Application of GIS in Oil and Gas Exploration: Play Analysis Using GIS Techniques in Block L2 in Lamu Basin

Discovering new source of the oil and gas is the core competence to be successful in the petroleum industry and in a country and as Kenya also join other countries in venturing in oil and gas exploration, there is need for effectiveness of the methods used to mapping and evaluation of the hydrocarbon potential basins in the country. GIS thus is very important tool to evaluate the potential for oil and gas in promising location. Exploration for oil and gas always depended on many subsurface geological conditions and thus usually needed analysis of geological data. This is involving the GIS spatial analysis technologies with surface- subsurface geological and geophysical data for evaluating the oil and gas potential zones.

Methodology used for this project was mainly by literature reviews.

The case study used is of Block L2 of the Lamu Basin, where the use of GIS has been shown in the geological unit classification has been done. As exploration involves even the data acquisition and seismic planning, GIS has been used to show how a high terrains can be avoided to enable hence avoiding disruptions that can affect the straight seismic lines. Data integration been one of the aims GIS environment, it was done to enable visualizing different data set at one glance for correlation which included the DEM, geology, basement depth and the fault and gravity data.

There are various data on the oil and gas prospecting in Block L2 but the problem is the access to the data and thus when these information can be made available in a common geodatabase by adopting the data management in the GIS technology, it can really improve the exploration and this can really save the interested oil and gas companies a lot of time that could be wasted in looking for works which had been done in the area for they will be exposed to already available information of Block L2.