

# **The Effects of Human Activities on Water Quality of the Ayensu River in the Central and Eastern Regions of Ghana**

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**2004**

## **ABSTRACT**

The Ayensu River plays very important roles in the lives of the inhabitants living within and beyond its catchment. The Ayensu River has however received relatively little attention in the field of research and it was against this background that this research was conceived, to generally assess the quality of the river water and to investigate the various human activities that impact negatively on the river water quality. The study was conducted on the Ayensu River and two of its major tributaries, the Akora and Abuchen. In all, 12 sampling sites were chosen, eight on the Ayensu River and two each on the Akora and Abuchen Rivers. Selected physico-chemical and bacteriological characteristics of the river water and river sediment were assessed over a period of 6 months to help ascertain the river water quality at each sampling site. Socio-cultural surveys were also conducted using personal interviews and structured questionnaires administered to inhabitants at each site. The study revealed that human activities had significant negative impact on the water quality of the river. Indiscriminate waste disposal, poor sanitary conditions, agricultural activities, siting of sawmills and an abattoir close to water bodies were a few of such human activities that impacted negatively on the river water quality, which was further confirmed by the high biochemical oxygen demand (BOD) levels recorded at the heavily polluted sites such as SS11, which recorded as high as 6.8mg/L. Bacteriologically, the study revealed that the river water was unwholesome for human consumption since virtually all the 12 sampling sites recorded appreciable high counts of faecal and total coliform bacteria with site SS2 recording the highest of 660cfu/100m and 182cfu/100ml for both total coliform and faecal coliform bacteria respectively. Some of the physico-chemical parameters measured, such as DO (7.2mg/L), BOD (5.87mg/L), iron (3.86mg/L) and lead (0.21mg/L) exceeded levels normally found in natural fresh water bodies and also the WHO recommended desirable levels for drinking water. Nonetheless, a large majority of the inhabitants within the Ayensu River catchment depended on the river water as a source of drinking water and for other domestic purposes. The Akora River (a major tributary), as revealed by this study was the most polluted. For the Ayensu River, except for the downstream section, the water quality was generally satisfactory.