FROM PETRO-POLITICS TO PETROLEUM TECHNOLOGY DEVELOPMENT: RETHINKING STATE PARTICIPATION IN NIGERIA'S OIL AND GAS INDUSTRY

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ABSTRACT

This paper examines the Nigerian state's participation in the oil and gas industry through the lens of petroleum technology development. While Nigeria's petroleum sector has traditionally been analysed in terms of petro-politics, resource control, revenue dependence and institutional governance, this study argues that the developmental value of state participation should also be measured by its contribution to indigenous technical capability, technology transfer, local content, operational efficiency, gas utilisation, environmental remediation and workforce competence. Using a qualitative, doctrinal and policy-based analysis of legal frameworks, fiscal arrangements, institutional roles and secondary industry sources, the paper evaluates the Petroleum Industry Act 2021, the commercialisation of NNPC Limited, the functions of NUPRC and NMDPRA, local-content implementation, host-community obligations and recent revenue-remittance reforms. It finds that although post-PIA reforms have improved the legal and institutional architecture of the sector, persistent governance weaknesses, fiscal leakages, fragmented mandates and weak enforcement continue to limit Nigeria's ability to convert petroleum activity into sustainable technological learning and domestic industrial capability. The paper concludes that state participation should move beyond ownership, regulation and revenue capture towards a technology-led development model that deliberately links petroleum operations to skills formation, research collaboration, digital monitoring, transparent governance, environmental responsibility and long-term national competitiveness.

KEYWORDS: Petroleum technology development, state participation, local content, technology transfer, joint ventures, production-sharing contracts, petroleum governance, sustainable resource management

INTRODUCTION

Nigeria's oil and gas sector has long been the lifeblood of the national economy, accounting for a substantial share of government revenue and export earnings.[1] Beyond hydrocarbons, Nigeria's wider marine and blue-economy assets also remain underutilised, despite the country's coastline of over 853 kilometres and extensive inland waterways, with estimates suggesting annual losses of about ₦33.3 trillion from untapped blue-economy potential.[2] Since the commercial discovery of oil in the 1950s, petroleum has shaped not only Nigeria's economic trajectory but also its

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[1] Extractive Industries Transparency Initiative (EITI), *Nigeria 2023 EITI Report — Oil and Gas* (NEITI, September 2024); Nigeria Extractive Industries Transparency Initiative (NEITI), *2023 Oil and Gas Industry Report*; NEITI Oil and Gas Data Dashboard, reporting petroleum-sector production, revenue, exports and Federation Account flows.

[2] National Institute for Policy and Strategic Studies (NIPSS), *Blue Economy and Sustainable Development in Nigeria: Issues, Challenges and Opportunities* (Senior Executive Course 47 Presidential Parley Report, 2025), citing Deloitte (2022), stating that Nigeria loses about ₦33.3 trillion annually to untapped blue-economy potential due to the underutilisation of its coastal and inland waters.

political and social landscape. The role of the state has accordingly evolved from that of a primarily regulatory authority to that of a direct participant through equity holdings, joint ventures and production-sharing contracts, making it a central actor in what scholars describe as "petro-politics".[3]

Against this background, the title of this paper signals a deliberate shift from the conventional framing of Nigeria's petroleum sector as a site of petro-politics towards a more development-oriented inquiry into petroleum technology development. "Petro-politics" reflects the historical dominance of debates on resource control, ownership, revenue allocation and state power, while "petroleum technology development" directs attention to the capacity of law, institutions and fiscal policy to build indigenous technical competence across exploration, production, gas processing, refining, pipeline integrity, digital monitoring and environmental remediation. Rethinking state participation therefore requires more than asking how much revenue the state captures or how many assets it owns; it requires an assessment of whether public participation in the sector promotes innovation, local content, skills formation, operational learning, environmental responsibility and long-term industrial capability.

A state may participate in the oil and gas sector for several interconnected reasons. In the context of petroleum technology development, such participation is not limited to revenue collection or asset ownership; it also involves the creation of national capabilities in geoscience, petroleum engineering, production technology, gas processing, refining, pipeline systems, and health, safety and environmental management. Through appropriate policy design, government participation can support infrastructure development, encourage technology transfer, deepen local content, improve operational learning, reduce over-reliance on foreign technical expertise and ensure that petroleum operations align with national development priorities. It can also help address the "resource curse" by promoting value addition, transparent revenue management and the conversion of petroleum wealth into human capital, research capacity and industrial competence.

This dual role as regulator and market participant has created both opportunities and challenges for Nigeria. On the one hand, state participation through NNPC Limited and its partnerships with international oil companies has enabled Nigeria to capture significant revenue and maintain control over its natural resources. On the other hand, weak governance, corruption and environmental degradation have undermined the sector's potential to drive sustainable development.[4] The Petroleum Industry Act 2021[5] and Executive Order 9 of 2026[6] represent important attempts to reform this complex relationship, although their effectiveness remains contested.

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[3] See generally Michael Watts, Curse of the Black Gold: 50 Years of Oil in the Niger Delta (PowerHouse Books 2008); Cyril Obi and Siri Aas Rustad (eds), Oil and Insurgency in the Niger Delta: Managing the Complex Politics of Petro-Violence (Zed Books 2011).

[4] United Nations Environment Programme (UNEP), Environmental Assessment of Ogoniland (UNEP 2011); Human Rights Watch, The Price of Oil: Corporate Responsibility and Human Rights Violations in Nigeria's Oil Producing Communities (1999).

