

Environmental Governance And Oil And Gas Exploration In Nigeria: A Critical Appraisal Of The Legal And Institutional Frameworks

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Abstract

Nigeria's oil and gas industry remains central to national economic development, revenue generation and energy supply, but petroleum exploration and production have also produced persistent environmental challenges, particularly in the Niger Delta. Oil spills, hydrocarbon contamination of soil and water, gas flaring, ecosystem degradation, petroleum waste, biodiversity loss and the environmental consequences of crude-oil theft and illegal refining continue to affect ecological integrity, public health and community livelihoods. This article critically examined the legal and institutional framework governing environmental protection in Nigeria's oil and gas sector, with particular attention to the Petroleum Industry Act 2021, the Environmental Impact Assessment Act, the National Oil Spill Detection and Response Agency Act, the National Environmental Standards and Regulations Enforcement Agency Act and relevant subsidiary regulations. It evaluated the respective environmental responsibilities of the Nigerian Upstream Petroleum Regulatory Commission, the Nigerian Midstream and Downstream Petroleum Regulatory Authority and other relevant institutions, focusing on institutional coordination, enforcement, remediation, financial responsibility and access to environmental justice. The article adopted a doctrinal and comparative methodology, complemented by relevant empirical and institutional evidence. Comparative perspectives from Norway, the United States and Ghana were examined to identify regulatory approaches capable of strengthening Nigeria's environmental governance. The article found that Nigeria possesses a substantial legal and institutional framework, but significant gaps remain between legal prescription and environmental outcomes. It therefore recommended stronger institutional coordination, continuous environmental monitoring, transparent enforcement, adequate remediation financing, independent verification of restoration and meaningful community participation.

Keywords: Environmental Governance, Oil and Gas, Environmental Pollution, Niger Delta, Petroleum Regulation, Environmental Remediation

1. INTRODUCTION

The exploration and exploitation of oil and gas resources have remained central to Nigeria's economic development, providing substantial government revenue, foreign exchange earnings and industrial activity. The environmental consequences of petroleum operations, however, have been particularly significant in the Niger Delta. Exploration and production activities, including seismic operations, drilling, production, transportation, storage and associated gas utilisation, may result in oil spills, contamination of soil and water, gas flaring, atmospheric pollution, ecosystem degradation and biodiversity loss, with consequential effects on agriculture, fisheries, potable water and community livelihoods.¹

The environmental implications of petroleum activities therefore extend beyond conventional resource regulation to questions of environmental governance, sustainable development, public accountability and intergenerational equity. Section 20 of the Constitution of the Federal Republic of Nigeria 1999 (as amended) directs the State to protect and improve the environment and safeguard Nigeria's water, air and land, forests and wildlife.² Although this provision forms part of Chapter II and is subject to the constitutional limitations applicable to the Fundamental Objectives and Directive Principles of State Policy, section 13 requires all organs of government to conform to, observe and apply those provisions.³ Environmental protection has consequently developed substantially through legislation, subsidiary regulation, administrative institutions and judicial intervention.

Nigeria has established a considerable body of environmental and petroleum legislation. The Environmental Impact Assessment Act provides a preventive framework for assessing the environmental consequences of specified projects before implementation, while the National Environmental Standards and Regulations Enforcement Agency (Establishment) Act 2007 establishes NESREA and confers environmental regulatory and enforcement responsibilities upon it.⁴ The National Oil Spill Detection and Response Agency (Establishment) Act 2006 similarly established NOSDRA as a specialised institution for oil-spill detection and response, including implementation of the National Oil Spill Contingency Plan.⁵

A major development occurred with the enactment of the Petroleum Industry Act 2021 (PIA), which substantially reorganised petroleum-sector governance and introduced specific environmental obligations applicable to petroleum operations. The Act established the Nigerian Upstream Petroleum Regulatory Commission (NUPRC) and the Nigerian Midstream and Downstream Petroleum Regulatory Authority (NMDPRA), with differentiated regulatory responsibilities corresponding principally to upstream and midstream/downstream petroleum activities. It also introduced environmental management requirements, remediation-financing mechanisms, gas-flaring controls and host-community development arrangements.⁶

