

SUMMARY OF CONTENT

This issue of the journal contains five articles. The first article is on *Economic Viability Re-Estimation of Hydrocarbon Reserve of Emakpe-Field, Northern Depobelt, Onshore Niger Delta Sedimentary Basin, Nigeria*.¹ The paper presents the report of the hydrocarbon reserve investigation carried out using the data set for the Emakpe-field, in the Northern Depobelt of the Niger Delta Sedimentary Basin. The objective of the investigation was to map out the hydrocarbon reservoir(s) within the field, using the available data set including 3D seismic, well and biostratigraphy in an integrated approach in order to ascertain the economic viability. 3D seismic data with drilled five wells were analysed and correlated in order to control the geology of the field, as well as understand the reservoir properties at each well location. Using industry-standard program, seismic interpretation was extensively carried out by the authors in order to determine the geologic framework, model the stratigraphy and the structural styles of the field. They interpreted the various horizons and faults for the establishment of the stratigraphic and structural framework of the field, respectively. They also carried out fault interpretation on 3D seismic window and wells were tied to a seismic section via the construction of synthetic seismogram model. Seismic visualization and further analysis show some seismic attributes such as high amplitude, bright spots, and zones of chaotic reflections. Sequel to seismic horizons and fault interpretation across the field, map extrapolation and reserves estimation were carried out to determine the volume of hydrocarbon present in the field. Volumetric analysis shows an estimated OOIP value greater than 100 million barrels, classified into a mid-sized field. The authors conclude that the Emakpe-Field is economically viable and recommended for further investment.

The second paper is on *Evaluation of Sustainable Local Content Policy and Human Capacity Development in Nigeria's Oil and Gas Industry: Case for Petroleum Technology Development Fund*.² It is a study of the role of sustainable local content policy in human capacity development in Nigeria's petroleum industry carried out to find solutions to three fundamental questions of

1. The extent to which Petroleum Technology Development Fund (PTDF) has contributed towards achieving human capacity development in Nigeria.
2. The extent to which PTDF's intervention has impacted the petroleum industry in Nigeria, and
3. Interrogation of the sustainability of local content policy under the mandate of PTDF.

The study is predicated on the 2018 – 2023 PTDF skills gap audit report as a baseline study while leveraging on the secondary data sets of the PTDF human capacity development strategies from 2011 – 2021. The research was formulated on both descriptive and analytical statistics methods based on the industry need assessment. The results established that more key performance indicators were captured in the Secondary Data Sets (SDS) (mean of 23.04 and deviation of 0.4) against the imputed values in the Skills Gap Audit (SGA) (mean 4.52 and deviation of 0.5 respectively). The authors conclude that PTDF has contributed more significantly to human capacity development programmes than indicated in the SGA report and suggest that the report will be useful for policy formulation and decision-making on local content in Nigeria.

¹ Auduson, A. E. and Ayinde M. A.

² Neeka B. Jacob, Favour C. Adaure-Prince, Ramatu Isa Kaita, Zainab S. Ndanusa, and Muktar Abdulkadir

The third paper is a *Review of the Effect of Charcoal Combustion on Health and Environment*.³ The paper reviews the increasing use of charcoal in African countries due to a lack of electricity, high inflation, and expensive cleaner cooking utilities. The use of charcoal in household includes cooking, barbeque grilling, pressing iron, charcoal incense burning, and room warming. The paper studies these ways of charcoal application that produce greenhouse gases and energy through anthropogenic emissions/formation of various pollutants such as heat, carbon monoxide, carbon dioxide, polyaromatic hydrocarbons, nitrogen dioxide, particulate matter, methane, ozone, which affect health and climate at large. The author advocates a need for action and awareness in sub-Saharan Africa, where population growth has outpaced access to clean cooking.

The fourth paper *On The Issue of The Restart Time of a Core Annular Flow Oil Pipeline After Shut-Down Operations*⁴ is on the growing number of proposed models for the estimation of the time needed to restart a core annular flow line after shutting down, pertaining the improvement of core annular flow (CAF) technology for transportation of high viscous oil. The author asserts that the existing restart time models tend to predict that the flow line needs to be completely clean. This, he suggests is practically not feasible. Firstly, his work revisits the results of the flow pattern trends and pressure drop evolutions during the restart of a core annular flow experiments. Based on the analyses of the transient pressure drop profiles, deduction of a 'realistic and economical' re-start time, expressed as a function of the pressure drop, has been made. This approach he concludes can be helpful in control engineering design of an efficient and cost-effective re-start process of a core annular flow (CAF) line.

In the fifth paper, *A Preliminary Evaluation of The Independent Status of Regulatory Institutions in Nigeria's Petroleum Industry Act 2021*⁵ the Andzenge asserts that Oil and Gas have become an integral part of today's global economy and a key component of many national economies including Nigeria. He observes that the nature of institutional, legal, and regulatory framework tends to have significant economic, developmental, and strategic outcomes. Nigeria's Oil and Gas industry which has, in his view for most of her independence been the mainstay of the economy, he claims has been operated in opaque manner resulting in its failure to be a significant contributor to the development of the country. He sees the enactment of the Petroleum Industry Act, 2021 (PIA) as a step towards giving impetus to a more virile petroleum industry. Central to the thriving of the new law, he says, is a regulatory framework that would balance the often conflicting and mutually exclusive interests of government, the investor and the consumer. To achieve this, he suggests that the institutional design and architecture of the regulatory institutions must be woven in a fabric of independence: independent from all the players in the value chain. The paper seeks to undertake an evaluation of the independent status of the regulatory institutions in the PIA and suggests pathways to adoption of global best practices in the Nigerian petroleum industry.

³ Ibrahim Aliyu Garba

⁴ Aniefiok Livinus

⁵ Terhemmen Andzenge