[5]Petroleum Industry Act 2021 (Nigeria), Act No 6 of 2021.

[6] Presidency, Federal Republic of Nigeria, 'President Tinubu Signs Executive Order for Direct Remittance of Oil and Gas Revenues to Federation Account' (State House, 2026); Presidency, 'Executive Order 9: Constitutional Fidelity, Not Executive Overreach' (State House, 23 February 2026).

The central problem, therefore, is how to balance Nigeria's continuing economic dependence on oil with the need for transparency, accountability, environmental sustainability and technology-led development. Without clear governance structures and enforceable technology-development obligations, Nigeria risks perpetuating a cycle of resource dependence, fiscal volatility, weak domestic capability and socio-economic inequality.

This study critically examines the Nigerian state's participation in the oil and gas sector, with particular attention to its legal frameworks, institutional roles, fiscal policies and implications for petroleum technology development. It addresses four central questions: (1) How has state participation evolved over time? (2) What are the governance and socio-economic implications of this participation? (3) To what extent do existing laws, institutions and fiscal arrangements promote indigenous technical capacity, technology transfer, local content and operational efficiency? (4) How can Nigeria reform its approach to achieve sustainable, technology-led resource management?

The scope of the study covers upstream, midstream and downstream petroleum activities, with emphasis on post-PIA reforms and their impact on state revenue, accountability, indigenous participation, technology transfer and capacity development. By analysing these dynamics, the study contributes to broader debates on petroleum technology development and resource governance and offers policy recommendations for aligning state participation with national development goals, sustainable operations and the building of domestic technical competence.

LITERATURE REVIEW

This chapter reviews existing scholarship on the participation of the Nigerian state in the oil and gas sector, focusing on five key themes: (1) legal and regulatory frameworks, (2) institutional roles and governance, (3) fiscal regimes and revenue management, (4) socio-economic and environmental impacts, and (5) petroleum technology development, local content and human capacity. It also identifies gaps in the literature that this study seeks to address.

Legal and Regulatory Frameworks

The legal foundation of Nigeria's oil and gas sector is rooted in the Petroleum Act of 1969,[7] which vested ownership and control of petroleum resources in the Federal Government. This position was reinforced and substantially restructured by the Petroleum Industry Act (PIA) 2021,[8] which introduced significant reforms, including the transformation of NNPC into NNPC Limited and the creation of the Nigerian Upstream Petroleum Regulatory Commission (NUPRC) and the Nigerian Midstream and Downstream Petroleum Regulatory Authority (NMDPRA). In effect, the PIA replaced the former DPR and PPPRA framework with separate regulators for upstream and midstream/downstream operations. Although some scholars regard the PIA as a landmark reform, its implementation has been slow and uneven, leaving concerns about regulatory overlap and uncertainty.

The PIA also introduced a more commercially oriented fiscal regime by replacing the defunct Petroleum Profits Tax with a framework based on Hydrocarbon Tax and Companies Income Tax.

[7] Petroleum Act 1969, s 1.
[8] Petroleum Industry Act 2021, ss 1–3, 4, 29 and 53.

Another major innovation is the conversion of old Oil Prospecting Licences and Oil Mining Leases (OPLs/OMLs) into Petroleum Prospecting Licences and Petroleum Mining Leases (PPLs/PMLs). The Act further requires companies operating in oil-producing communities to contribute 3% of their annual operating expenditure to Host Community Development Trusts, which are intended to support local development and reduce vandalism of petroleum installations.

The PIA further provides that 30% of NNPC Limited's profit oil and profit gas from production-sharing, profit-sharing and risk-service contracts should support frontier exploration. Overall, the Act seeks to create a stronger, more transparent and commercially disciplined structure for Nigeria's oil and gas sector.

Institutional Roles and Governance

Nigeria's oil governance structure includes several key actors: the Minister of Petroleum Resources, NNPC Limited as the national commercial operator, the Nigerian Upstream Petroleum Regulatory Commission (NUPRC), the Nigerian Midstream and Downstream Petroleum Regulatory Authority (NMDPRA), and the Nigerian Content Development and Monitoring Board (NCDMB). Under the PIA, NNPC Limited is expected to operate as a commercial entity rather than as a regulator.[9] This distinction is important because any perception that the national oil company combines commercial interests with regulatory influence may weaken transparency, discourage private investment and limit effective technology transfer. Scholars have therefore argued that overlapping institutional mandates may undermine accountability and policy coherence.[10] Concerns have also been raised that unclear separation between commercial and regulatory functions may affect transparency and accountability in the post-PIA petroleum governance framework.[11]

The Minister of Petroleum

This office is established under section 3 of the PIA. The Minister of Petroleum Resources provides policy direction for the sector and is empowered to grant licences and leases upon the recommendation of the NUPRC. The Minister may also suspend petroleum operations where the NUPRC so recommends and may delegate powers to the NUPRC or NMDPRA as appropriate. Under the PIA, the Minister therefore remains a central policy actor, while technical and commercial regulation is assigned to the sector regulators.[12]

The Nigerian Upstream Petroleum Regulatory Commission (the NUPRC).