Despite this expanding legal and institutional framework, petroleum-producing communities continue to experience environmental degradation. The persistence of oil pollution, gas flaring, contaminated land and water, ecological damage and livelihood disruption raises an important question concerning the effectiveness of Nigeria's environmental governance regime. The central issue is therefore no longer simply whether environmental laws and regulatory institutions exist, but whether they operate coherently and effectively to prevent environmental harm, ensure accountability, secure remediation and protect affected communities.

¹United Nations Environment Programme (UNEP), Environmental Assessment of Ogoniland (UNEP 2011) 24, 154–155, 174–178.

² Constitution of the Federal Republic of Nigeria 1999 (as amended), s 20.

³ Ibid ss 6(6)(c), 13.

⁴ Environmental Impact Assessment (EIA) Act, Cap E12, Laws of the Federation of Nigeria 2004, ss 2, 12–13; National Environmental Standards and Regulations Enforcement Agency (NESREA) (Establishment) Act 2007, s 7.

⁵ National Oil Spill Detection and Response Agency (NOSDRA) (Establishment) Act 2006, ss 5–6.

⁶ Petroleum Industry Act 2021 (PIA 2021), ss 3–10, 29–33, 102–108, 234–235.

Institutional coordination presents a related concern. Environmental governance in the petroleum sector is distributed among the Federal Ministry of Environment, NESREA, NOSDRA, NUPRC, NMDPRA and other institutions performing distinct but interconnected functions. While institutional specialisation may enhance technical regulation, overlapping or poorly coordinated responsibilities may produce gaps in information-sharing, monitoring, enforcement and environmental response.⁷ The development of the 2024 upstream environmental remediation framework and the 2026 regulatory framework on upstream decommissioning and abandonment further demonstrates that Nigeria's petroleum-environmental regime continues to evolve.⁸

The problem addressed by this article is therefore the apparent gap between the increasing sophistication of Nigeria's legal framework and the persistence of adverse environmental outcomes associated with petroleum activities. The article asks whether the existing legal and institutional arrangements are sufficiently coherent, enforceable and effective to provide sustainable environmental governance of oil and gas exploration and production in Nigeria.

The principal environmental governance problem in Nigeria is not necessarily legislative absence but the difficulty of translating legal prescriptions into effective environmental outcomes. An extensive body of legislation, regulations and regulatory institutions exists, yet petroleum-related pollution continues to affect land, water, ecosystems and community livelihoods. The existence of statutory powers does not, by itself, demonstrate effective prevention, enforcement or restoration.

The problem is compounded by institutional fragmentation, inadequate coordination, challenges in environmental monitoring and transparency, questions concerning the adequacy and administration of remediation mechanisms, and limitations in community participation and access to environmental justice. The article therefore critically examines whether Nigeria's evolving legal and institutional framework adequately addresses these practical deficiencies.

The aim of this article is to critically appraise the legal and institutional frameworks governing environmental consequences of oil and gas exploration and production in Nigeria.

The specific objectives are to examine the principal legal and institutional foundations of petroleum environmental governance; assess the major environmental consequences of petroleum activities; evaluate the adequacy of existing regulatory, enforcement and remediation mechanisms; examine institutional coordination, community participation and access to environmental justice; and draw comparative lessons from selected petroleum-producing jurisdictions for strengthening Nigeria's environmental governance framework.

The article adopts a doctrinal legal research methodology, supplemented by comparative and analytical approaches. Primary sources comprise the Constitution of the Federal Republic of Nigeria 1999 (as amended), statutes, subsidiary legislation, judicial decisions and relevant international legal instruments. Secondary materials include textbooks, peer-reviewed journal articles, institutional reports, regulatory publications and other authoritative scholarly materials.

