

# The assessment of nutrient loading and retention in the upper segment of the Chinyika River, Harare: Implications for eutrophication control

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## **Abstract**

The nutrient loading and retention in the upper catchment of the Chinyika River were assessed during the period October 2004 to February 2005. The river flow variables and water samples were collected monthly at 8 sampling stations along the river. The samples were analysed for concentrations of total nitrogen and total phosphorus, that when multiplied with river flow discharge, translates into nutrient loads. The nutrient loads were high below the sewage outflow generally decreasing with increasing distance from that point because of nutrient retention. The nutrient loads were high during the wet months compared to the dry months suggesting that organic matter was washed away from diffuse sources in the catchment into the river. The nutrients from the sewage effluent discharge and other diffuse sources in the catchment were retained over a distance of about 4km from the point of sewage outflow. High natural nutrient retention capacity of rivers ensures that the problem of wastewater disposal and diffuse pollution does not lead to eutrophication of downstream lakes and reservoirs. Management of the nutrient retention capacity of rivers is, therefore, central to sound watershed management practices.

**Keywords:** nutrient, load, retention, eutrophication