

Groundwater Investigation Using Resistivity Method and Drilling for Irrigation during the Dry Season in Lwantonde District, Uganda

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Abstract : Groundwater investigation is the investigation of underground formations to understand the hydrologic cycle, known groundwater occurrences, and identify the nature and types of aquifers. There are different groundwater investigation methods and surface geophysical method is one of the groundwater investigation more especially the Geoelectrical resistivity Schlumberger configuration method which provides valuable information regarding the lateral and vertical successions of subsurface geomaterials in terms of their individual thickness and corresponding resistivity values besides using surface geophysical method, hydrogeological and geological investigation methods are also incorporated to aid in preliminary groundwater investigation. Investigation for groundwater in Lwantonde district has been implemented. The area project is located cattle corridor and the dry seasonal troubles the communities in Lwantonde district of which 99% of people living there are farmers, thus making agriculture difficult and local government to provide social services to its people. The investigation was done using the Geoelectrical resistivity Schlumberger configuration method. The measurement point is located in the three sub-counties, with a total of 17 measurement points. The study location is at 0025S, 3110E, and covers an area of 160 square kilometers. Based on the results of the Geoelectrical information data, it was found two types of aquifers, which are open aquifers in depth ranging from six meters to twenty-two meters and a confined aquifer in depth ranging from forty-five meters to eighty meters. In addition to the Geoelectrical information data, drilling was done at an accessible point by heavy equipment in the Lwakagura village, Kabura sub-county. At the drilling point, artesian wells were obtained at a depth of eighty meters and can rise to two meters above the soil surface. The discovery of artesian well is then used by residents to meet the needs of clean water and for irrigation considering that in this area most wells contain iron content.

Keywords : artesian well, geoelectrical, Lwantonde, Schlumberger

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