categorized as a water scarce country with renewable per capita freshwater below the UN recommended minimum of 1000m³. The growing population increases the demand of water for domestic use, food security and industrial development. In addition, surface and ground water resources in Kenya are increasingly becoming polluted (KEWI, 2021). There is therefore need to conserve the available water from further pollution. Protection of the available sources is vital in achieving this and hence the need to ensure the efficiency of waste water treatment systems, septic tanks included.

The main objective of this study was to assess the effectiveness of the septic tank in Laikipia Road Court found in Dagoreti North, west of Nairobi. Four samples were collected from the inlet and from the outlet. Data collection was done using laboratory experiments and was analyzed using descriptive statistics, specifically by using mean method. The wastes in the tank were human wastes, gray water, household chemicals and scum. The parameters analyzed include BOD_5, COD, pH and Dissolved Oxygen. These parameters provided basic performance insights of the tank and information that can be used for operational adjustment.

The results obtained from the analysis of the wastewater samples were presented in tables and the efficiency of the septic tank in removing pollutants was evaluated by comparing the influent and effluent concentrations of each of the parameters together with the NEMA guidelines. There was a significant difference in the concentration of BOD; 271mg/l and 242 mg/l, and the COD; 460 mg/l and 240mg/l for the first and second sampling respectively. There was no significant difference at the inlet and outlet for pH; an average of 0.45 and Dissolved Oxygen; an average of 0.19. However, the values of BOD and COD do not meet the recommended NEMA standards for wastes released to the environment.

The study therefore recommends that another tank be constructed to further reduce the COD and the BOD. The National Environment Management Authority (NEMA) and the Department of Water and Environment should intensify enforcement of wastewater standards of the domestic treatment systems.