



*Omarayin, Y.A.
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ABSTRACTS

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must be recycled for it to be maximised. IWRM entails management of water resources under various interactions, to harness and synergise the water-based activities of various facets. This largely requires that the water is unpolluted for optimum use, as demands for portable water will definitely be on the increase in a developing economy and good life is impossible without good water. Water pollution is contamination or alteration of original nature and properties of water resources. Human beings are the major driver of any economy and have to stay healthy to develop the economy and move it forward. Since human beings are made up of more than 60% of water, if the water intake is polluted, more than 60% of the body content will be polluted; a sick man makes a sick economy to say the least. Therefore, effective IWRM is key to sustaining a good economy and it calls for coordination of multiple activities and resolving conflicts from negative externalities with adequate management of water in terms of quality and quantity.

Keywords: IWRM, Human beings, pollution, water resources.

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Assessment of Groundwater Quality for Irrigation Purposes in part of Minna Sheet 164, North-Central Nigeria

¹Ameh I. M., ²Ibrahim H. A., ³Amadi A. N., ⁴Dan-Hassan, M. A., ³Omanayin, Y. A
³Abubakar A. E.

¹Pioneer Geoservices Limited, Lane 1, Brighter Avenue, Western Bypass, Minna, Niger State

²Department of Geology, Usman Danfodio University, Sokoto

³Department of Geology, Federal University of Technology, Minna,

⁴FCT Rural Water Supply and Sanitation Agency, Area 3, Garki, Abuja

ABSTRACT

Assessing groundwater quality for sustainable agricultural through irrigation farming cannot be overemphasized. Groundwater quality assessment for irrigation purposes was carried out in part of Minna Sheet 164, North-central Nigeria. Borehole samples were collected from boreholes and sent to the laboratory for the following analysis pH, total dissolved solid, and electrical conductance, calcium, magnesium, sodium and potassium, carbonate, sulphate, chlorine and bicarbonate. The pH ranged from 6.5 to 7.4, total dissolved solids varied from 20.4 mg/L to 124.5 mg/L while the electrical conductivity varies from 32.5 $\mu\text{s}/\text{cm}$ to 250.0 $\mu\text{s}/\text{cm}$. The concentrations of these physical parameters are within the permissible limits for good irrigation water. Physical parameters are important criteria for suitability of water for agricultural purposes as water with low pH, high values of electrical conductivity and total dissolved solids is not good for irrigation. Also, the results of the major cations and anions were converted meq/l from mg/l and used to determine the following index properties for irrigation water; Sodium Adsorption Ratio, Soluble Sodium Percentage, Magnesium Adsorption Ratio, Plasticity Index, Residual Sodium Bicarbonate and Kelly's Ratio. The values of the computed irrigation quality parameters are within their respective allowable limit for good to excellent water for irrigation use. The study has established that groundwater resources within the study are suitable for irrigation. It is therefore recommended farmers in these localities should be sensitized to explore groundwater resources in their domain through hand-dug wells or boreholes to supplement the short-lived rain-farming. This will ensure an all year-round farming and availability of farm products and quarantine food security in the state.

Keywords: Groundwater; Irrigation, Minna Sheet 164, Salinity Hazard, Wilcox classification