The NUPRC is a statutory body with legal personality and may acquire, hold and dispose of property, sue and be sued in its own name.[13] It is responsible for the technical and commercial regulation of upstream petroleum operations, including operational standards, environmental compliance, health and safety requirements, and the monitoring of upstream activities.[14] From a

[9] Petroleum Industry Act 2021, ss 53, 63 and 64.
[10] See DCSL Corporate Services Ltd, *Petroleum Industry Act 2021: Newsletter* (2021), discussing institutional restructuring, regulatory separation and governance concerns.
[11] See Nigeria Extractive Industries Transparency Initiative (NEITI), *2023 Oil and Gas Industry Report*, on transparency, revenue reporting and implementation issues in the post-PIA petroleum sector.
[12] Petroleum Industry Act 2021, s 3.

[13] Petroleum Industry Act 2021, s 4.
[14] Petroleum Industry Act 2021, ss 7–10.

petroleum technology development perspective, the Commission's technical-regulatory role is significant because effective supervision of exploration, drilling, production, metering and environmental management can encourage better technology adoption and operational learning.

The NUPRC also supports compliance with applicable regulations and is expected to create a regulatory environment that enables responsible investment, technical efficiency and safe upstream operations.

The PIA assigns the NUPRC responsibility for frontier basins, including the Gongola, Anambra, Niger, Sokoto, Chad and Benue basins. These basins are eligible for support from the Frontier Exploration Fund, which is funded from 30% of NNPC Limited's profit oil and profit gas under relevant petroleum arrangements, including production-sharing, profit-sharing and risk-service contracts.

The PIA further empowers the NUPRC to investigate and enforce compliance through a Special Investigation Unit or any authorised person acting on its behalf.

The Midstream and Downstream Petroleum Regulatory Authority (the NMDPRA)

The NMDPRA is established under the PIA[15] and is responsible for the technical and commercial regulation of midstream and downstream petroleum operations. Its functions include promoting safe, efficient and competitive midstream and downstream activities, improving the availability and distribution of natural gas and petroleum products, and supporting investment in processing, transportation, storage and distribution infrastructure.[16]

The NMDPRA also oversees crude-oil supply to domestic refineries, promotes a conducive business environment for local and international investment in midstream and downstream operations, implements relevant government policies, and develops tariff and pricing frameworks for natural gas and petroleum products. It regulates and monitors the technical and commercial aspects of processing, storage, transportation and distribution, and may issue, renew, review, suspend or revoke licences, permits and authorisations in the midstream and downstream sectors. These functions are central to competition, private-sector participation and infrastructure development.

The NMDPRA administers the Midstream and Downstream Gas Infrastructure Fund (MDGIF). The Fund is supported by 0.5% of the wholesale price of petroleum products and natural gas sold in Nigeria, as well as money received from gas-flaring penalties. Its purpose is to support government equity participation and private investment in midstream and downstream gas infrastructure, increase domestic natural-gas utilisation and reduce investment risk in selected high-risk projects.

The Nigerian National Petroleum Company Limited ("the NNPC Limited")

[15] Petroleum Industry Act 2021, s 29.
[16] Petroleum Industry Act 2021, ss 31–32, setting out the objectives and functions of the Nigerian Midstream and Downstream Petroleum Regulatory Authority.

The PIA provides for the incorporation of the Nigerian National Petroleum Company as a limited liability company, known as NNPC Limited.[17] NNPC Limited succeeds the former Nigerian National Petroleum Corporation and serves as the commercial arm of the state in the petroleum sector. Under the PIA, NNPC Limited and its subsidiaries are expected to operate on a commercial basis, without routine government funding, and in accordance with the Companies and Allied Matters Act. Its responsibilities and objectives are principally set out in sections 63 and 64 of the PIA.[18]

Fiscal Regimes and Revenue Management

Fiscal regimes refer to the set of legal and policy instruments through which taxes, royalties, production-sharing arrangements and other payments determine how revenues from natural resources are allocated between the state and private investors. Effective revenue management requires stable, transparent and investment-sensitive policies that maximise public returns while preserving incentives for exploration, production and long-term sectoral development. In Nigeria's petroleum sector, this makes optimal resource extraction, equitable revenue sharing and the management of price volatility central features of fiscal policy.

Under the PIA, fiscal regimes centre on royalties, hydrocarbon tax, companies income tax and profit-sharing mechanisms under joint ventures (JVs) and production-sharing contracts (PSCs). Some scholars argue that, while these arrangements generate significant revenue, leakages and mismanagement reduce their developmental impact.[19] Recent reforms, such as Executive Order 9 (2026), which mandates direct remittance of oil revenues into the Federation Account, aim to curb these leakages.[20] However, critics argue that without strong institutional enforcement, such reforms may remain symbolic.

The PIA replaced the previous petroleum tax framework with a more commercially oriented regime intended to improve transparency, attract investment and increase government revenue through clearer fiscal rules. For upstream operations, the Act introduced a dual structure based on Hydrocarbon Tax and Companies Income Tax, thereby moving away from the older Petroleum Profits Tax model and seeking to balance revenue generation with investment competitiveness.

The PIA provides for the following tax regime:

1. Hydrocarbon Tax (HT): The HT applies to profits from crude oil, excluding deep offshore operations, with rates graduated according to terrain and licence type.
    - Onshore & Shallow Water (PMLs): 30%.
    - Onshore & Shallow Water (PPLs): 15%.
    - Deep offshore operations: generally excluded from Hydrocarbon Tax, but still subject to applicable royalties and Companies Income Tax.

