# Assessment of Water Quality at Dodowa in the Dangbe West District of the Greater-Accra Region

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## ABSTRACT

Dodowa is a major peri-urban community close to the Accra Metropolis with increasing population, urbanization and settlements. Lack of access to basic infrastructural facilities including water and sanitation has hampered the development of the community. Dodowa has irregular access to pipe-borne water. Therefore, the community resorts to other means of getting potable water. It is against this background that this study was initiated to assess the quality of drinking water sources in the community. Groundwater in hand-dug-wells, stored water from pipes and mobile tanker water services were sampled to ascertain their physicochemical and bacteriological quality since they were the major sources of water supply in the community. In all, thirty locations comprising 8 hand-dug wells and 2 boreholes for groundwater, 10 stored water in either plastic tanks or concrete tanks and 10 mobile tanker water services were sampled. Groundwater recorded pH values ranging from 6.28 to 7.62 (mean 6.98), turbidity from 3.52 to 85.2 NTU(mean 23.0 NTU), conductivity from 363 to 6968 IIS/cm (mean of 2037 IIS/cm), calcium from 25.9 to 291 mg/l (mean of 93.4 mg/l) and magnesium from 11.9 to 112 mg/l (mean 59.6 mgll). Faecal coliform (FC) contents ranged from 0 and 229cfu/ 100ml (mean 27 cfu/ 100ml), total coliform (TC) from 0 to 339 cfU/ 100 ml (mean 122 cfU/100 ml),E-coli from 0 to 111 cfu/ 100 12 cfu/ 100 ml (mean ml). pH of stored water varied from 6.12 to 7.34 (mean 6.95), turbidity 2.30 to 9.25 NTU (mean 4.67), conductivity 191 to 390 IIS/cm (mean 294), calcium 11.4 to 22.0 mg/l (mean 14~9 mg/l) and magnesium 3.75 to 9.03 mg/l (mean 5.92). Faecal coliform and E-concrete tanks). Total coliforms (TC) ranging from 0 to 114 cful 100 ml (mean 12 cful 100 ml)were, however, detected in some of the stored water facilities. Mobile tanker water recorded pH values ranging from 6.45 to 7.41 (mean 6.94), turbidity 2.31 to 14.3 NTU (mean 6.58 NTU), conductivity 314 to 909 mg/l (mean 663), calcium 26.0 to 43.8 mg/l (mean 36.1 mg/l) and magnesium 11.9 to 35.2 mg/l (mean 22.5 mg/l). Faecal coliform (FC) contents ranged from 0 to 52.3 *cful100* ml (mean 18 cfu/ 100 ml) and total coliform (TC) from 0 to 94.8 cful100 ml (mean 36.5 cful 100 ml). *E-coliwas*, however, not detected in all samples of mobile tanker water. Groundwater pH values were within the WHO guideline value of 6.5 - 8.5 for drinking water. Mean turbidity value exceeded the WHO guideline value of 5.0 NTU for drinking water. Mean calcium and magnesium values were within the WHO guideline values of 200 mg/l and 150 *mgll* respectively for drinking water. Faecal coliform (FC), total coliform (TC) and *li-coli* exceeded the WHO guideline value of 0 cfu/ 100 ml and therefore not suitable for potable use without treatment.

The physical parameters and major ions for the stored water were within the WHO guideline values for drinking water. The study suggested that some physico-chemical parameters of the groundwater, stored water and mobile tanker water were within the WHO guideline values for drinking water. However, bacteriologically, the water may be unwholesome for potable use unless treated.

## **Supervisors**

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