Study of Reed-Bed of an Urban Wastewater in a Nigerian Community

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Keywords

Wastewater, treatment, river, constructed wetland

Abstract

The need for treatment of municipal wastewater prior to its disposal is important. One method used for treating wastewater is that of a constructed wetland system (CW). The use of a CW has attracted interest in developing nations due to its operational efficiency and cost effectiveness. This paper examines an existing CW in order to determine its effectiveness in the removal of pollutants from a sewer that feeds into a major river system in Nigeria. The CW, which employs hydrophytes to degrade the wastewater from a facility of nearly 10,000 people, is comprised of six cement-block tanks. Samples were collected from the entry and exit points of the CW's cells and analysed for dissolved oxygen, conductivity, pH and temperature. The pH remained constant (6.8 - 6.9) at ambient temperature of 27^0C. Conductivity ranged from 700 to 840 ppm. The dissolved oxygen (DO) ranged from 0.9mg/l at the entrance to 0.1 mg/l at the final exit point. Analysis of the data suggests that the CW is not efficient, and steps -- like aeration and an increase in the resident times of the wastewater in each cell of the CW -- need to be taken to improve its performance.