

ON THE SEARCH OF UNCONVENTIONAL HYDROCARBON RESOURCES OF NIGERIA BASINS

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The study of unconventional hydrocarbon resources in Nigeria is still at juvenile stage and a new area of study in petroleum geology and few data subsist to work with. Also, unconventional hydrocarbon setting has not been widely understood and accepted in the petroleum industries and research institutes in Nigeria and other African countries. My field of research is petroleum geology, sedimentology and environmental geology focusing on coal, crude oil, bitumen, oil shale, clay and groundwater resources in Nigeria Basins. The methods employed with my research partners are biostratigraphy, seismic and well logs, electromagnetic, geochemistry, local content and environmental geology.

Unconventional Hydrocarbon Resources still remain environmental friendly and its rational exploitation in Nigeria and the entire world remains a goldmine for right energy mix and socio-economic development. Research, as well as application of existing findings for sustainable production of more hydrocarbon production has become greatly desirable. Academic curricula for teaching and training geoscience personnel should be constantly reviewed to address needs and gaps in improving Unconventional Hydrocarbon Resources production practices.

In Nigeria, the total domestic production of hydrocarbon from Unconventional Hydrocarbon Resources is still at zero level and falls short of required amounts, with huge deficits in the demand-supply balance. Research and technological innovations in Unconventional Hydrocarbon Resources management practices would be required for accelerated hydrocarbon production in the next decade. Considering the levels of hydrocarbon production, models for sustainable Unconventional Hydrocarbon Resources management are required for efficiency and economic viability.

A series of key techniques should be developed for unconventional hydrocarbon exploration and development, including full-digital seismic exploration, low permeability and low resistance gas reservoirs identification, immobile string separate layer fracturing and commingling, etc. The strategic emphasis for future development of Unconventional Hydrocarbon Resources is to vigorously employ horizontal drilling technique, large-scale hydraulic fracturing technique and geophysical prospecting technique.