The climate of the area is made up of wet and dry seasons, emanating from the tropical nature of the area. The mean annual evaporation falls between 1,500 mm and 1,750 mm. Isolines (Olasehinde, 2005) usually lasts from March to October, and a dry season which lasts from November to February. Occasional rains occur in the months of January and February. The mean annual rainfall is about 216 mm. The mean annual minimum temperature is 4.7°C while the mean annual maximum temperature is 33.3°C.

INTRODUCTION
Access to safe drinking water is a key ingredient for better health and reducing poverty (MacDonald et al. 2005). Reliable groundwater potential data is very significant and fundamental for the development of groundwater (Singh 1984). Groundwater occurrence in Precambrian basement terrain is hosted within zones of weathering and fracturing which often are not continuous in vertical and lateral extent (Jeff, 2008). Most groundwater projects recorded in basement complex aquifers have revealed geophysical survey as a compulsory prerequisite to any successful water well drilling project (Dan Hassan and Olorunfemi 1999). The electrical resistivity method involving the vertical electrical sounding, a technique of electrical resistivity method in identifying viable spots or locations of great groundwater potentials for borehole drilling and development.

Study area
The study area is located within latitude 8°28'58.3"N, 4°31'35" (Figure 1). The area is accessible through major and minor roads. The climate of the area is made up of two major and distinct seasons: a wet season, which usually lasts from March to October, and a dry season which lasts from November to February. Occasionally there are rainfalls in the months of January and February. The mean annual rainfall is about 1333.66 mm. The mean annual minimum temperature is 21.6°C and the mean annual maximum temperature is 33.3°C while the mean annual evaporation is about 476 mm. The mean annual evapotranspiration falls between 1,500 mm and 1,750 mm Isolines (Olasehinde, 1999b).

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The vegetation is basically Savannah (Guinea) interspersed with tropical forest remnants (Esan, 1999). Geologically, the area belongs to the southwestern Nigeria Precambrian basement complex. Locally, the study area is underlain by migmatite gneiss complex Figure 1. These rocks were emplaced in Precambrian times and have been subjected to tectonic activities characterized by large changes in temperature and the pressure resulting in features like joints, faults and folds. Such fractures are those that influence the ground water in crystalline rocks especially, if they exist at depth and are overlaid by a thick superficial cover (overburden).

**MATERIALS AND METHODS**

Geophysical investigations were carried out in order to locate areas of high groundwater potential characterized with thick weathered and fractures zones. The electrical resistivity survey involved vertical electrical sounding (VES) within the IOT campus using Allied Omega digital Resistivity equipment. The Schlumberger electrode configuration was used, with maximum current electrode separation (AB/2) of 50m. The instrument, in this array measures vertical changes in ground resistivity with depth. This is the preferred way to locate vertical layers and aquifers thicknesses. The principle of the resistivity
methods is that an electric current is passed into the ground through two current electrodes and the resulting potential difference is measured across two potential electrodes. The resulting potential difference to the current is displayed by the digital resistivity equipment as a resistance. The electrode spacing is progressively increased, keeping the center point of the electrode array fixed. At small electrode spacing, the apparent resistivity is nearly the resistivity of the surface material, but as the current electrodes spacing increase the current penetrates deeper within the subsurface and so the apparent resistivity reflects the resistivity of the deeper layers as well. The apparent resistivity values are obtained by multiplying the measured resistance with an appropriate geometric factor. Different factors affect the resistivity in the subsurface (Telford et al., 1990). The generated resistivity curves from the field measurements were first interpreted manually using curve matching and then using relevant computer software (WIN Resist).

