

A Study of Ground Water Potential for Sustainable Development in Igbo-Ora, Oyo State, Nigeria

By

¹Kofo. A. Aderogba and ²Toun. A. Afelumo

¹Tai Solarin University of Education, Ijebu Ode, Nigeria

²Sheffield Hallam University Sheffield, United Kingdom

Abstract

The entire system of Opeki Dam serving the Igbo-Ora Community of Oyo State is spent. Rainfall, rivers, ponds and swamps are seasonal and grossly inadequate. There are quests for alternative sources of supply. The objective of this paper is to ascertain the reliability of ground water as an alternative source in Igb – Ora, Oyo State of Nigeria. Electrical Resistivity method of Geophysical investigation was adopted using Rectified Resistivity Meter (RRM) Model. Readings were taken of the earth resistance by sending fairly large current $I(\mu A)$ into the ground. Data were collected from three locations: Igbole, Saganun, and Isale-Oba. A typical geo-electric section showing the thickness, depth, and lithography reveals that topmost is sandy clay soil (1m), followed by wet clay soil (2.1-3.1m); and at a depth of about 8.7m is the unsaturated weathered basement rock which is about 5.6m thick. Saturated weathered basement rock is about 11.3m thick and it is 20.0m deep on the average. The average resistivity within the first 1m is $120.3\Omega m$ and it is $156.1\Omega m$ to a depth of 20.0m. The groundwater potential may be feasible at the sounded points with average groundwater yield: An overburden unit depth of about 25m (on the average and total drill depth of between 35 and 38m). For sustainable water, the hole must be properly cased to a stable earth unit below the overburden unit.

Keywords: *Unsustainable water supply, ground water potentials, sustainable development, Igbo-Ora*