# ECONOMIC EVALUATION, RECOVERY TECHNIQUES AND ENVIRONMENTAL IMPLICATIONS OF THE OIL SHALE DEPOSIT IN THE ABAKALIKI ANTICLINORIUM, SOUTHEASTERN NIGERIA

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*An extensive geological mapping and geochemical studies of the oil shale deposit in the Abakaliki Anticlinorium, southeastern Nigeria were carried out to determine its areal extent, reserve estimate, recovery techniques and possible environmental impacts. The total area of the exploitable zones that is characterized by shale alternating with marl has been calculated to be 72.7 $km^2$ by placing a 1,000 m by 1,000 m grid outlay on the mapped sections. Using an exploitable thickness of 34 m and an areal extent of 72.7 $km^2$, the oil shale reserve estimate is $5.76 \times 10^9$ tonnes. Moreover, using an average Fischer Assay yield value of 56.35 litre/tonne, the recoverable hydrocarbon reserve estimate is $1.7 \times 10^9$ barrels. Retorting recovery method is suggested for exploitation of local oil shale because of shallow upper soil and a relatively cheap cost of establishments. Low concentration of sulphur (between 0.33 and 0.74%) and trace elements such as Ba, Cd, Cu, Cr, Ni, Pb and Zn supports the economic viability of oil shale as refinery feedstock.*

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