Assessment of Drinking Water Quality in Some Peri-Urban Communities in the Juaben Municipality in the Eastern Region of Ghana

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ABSTRACT

This study assessed the quality of drinking water in some peri-urban communities in the New Juaben Municipality in the Eastern Region of Ghana. The physico-chemical, sediment, soil and microbiological quality of drinking water, were assessed. A total of 10 sampling sites were sited along the drinking water sources over a period of six months (December, 2011 to May, 2012). Except for mean turbidity values which above the World Health Organization (WHO) standard of 5 NTU, most physico-chemical parameters and mean turbidity value (for Karle Abansoro borehole) in the drinking water, sediments and soils were within the WHO permissible guideline ranges. Bacterial pollution of the waters was high above the WHO recommended standard for drinking water quality of zero bacteria in 100 ml of drinking water. Mean values were between 26.8 and 4850.5 for Total Coliform (TC); 6.3 and 2799.2 for Faecal Coliform (FC); 11.3 and 1243.0 for *Escherichia coli (E. coli);* 33.2 aqd 6641.0 for Total Heterotrophic Bacteria (THB) in Coliform forming units (cfu) respectively.This was attributed to run-offs and leachates from urban solid waste disposal sites which contain and carry domestic animal and human faecal materials into the water sources. The research findings also showed that Manganese, Zinc and Iron were the most prevalent metallic pollutants in all the water, sediment and soil samples examined and that, the contamination of these heavy metals were attributed to natural geological conditions, agricultural runoff, among others. A social survey was also conducted to determine the perceptions and knowledge of the inhabitants on environmental issues. It was evident that educational and income levels of respondents were generally low. The reason being that, most inhabitants relied heavily on natural resources for their subsistence needs. Thus, 5 % of respondents were unemployed and 53.3 % were in low income generating businesses. High illiteracy rate and apathy were also identified as a problem which hindered policy assimilation and thwarted efforts aimed at improving water and sanitation in the area. The major source of drinking water was hand dug wells (58.3 %), supplemented with boreholes (16.7 %), streams (16.7 %) and pipe-borne (8.3%). Both males and females identified indiscriminate sewage disposal as the major environmental threat to the quality of drinking water. It was recommended

that there should be regular monitoring of the drinking water quality in the New Juaben Municipal Area. The New Juaben Municipal Assembly also needed to provide adequate waste disposal facilities, adopt improved rain harvesting techniques in the communities. Finally, planners ought to give priority attention to waste management and health education as this study indicated that environmental awareness among the communities was relatively low.

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