[17] Petroleum Industry Act 2021, s 53.
[18] Petroleum Industry Act 2021, ss 63–64.
[19] NEITI, *2023 Oil and Gas Industry Report*; EITI, 'Nigeria'.
[20] Presidency, 'President Tinubu Signs Executive Order for Direct Remittance of Oil and Gas Revenues to Federation Account' (State House, 2026); Udo Udoma & Belo-Osagie, *Nigeria: Executive Order 9 of 2026 on Oil and Gas Revenues* (2026).

2. Companies Income Tax (CIT): In addition to applicable Hydrocarbon Tax, companies remain subject to Companies Income Tax under the Companies Income Tax Act.
3. Cost controls: Allowable costs for Hydrocarbon Tax purposes are subject to statutory limits, which are designed to promote efficiency, reduce excessive cost recovery and limit opportunities for tax avoidance.
4. Royalties: The PIA adopts a royalty structure linked to production and price, making royalty obligations more responsive to output levels and market conditions.
5. Key incentives: The Act replaces some investment-focused incentives with production allowances and provides incentives aimed at encouraging gas utilisation and sectoral investment.
6. Conversion: Existing OPLs and OMLs may be converted into PPLs and PMLs, allowing qualifying holders to transition into the new fiscal and regulatory framework.

Socio-Economic and Environmental Impacts

Oil exploitation has brought both wealth and challenges to Nigeria. On one hand, it has fuelled economic growth and urbanisation.[21] On the other hand, it has contributed to severe ecological degradation, especially in the Niger Delta, where oil spills and gas flaring have devastated local communities.[22] Scholars stress that without effective environmental regulation, state participation risks deepening social inequality and unrest. Nigeria's economy has, for many years, relied heavily on oil exploration as a major source of growth. The ecosystem and communities in oil-producing areas have been greatly affected by oil exploration and production. The Niger Delta's land and water have been heavily contaminated, leading to biodiversity loss and serious risks to community wellbeing.

Oil companies use hazardous substances and processes in petroleum operations, and these have worsened ecological conditions in affected areas, sometimes contributing to cancer risks, respiratory illnesses and skin irritations.[23] Many animal species have also been threatened as the environment becomes less supportive of their survival. Youth activism and community protests are further consequences of persistent environmental degradation; in some cases, pipeline vandalism is used to express opposition to oil companies, but this also causes oil spills and further biodiversity loss.

Regulatory agencies have not fully addressed these conditions despite their statutory mandates.[24] Advocacy for oil companies to adopt best environmental practices has not produced the desired results. Although the PIA provides compensation and host-community mechanisms for affected communities, their success still depends on effective implementation by relevant government agencies. To reverse the resource-curse pattern in oil-producing communities, government must

[21] NEITI, *2023 Oil and Gas Industry Report*; World Bank, *Nigeria Development Update* reports, on the macroeconomic significance of oil revenue, fiscal vulnerability and the need for improved revenue management.
[22] UNEP, *Environmental Assessment of Ogoniland* (UNEP 2011).
[23] UNEP, *Environmental Assessment of Ogoniland* (UNEP 2011); see also ReliefWeb, 'Environmental Assessment of Ogoniland — Nigeria' (4 August 2011), summarising UNEP's findings on hydrocarbon contamination and public-health risks.
[24] National Oil Spill Detection and Response Agency (NOSDRA), oil-spill data and regulatory materials; UNEP, *Environmental Assessment of Ogoniland* (UNEP 2011).

establish an effective regulatory structure that holds petroleum operators accountable for ecological damage.

Petroleum Technology Development, Local Content and Human Capacity

For a journal concerned with petroleum technology development, state participation must be assessed by its capacity to convert petroleum activity into learning, innovation and domestic technical capability. This requires more than ownership of oil assets; it requires deliberate policies that connect licensing, procurement, joint ventures, production-sharing contracts, research and development, and workforce training to measurable technology outcomes. In this respect, Nigeria's local content framework and the role of the Nigerian Content Development and Monitoring Board are central to technology transfer, skills development, in-country fabrication, engineering services, project management and the growth of indigenous service companies.

The petroleum technology development angle also draws attention to the need for stronger linkages among operators, regulators, universities, research institutes, training centres and host communities. Where these linkages are weak, local content may become a compliance exercise rather than a mechanism for building competitive competence. Where they are strong, state participation can stimulate domestic research, improve maintenance capability, enhance digital monitoring of production and revenue flows, support gas commercialisation, reduce environmental incidents, and expand Nigerian participation in complex technical areas such as reservoir modelling, subsea operations, corrosion control, metering, automation and remediation technologies.

Gaps in Literature

While much has been written on Nigeria's oil sector, few studies systematically link legal reforms such as the PIA and Executive Order 9 with institutional effectiveness, revenue transparency and petroleum technology development. Existing literature often treats governance, fiscal reform and environmental regulation as separate issues, whereas effective state participation requires their integration with technology transfer, skilled manpower development, indigenous service capacity, research utilisation and operational innovation. Additionally, there is limited analysis of how state participation can be restructured to align petroleum revenues and regulatory incentives with sustainable development goals (SDGs), gas-based industrialisation, digital accountability and environmental remediation. This study addresses these gaps by providing an integrated analysis of law, governance, fiscal policy and technology development in Nigeria's oil and gas sector.

RESEARCH METHODOLOGIES

This chapter outlines the research design and methods used to examine the Nigerian state's participation in the oil and gas sector. It explains the study's approach, data sources, analytical techniques, and limitations.

