

**Levels of Heavy Metals in Boreholes and Water Wells within the Kasena Nankana District of
the Upper East Region of Ghana**

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ABSTRACT

This study was aimed at assessing the level of heavy metals in wells and boreholes within the Kassena Nankana District of the Upper East Region of Ghana. During the study, the entire district was divided into 5 clusters based on their locations. Two samples each from boreholes and wells were collected from each cluster. Twenty households were also interviewed from each cluster using a structured questionnaire to seek their views on the sources of water and its use within the district. The results indicated that pH for both borehole and well samples ranged from 6.85 to 7.22 as compared to the W.H.O. range of 6.8 to 8.5 (WHO 2011). Seven out of the 20 samples were soft water while 4 were hard. Five were moderately hard and the remaining 4 very hard. Concentrations for Zn, Cr, Cu, Na and Ni were all below the WHO guideline values. Fluoride concentrations for all samples were also below the WHO guideline value. Heavy metal analysis was done using atomic absorption spectroscopy and instrumental neutron activation analysis. Naaga Chaba, Naaga Mangrono, Kologo Anyembisi wells and boreholes and Kologo Toor well all had Cd concentrations above the W.H.O. guideline value. Furthermore, it was realized that borehole is the district's most popular, most reliable and most widely used exclusive water source. It is therefore important to treat it with good care in order to prevent contamination of water from this source.

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