

**Depth of Hand Dug Wells and Water Chemistry: Example from
Ibadan Northeast Local Government Area (L.G.A.),
Oyo-State, Nigeria**

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ABSTRACT The paper attempts an examination of the relationships between water chemistry and depth of hand-dug wells in a densely populated (16,679-people/km²) part of Ibadan, Nigeria. Multivariate procedures of multiple and stepwise regression analyses were adopted. Results of the multiple regression and correlation showed that Coliform count, pH, total hardness (TH), calcium (Ca⁺), magnesium (Mg⁺), iron (Fe⁺) and chloride (Cl⁻) increase with increasing depth while nitrate (NO₃⁻) and bicarbonate (CO₃)₂ reduce with depth. All the examined parameters were significant at 0.05. Further, the result of R² showed that the relationship explains 68.88% of the variance; while, the stepwise regression suggests chloride to be the most important chemical parameter (R² of 38.11%). That is related to well's depth. The paper calls for further research.