Research Design

The study adopts a qualitative research design, which is suitable for exploring complex legal, institutional and policy issues.[25] A descriptive and analytical approach is used to examine how

[25] John W Creswell and J David Creswell, Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (5th edn, Sage 2018).

state participation has evolved, how it is governed, and its socio-economic and environmental implications.

3.2 **Data Collection**

The research relies on secondary data sources, including:

- Statutes and policies: Petroleum Act (1969), Petroleum Industry Act (2021), Executive Order 9 (2026), and Local Content Regulations.
- Government reports: Publications from NNPC Limited, NUPRC, NMDPRA, and the Federal Ministry of Petroleum Resources.
- International reports: World Bank, UNDP, and OPEC statistical bulletins.
- Scholarly literature: Journal articles, books, and conference papers on resource governance and petro-politics.
- Media and industry reports: News articles and oil sector analyses for recent developments.

Method of Data Analysis

The study employs content analysis to systematically interpret textual data from legal documents, policy reports and academic literature.[26] This method allows for identifying patterns, themes and contradictions in how state participation is structured and implemented. A case study approach is also used, focusing on NNPC Limited and its joint venture operations, to illustrate practical challenges and outcomes.

Validity and Reliability

To ensure credibility, the study uses triangulation by cross-referencing multiple sources (government documents, academic research, and international reports). This reduces bias and strengthens the reliability of findings.

Limitations of the Study

The research is limited by its reliance on secondary data, which may not always reflect current realities on the ground. Access to detailed financial records of NNPC Limited and its partners is restricted, limiting deeper analysis of revenue flows. Nonetheless, the use of credible sources and triangulation helps mitigate these challenges.

DATA PRESENTATION AND ANALYSIS

Introduction

This chapter presents and analyses data on the Nigerian state's participation in the oil and gas sector, drawing from legal documents, government reports, and industry publications. The analysis is structured around four key areas: (1) legal and regulatory evolution, (2) institutional roles and governance, (3) fiscal regimes and revenue flows, and (4) socio-economic and environmental impacts.

[26] Philipp Mayring, 'Qualitative Content Analysis' (2000) 1(2) Forum: Qualitative Social Research; Klaus Krippendorff, Content Analysis: An Introduction to Its Methodology (4th edn, Sage 2018).

Legal and Regulatory Evolution

The Petroleum Act 1969 and the Petroleum Industry Act 2021 show a movement from a highly state-controlled petroleum framework towards a more commercially oriented and institutionally differentiated regulatory model. Table 1 summarises the main legal transition.

Table 1: **Evolution of Legal Frameworks**

Framework	Core features	Implications for state participation	Technology-development relevance
Petroleum Act 1969	Federal ownership of petroleum resources; ministerial control over licences and leases; direct state participation through NNPC and joint-venture arrangements.	Created a state-centred model focused on control, resource ownership and revenue capture.	Technology learning depended largely on participation in joint ventures and foreign-operator arrangements, with limited structured domestic capability development.
Petroleum Industry Act 2021	Commercialisation of NNPC Limited; creation of NUPRC and NMDPRA; revised fiscal framework; host-community trusts; frontier-exploration provisions.	Moves state participation towards a shareholder, regulator and policy-direction model, with clearer institutional separation.	Creates stronger opportunities for technology transfer, local content, digital monitoring, skills development and operational efficiency if implementation is properly enforced.
Executive Order 9 of 2026	Directs the remittance of specified oil and gas revenues to constitutionally recognised accounts and targets deductions relating to NNPC Limited, frontier exploration and gas-flare penalties.	Aims to improve fiscal transparency and revenue traceability, but raises questions about interaction with existing statutory funds under the PIA.	May support digital revenue monitoring and accountability, but could weaken gas-infrastructure and environmental-remediation financing if funds such as the MDGIF are not clearly protected.

Source: *Petroleum Act 1969; Petroleum Industry Act 2021; Presidency, Federal Republic of Nigeria, Executive Order 9 materials.*

The Petroleum Act, 1969

Under the Petroleum Act 1969, state participation in Nigeria's oil and gas sector was organised around federal ownership, ministerial control and direct state involvement through the national oil company. The Act vested ownership and control of petroleum resources in the Federal Government and placed substantial supervisory authority in the Minister responsible for petroleum resources. The Minister was empowered to grant licences and leases for exploration and production, while the Nigerian National Petroleum Corporation, established in 1977, became the principal vehicle through which the government participated commercially in joint ventures and production-sharing arrangements.

Specifically, section 1 of the Petroleum Act 1969 vested all petroleum in, under or upon land, territorial waters and the continental shelf in the Federal Government. This meant that petroleum resources, wherever found within Nigeria's jurisdiction, were treated as state property. The Act also placed control and supervision of petroleum operations under the Minister of Petroleum Resources, who exercised authority over licences and leases, including Oil Exploration Licences, Oil Prospecting Licences and Oil Mining Leases.

The 1969 framework therefore created broad avenues for state participation. The government not only owned petroleum resources but also regulated, supervised and commercially participated in the industry through NNPC. This model reflected a state-centred approach to petroleum governance and remained the principal legislative framework for Nigeria's oil and gas industry until the enactment of the Petroleum Industry Act in 2021.