RESULTS AND DISCUSSION
The summary of the results of the VES data are presented in Table 1. This table comprises the coordinates and the elevation above mean sea level of each VES points. Also, the thickness and the resistivity of the observed layers and the curve type of each VES point is presented. Some of the interpreted data curves with their root mean square (RMS) values < 5.0 are presented in Figures 2 to 5.
| VES | Lat. /Long. | Elev. (m) | 1st layer* | 1st layer** | 2nd layer* | 2nd layer** | 3rd layer* | 3rd layer** | 4th layer* | 4th layer** | Curve type |
|-----|-------------|----------|------------|------------|-----------|------------|-----------|------------|-----------|------------|------------|
| 1   | 82857.2N 43133.5E | 323 | 6.4 | 53.1 | 8.6 | 474.2 | ∞ | 155.5 | Nil | Nil | K |
| 2   | 82855.9N 43130.0E | 323 | 4.7 | 302 | 11.7 | 71.1 | ∞ | 39575 | Nil | Nil | H |
| 3   | 82855.9N 43130.0E | 325 | 3.3 | 284 | 6.9 | 39 | ∞ | 2265 | Nil | Nil | H |
| 4   | 82845.7N 43128.8E | 335 | 3.2 | 140.3 | 5.4 | 47.5 | 6.1 | 234.9 | ∞ | 1235 | HA |
| 5   | 82845.8N 43128.7E | 335 | 1.9 | 122.6 | 5.7 | 60.6 | ∞ | 613.5 | Nil | Nil | H |
| 6   | 82843.5N 43133.7E | 340 | 2.2 | 194.4 | 8.8 | 59.1 | ∞ | 2911.7 | Nil | Nil | H |
| 7   | 82846.8N 43133.7E | 338 | 6.7 | 61.2 | 4.9 | 22.7 | ∞ | 2967.8 | Nil | Nil | H |
| 8   | 82846.7N 43136.0E | 344 | 2.6 | 106.9 | 5.5 | 28.4 | ∞ | 4577.1 | Nil | Nil | H |
| 9   | 82852.5N 43135.0E | 346 | 3.9 | 141.9 | 7.0 | 35.1 | ∞ | 1055 | Nil | Nil | H |
| 10  | 82856.9N 43133.4E | 296 | 8.0 | 66.1 | 5.8 | 26.9 | ∞ | 905.0 | Nil | Nil | H |
| 11  | 82855.5N 43133.4E | 327 | 8.0 | 61.1 | 5.8 | 26.6 | ∞ | 905.2 | Nil | Nil | H |
| 12  | 82854.2N 43133.9E | 336 | 7.1 | 57.4 | 4.4 | 125.5 | ∞ | 467.4 | Nil | Nil | H |
| 13  | 82856.6N 43135.9E | 330 | 3.6 | 128.4 | 11.2 | 62.5 | ∞ | 426.2 | Nil | Nil | H |
| 14  | 82854.5N 43135.2E | 329 | 3.9 | 113.6 | 7.9 | 55.3 | 518.7 | 522.8 | Nil | Nil | H |

Lat.-latitude; long.-longitude; elev.-elevation above mean sea level; *- layer thickness; **-layer resistivity
Figure 2:

Figure 3:
The interpreted VES data revealed that the area is characterised by mostly three geoelectric layers with varied thickness and resistivity values (Figure 6, Figure 7 and Figure 8). The lithology of the subsurface were inferred from the geoelectric sections bearing in mind the surficial geology and the subsurface geology obtained from nearby boreholes and wells. The inferred lithologies from top to bottom are lateritic clay soil, weathered basement rock and fresh competent basement rock. Groundwater potential was evaluated based on the thickness of the overburden, the thickness and the resistivity of the weathered layer. From Table 1, the overburden thickness ranges from 1.9 to 8m (Figure 9), the weathered layer thickness ranges from 4.4 to stations 1, 2, 5, 6, 7, 8, 10, 11, 14, and 15 are non aquiferous as there is no indication of weathering or fracturing that will serve as conduit for water storage and its passage. VES stations 3, 4, and 13 revealed low groundwater conditions. The weathered layers and overburden thicknesses are high but they are characterised with low degree of weathering and fracturing. VES 9 revealed a prolific aquifer potential as are indication of productive fracturing within the weathered basement and the very thick overburden which is most likely to store water (Figure 10). Groundwater extraction can be achieved by drilling to a depth of about 45 to 52m based on the interpretation of the acquired hydrogeophysical data and hydrogeological
Figure 6: Geo-electric sections along the N-S transverse

Figure 7: Geo-electric sections along the NE-SW transverse
Figure 8: Geo-electric sections along the NW-SE transverse

Figure 9: Overburden thickness isopach map
CONCLUSIONS

The groundwater condition of the Kwara State Polytechnic, Institute of Technology Campus has been assessed using electrical resistivity technique. 15 vertical electrical soundings were conducted using Allied Omega digital resistivity equipment. The surveyed area revealed basically three to four geoelectric sections with varied thickness and resistivity values. VES stations 3, 4, and 13 revealed a poor groundwater condition while location 1, 2, 5, 6, 7, 8, 10, 11, 14, 15 lack productive fractures which serves as conduit for water passage. VES station 9 revealed a productive fracture within the basement and also water in both the overburden and weathered rock. The quantity and quality of this borehole could not be predicted until after drilling has been done and testing pumping carried out.

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