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QUALITY ASSESSMENT OF SEWAGE POLLUTION AND WASTEWATER EFFLUENT: A CASE STUDY OF ACCRA METROPOLIS, GHANA

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Effluent samples were collected from main manholes comprising raw wastewater from domestic, central business area (CBA), industrial and the outfall point at sea, Osu beach. The environmental effects of sewage pollution and wastewater effluent quality management in the Accra Metropolis, Ghana was assessed over a three month period. The physico-chemical and bacteriological analysis were determined using standard methods. The results of the physico-chemical parameters values were; pH 7.3- 8.2; EC 1277 –56828 $\mu\text{S}/\text{cm}$; TDS 613-28413 mg/l; BOD 3.8-53 mg/l; and the nutrients $\text{NO}_3\text{-N}$ ranged from 1.5- 13.5 mg/l; $\text{NH}_3\text{-N}$, 0.2-3.8 mg/l; PO_4 0.6-6.4 mg/l. The bacteriological analysis also recorded TC 6.6-5761 cfu/100ml: FC 0.6-139 cfu/100ml and *E.coli* 0.3-34 cfu/1m respectively. The level of compliance of effluent with the physico-chemical and bacteriological parameters were all below the Ghana Environmental Protection Agency (EPA) permissible standards for wastewater discharge at the outfall point at the Sakumono

beach. Although, the nutrient levels were not too high, yet may have the potential to cause eutrophication especially in the water bodies that sewage overflow into such as Korle, Lavender Hill and Odor lagoon and deplete the oxygen levels which will affect the aquatic life. The results of the social survey analysis observed some challenges with respect to the management of wastewater in the Accra Metropolis. Eighty percent admitted environmental, social and public health effects such as water borne diseases such as malaria, typhoid, diarrhea, dysentery among others. To prevent or reduce environmental effects and health risk associated with wastewater and sewage pollution, adoption and utilization of decentralized wastewater technologies that are most economically useful and efficient for the tropics such as waste stabilization ponds to safeguard public health and prevent negative environmental effects.

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