The Petroleum Industry Act, 2021

The Petroleum Industry Act 2021 substantially restructured Nigeria's oil and gas sector and altered the framework for government participation. Although ownership and control of petroleum resources remain vested in the Federal Government, the PIA introduced a clearer distinction between commercial participation, policy direction and technical regulation.

The Act transformed the former NNPC into NNPC Limited, a company incorporated under the Companies and Allied Matters Act. Through this reform, the state continues to retain ownership interests in petroleum assets while participating commercially through a corporate vehicle expected to operate on a commercial basis.

As a commercial entity, NNPC Limited manages the state's interests in joint ventures and production-sharing contracts without routine direct budgetary dependence. It therefore operates as the main investment and commercial vehicle through which the Nigerian state participates in petroleum operations, while its corporate form is intended to improve transparency, efficiency and commercial discipline.

For regulatory oversight, the PIA established two specialised regulators: the Nigerian Upstream Petroleum Regulatory Commission and the Nigerian Midstream and Downstream Petroleum Regulatory Authority. The NUPRC is responsible for the technical and commercial regulation of upstream petroleum operations, while the NMDPRA regulates midstream and downstream activities. This separation is designed to improve regulatory focus, reduce institutional overlap and support a more predictable investment environment.

The PIA also retains the Minister of Petroleum Resources as a key policy actor. The Minister may grant, revoke or assign licences on the recommendation of the NUPRC and retains pre-emption powers over petroleum products during national emergencies.

The PIA further introduced new fiscal and investment provisions intended to attract capital, improve revenue administration and support frontier exploration. It provides for a portion of NNPC Limited's profit oil and profit gas from relevant petroleum arrangements to be allocated to frontier exploration, while also requiring licence holders to establish Host Community Development Trusts to promote sustainable development in petroleum-producing communities. These reforms shift aspects of community engagement and development responsibility directly to operators while retaining state oversight.

Overall, the PIA seeks to promote transparency, attract investment and move Nigeria towards a regulatory and shareholder-based model of state participation. By reducing direct government involvement in day-to-day operations, it aims to create a more commercially disciplined and technically regulated petroleum sector.

The Executive Order 9 of 2026

In exercising its regulatory powers over the oil and gas sector, the President issued Executive Order 9 of 2026, which directs the direct transmission and remittance of oil and gas revenues into the Federation Account for distribution through the Federation Account Allocation Committee (FAAC).[27]

Executive Order 9 is presented as a presidential directive aimed at safeguarding Federation oil and gas revenues, reducing fiscal leakages and improving transparency in the custody and remittance of petroleum receipts. Its central concern is that revenues accruing from petroleum operations should first be paid into constitutionally recognised accounts before they are distributed or applied. In practical terms, this means that relevant revenues become subject to the Federation Account framework and distribution through FAAC. The Order specifically provides that:

> *"NNPC Limited shall cease, with immediate effect, the collection of the 30% management fee and the 30% frontier exploration fund deductions from profit oil and profit gas under Production Sharing Contracts (PSCs),"*
>
> *"Additionally, all remittances of gas flare penalties into the Midstream and Downstream Gas Infrastructure Fund (MDGIF) are suspended with immediate effect, in line with the Executive Order."*

Section 2(3) of the Order also addresses payments by service providers and contractors, requiring relevant payments to be made directly into the Federation Account framework once the necessary implementation arrangements are in place.

The order further provides that section 2(3) will not commence until comprehensive implementation guidelines are issued. A transition period has therefore been approved for the commencement of direct payments of profit oil, royalty oil and tax oil into the Federation Account.[28]

This transitional arrangement is important because abrupt changes to payment channels could disrupt petroleum operations, contractual administration and public revenue reconciliation. A phased and clearly guided implementation process is therefore necessary to preserve operational continuity while improving fiscal transparency.

From a petroleum technology development perspective, EO9 has both positive and potentially adverse implications. Its emphasis on direct remittance, reconciliation and fiscal discipline can strengthen transparency and support the use of digital monitoring systems for revenue flows. However, the suspension of gas-flare penalty remittances into the Midstream and Downstream Gas Infrastructure Fund raises a policy concern. The MDGIF was intended to support gas infrastructure, domestic gas utilisation and relief for communities affected by gas flaring. If redirected revenues are not replaced with a clear and protected funding mechanism, the Order may

[27] Presidency, Federal Republic of Nigeria, 'President Tinubu Signs Executive Order for Direct Remittance of Oil and Gas Revenues to Federation Account' (State House, 2026).
[28] Udo Udoma & Belo-Osagie, *Nigeria: Executive Order 9 of 2026 on Oil and Gas Revenues* (2026); Odujinrin & Adefulu, 'Executive Order 9 of 2026: Implications for Nigeria's Oil and Gas Sector' (2026).

weaken investment in gas infrastructure and environmental remediation, thereby undermining the PIA's broader objectives of sustainable petroleum development and host-community protection.

4.3 **Institutional Roles and Governance**

Analysis of institutional reports shows that Nigeria's oil and gas governance structure contains several distinct but interconnected actors. NNPC Limited operates as the state's commercial vehicle, while NUPRC and NMDPRA exercise technical and commercial regulatory authority over different segments of the value chain. The NCDMB also plays a cross-cutting role in local content, technology transfer and indigenous capacity development. Table 3 summarises this institutional framework.

