

# Physico-Chemical and Microbial Water Quality Assessment of Densu River of Ghana

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## Abstract

*Water quality assessment conducted in the Densu basin of Ghana between July 2003 and March 2004 identified human, animal and agricultural activities as the main sources of pollution. The pH of the water was neutral (pH range 7.20–7.48) and was unaffected by seasonal variation. The river waters were moderately soft to slightly hard (range of hardness 91.2–111 mg/l CaCO<sub>3</sub>) with high turbidity due to poor farming practices, which result in large quantities of topsoil ending up in the river after rains. High nutrient loads observed in the basin were due to domestic, agricultural and industrial activities. The waters exhibited a general ionic dominance pattern of Na > Ca > Mg > K and HCO<sub>3</sub> > Cl > SO<sub>4</sub>, a pattern which is an intermediate between fresh and sea water systems. The dominance of chloride over sulphate could probably be due to domestic activities resulting from household effluents, fertilizer use and other anthropogenic point sources. Trace metal levels were low suggesting low metal contamination of the river. However, the microbial quality of the river water was poor due to direct contamination by animal and human excreta and other activities such as swimming, washing of clothes, etc. The river water cannot be used for domestic purposes without any form of treatment.*