Table 2: Updated Oil and Gas Revenue Indicators Based on NEITI/EITI Data

Indicator	**Latest NEITI/EITI figure**	**Implication for this study**
Oil and gas contribution to government revenue	54.4% in 2023	Petroleum remains fiscally important, but the sector should not be described as accounting for over 80% of current government revenue.
Oil and gas contribution to exports	82.52% of total exports in 2023	The sector remains dominant in external earnings, supporting the paper's argument on revenue dependence.
Total financial flows from oil and gas sector	US$30.85 billion in 2023	Large sector flows reinforce the need for transparent revenue management and technology-enabled monitoring.
Total flows to Federation Account from crude and gas sales	US$5.01 billion in 2023	Revenue-remittance reforms should be assessed by their effect on traceability, accountability and statutory transfers.
Total oil production	537.57 million barrels in 2023	Production volumes underline the importance of metering, operational efficiency and indigenous technical capability.

Source: EITI, Nigeria country profile and Nigeria 2023 EITI Report — Oil and Gas; NEITI, 2023 Oil and Gas Industry Report and NEITI Oil and Gas Data Dashboard.

4.4 **Fiscal Regimes and Revenue Flows**

Recent NEITI/EITI data show that oil and gas remain central to Nigeria's public finances and external earnings, but the often-repeated claim that petroleum accounts for over 80% of government revenue is no longer accurate for recent years. The EITI Nigeria country data put the extractive sector's contribution to government revenue at 54.4% in 2023, while oil and gas exports accounted for 82.52% of total exports. NEITI's 2023 oil and gas data also report total financial flows from the oil and gas sector of about US$30.85 billion, of which about US$5.01 billion flowed directly to the Federation Account from crude and gas sales. Table 2 therefore presents updated indicators based on NEITI/EITI data rather than unsupported CBN/OPEC estimates.

Table 3: Institutional Framework of Nigeria's Oil and Gas Sector

Institution	Primary role	Area of operation	Relevance to technology development
Federal Government / Minister of Petroleum Resources	Sets policy direction and exercises statutory powers over petroleum licences and leases.	Sector-wide policy, licensing oversight and national petroleum strategy.	Can align licensing, policy and fiscal incentives with technology transfer, skills development and research collaboration.
NNPC Limited	Commercial vehicle for state participation in petroleum assets and operations.	Joint ventures, production-sharing contracts, investments and commercial petroleum operations.	Provides a platform for operational learning, Nigerian participation in complex projects, project management and technology-transfer obligations.
NUPRC	Regulates upstream petroleum operations.	Exploration, drilling, production, metering, upstream safety and environmental compliance.	Supports technical standards, production monitoring, digital metering, environmental compliance and improved upstream operational capability.
NMDPRA	Regulates midstream and downstream petroleum operations.	Gas processing, transportation, storage, refining, distribution and downstream markets.	Promotes gas infrastructure, processing technology, storage systems, refinery efficiency and downstream investment capability.
NCDMB	Develops and monitors Nigerian content in the oil and gas industry.	Local content compliance, indigenous participation, skills development and supplier development.	Central to technology transfer, in-country fabrication, engineering services, training, certification and growth of indigenous service companies.

4.5 **Socio-Economic and Environmental Impacts**

Findings from UNDP materials and NOSDRA's Nigerian Oil Spill Monitor indicate that the Niger Delta continues to face serious human-development and environmental challenges associated with oil exploration and production.[29] The evidence points to persistent environmental degradation, livelihood disruption and poverty in many affected communities. UNDP's interventions have sought to address aspects of these challenges through programmes focused on sustainable livelihoods, infrastructure support and conflict prevention, while NOSDRA's publicly available oil-spill data show that several hundred spill records are recorded in Nigeria each year and that the

[29] United Nations Development Programme (UNDP), Niger Delta development and livelihoods programme materials; National Oil Spill Detection and Response Agency (NOSDRA), Nigerian Oil Spill Monitor and oil-spill data. NOSDRA describes the Nigerian Oil Spill Monitor as the public platform for official oil-spill data collected through Joint Investigation Visits and states that several hundred oil spills are recorded in Nigeria each year; the published dataset is updated on an ongoing basis and may change as records are added, updated or made public. See also UNEP, *Environmental Assessment of Ogoniland* (UNEP 2011).

dataset is updated on an ongoing basis. This pattern reflects continuing enforcement and remediation challenges despite regulatory reforms.

Oil pollution has damaged mangrove ecosystems, contaminated land and water resources, reduced aquatic biodiversity and weakened traditional livelihoods in many oil-producing communities. These environmental harms are closely connected to socio-economic vulnerability: where fishing, farming and local trade are disrupted, communities experience unemployment, declining household income, poor access to health services and heightened poverty. The environmental problem is therefore also a development problem, because pollution reduces the capacity of host communities to benefit from petroleum activity.

The UNDP approach, aligned with the 2018–2022 United Nations Sustainable Development Partnership Framework, reflects the need to connect environmental recovery with job creation, peacebuilding and inclusive development in the Niger Delta. For this paper, the key implication is that petroleum technology development must include remediation technology, spill detection, pipeline monitoring, gas-flare reduction, community-based environmental reporting and technical training for host communities. State participation will remain incomplete if it increases public revenue while failing to strengthen the technologies and institutions needed to prevent, detect and remediate environmental harm.

4.6 Summary of Findings from a Petroleum Technology Development Perspective

The data reveal that while legal and institutional reforms have modernised Nigeria's oil sector, challenges of governance, revenue leakage, technology dependence and environmental degradation persist. State participation remains central, but its effectiveness should be measured not only by revenue captured but also by the extent to which it promotes indigenous technical capacity, local content, gas utilisation, digital transparency, research uptake, safer operations and reliable environmental remediation. In this sense, petroleum technology development provides a useful lens for assessing whether reforms are merely administrative or whether they are producing measurable improvements in skills, operational efficiency, innovation and national industrial capability.

From the perspective of technology transfer, the study finds that Nigeria's state participation has created opportunities for learning through joint ventures, production-sharing contracts, local content requirements and regulatory oversight. However, these opportunities have not always translated into sustained indigenous technological capability because technology transfer is often treated as a contractual or procurement obligation rather than a structured process of knowledge absorption, skills certification, research collaboration and operational participation by Nigerian professionals and firms. Effective technology transfer should therefore be measured by observable outcomes such as Nigerian involvement in reservoir modelling, drilling support, production optimisation, gas processing, pipeline integrity management, environmental remediation, digital metering, automation, maintenance systems and project management. The implication is that petroleum-sector reform must move beyond revenue capture to deliberately convert petroleum operations into domestic technical learning, innovation capacity and industrial competitiveness.

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Summary of Findings

This study examined the Nigerian state's participation in the oil and gas sector, focusing on its legal, institutional, and fiscal dimensions. The analysis revealed that:

1) Legal frameworks have evolved from the Petroleum Act (1969) to the PIA, shifting from state dominance to a more commercialized and regulated structure.
2) Institutional roles remain fragmented, with overlapping mandates between NNPC Limited, NUPRC, and NMDPRA, creating governance challenges.
3) Fiscal regimes continue to rely heavily on oil and gas revenue. Recent EITI data indicate that the extractive sector contributed 54.4% of government revenue in 2023, while oil and gas accounted for 82.52% of total exports. Reforms such as Executive Order 9 of 2026 are therefore best understood as attempts to improve transparency and traceability in a still strategically important revenue sector.
4) Socio-economic and environmental impacts remain severe, with oil spills and gas flaring continuing to affect oil-producing communities, especially in the Niger Delta.

Conclusion

The Nigerian state's participation in the oil and gas industry remains central to public finance, energy security and industrial development. This study has shown, however, that the developmental value of such participation should not be measured solely by ownership, regulatory presence or revenue capture. Its deeper significance lies in whether petroleum operations are deliberately converted into accountable institutions, domestic technological capability, sustainable livelihoods and long-term industrial competitiveness. The Petroleum Industry Act 2021 and Executive Order 9 of 2026 represent important reform efforts aimed at improving commercial discipline, regulatory clarity and revenue transparency. Yet their full value will depend on implementation: clearer institutional mandates, enforceable technology-transfer obligations, stronger local-content outcomes, reliable digital revenue and production monitoring, and effective environmental governance. From a petroleum technology development perspective, state participation should create practical opportunities for Nigerian engineers, regulators, universities, research institutes, indigenous service companies and host communities to participate meaningfully in exploration support, production optimisation, gas processing, pipeline integrity management, digital metering, environmental remediation, maintenance systems and project delivery. Properly structured technology transfer can reduce dependence on foreign expertise, deepen local content, improve operational efficiency, support cleaner and safer petroleum operations, and expand domestic participation in higher-value segments of the petroleum value chain. The central conclusion, therefore, is that Nigeria must move from a model of state participation centred principally on control, rents and institutional presence to one anchored in innovation, capability building, environmental responsibility and transparent governance. Without measurable technology-development benchmarks, credible enforcement and sustained investment in human capital, state participation will continue to reproduce resource dependence and ecological harm rather than deliver sustainable petroleum technology development.

5.3 Recommendations

To strengthen state participation and align it with sustainable development, the study recommends:

1) Clarify institutional mandates – Clearly separate the regulatory roles of NUPRC and NMDPRA from the commercial operations of NNPC Limited to reduce conflicts of interest.
2) Enhance revenue transparency – Fully implement and monitor compliance with Executive Order 9 and publish disaggregated oil revenue flows for public scrutiny.
3) Strengthen environmental regulation – Empower NOSDRA and NUPRC to enforce sanctions on oil spills and gas flaring, set mandatory remediation timelines, and clarify the role of the MDGIF under EO9 so that environmental remediation and gas-infrastructure objectives are not undermined.
4) Promote local content with efficiency – Deepen indigenous participation through NCDMB while ensuring that local content implementation prioritises measurable technology transfer, skills certification, engineering competence, research collaboration, quality assurance and operational efficiency.
5) Institutionalise petroleum technology development – Require major petroleum projects, joint ventures and production-sharing contracts to include enforceable technology development plans covering training, Nigerian participation in complex technical roles, research partnerships, digital systems, maintenance capability and periodic reporting on technology-transfer outcomes.
6) Diversify the economy – Reduce fiscal dependence on oil by investing petroleum revenues in non-oil sectors such as agriculture, digital technology, renewable energy, petrochemicals, gas-based industries and advanced technical education.

Suggestions for Further Research

Future studies could explore:

1) A comparative analysis of Nigeria's state participation model with other oil-producing countries (e.g., Norway, Angola).
2) The long-term effects of NNPC's commercialization on government revenue and energy security.
3) How digital technologies, including blockchain-based revenue tracking, AI-enabled spill detection, remote sensing, production metering and automated compliance systems, could improve transparency, safety and environmental accountability in oil revenue management and petroleum operations.