Particular emphasis is placed on the Petroleum Industry Act 2021 and subsidiary regulations made under the contemporary petroleum regulatory framework, including the Upstream Petroleum Environmental Remediation Fund Regulations 2024 and the Nigeria Upstream Decommissioning and Abandonment

⁷DV Ogunkan, 'Achieving Sustainable Environmental Governance in Nigeria: A Review for Policy Considerations' (2022) 2(1) *Urban Governance* 212, 212–220.

⁸Upstream Petroleum Environmental Remediation Fund Regulations 2024, SI No 62 of 2024; Nigeria Upstream Decommissioning and Abandonment Regulations 2026, SI No 15 of 2026, Federal Republic of Nigeria Official Gazette No 45, vol 113, Government Notice No 18, B117–B138.

Regulations 2026.⁹ Empirical and institutional materials are also utilised where appropriate to demonstrate the practical consequences of petroleum activities and assess regulatory effectiveness.

The article focuses principally on environmental governance arising from oil and gas exploration and associated upstream petroleum activities in Nigeria. It considers oil spills, land and water contamination, gas flaring and greenhouse-gas emissions, petroleum waste, ecosystem degradation, remediation, community participation and related regulatory issues. Although the Niger Delta provides the principal geographical context for examining petroleum-related environmental degradation, the legal analysis is national in scope.

The significance of the study lies in shifting attention from the existence of environmental legislation to the effectiveness of the legal and institutional framework in practice. It therefore evaluates the extent to which Nigeria's petroleum regulatory system incorporates and operationalises principles of sustainable development, prevention, polluter pays, environmental justice, accountability and community participation.

The article is divided into nine sections. Following this introduction, section two examines the conceptual and theoretical foundations of environmental governance. Section three considers Nigeria's legal and institutional framework, while section four examines the principal forms and consequences of oil and gas environmental pollution. Section five critically appraises the effectiveness of the existing legal regimes, with particular attention to enforcement, institutional coordination, remediation, community participation, transparency and access to justice. Section six undertakes a comparative examination of Norway, the United States and Ghana. Sections seven and eight present the principal findings and recommendations, respectively, while section nine concludes the article.

2. CONCEPTUAL AND THEORETICAL FRAMEWORK

2.1 Conceptual Framework

The analysis in this article is founded on the interconnected concepts of environmental governance, oil and gas exploration, environmental pollution, sustainable development, environmental justice and regulatory effectiveness. Oil and gas exploration and production constitute economic activities capable of generating significant environmental risks; environmental pollution represents a principal consequence requiring regulation; while environmental governance provides the legal, institutional and participatory mechanisms through which such risks are prevented, monitored, remedied and subjected to accountability.

2.1.1 Environmental Governance

Environmental governance extends beyond the enactment of environmental legislation. UNEP conceives it in terms of the rules, policies and institutions that shape human interaction with the environment, encompassing policy formulation and implementation, institutional arrangements, regulatory decision-making, monitoring, enforcement, public participation, transparency and access to justice.¹⁰ J Paavola similarly views environmental governance as involving institutions established or modified to address conflicts over environmental resources.¹¹

In Nigeria's petroleum sector, environmental governance is distributed among the Federal Ministry of Environment, NESREA, NOSDRA, NUPRC, NMDPRA and other institutions exercising interconnected

⁹Upstream Petroleum Environmental Remediation Fund Regulations 2024; Nigeria Upstream Decommissioning and Abandonment Regulations 2026.

¹⁰United Nations Environment Programme (UNEP), Environmental Governance: An Overview (UNEP) 1; UNEP, Environmental Rule of Law: First Global Report (UNEP 2014) 20.

¹¹ J Paavola, 'Institutions and Environmental Governance: A Reconceptualization' (2007) 63 *Ecological Economics* 93, 93.

regulatory functions.¹² The relevant question is consequently not merely whether environmental rules exist, but whether laws, institutions and regulatory processes operate coherently to prevent environmental harm, hold polluters accountable and secure effective remediation.¹³ For purposes of this article, environmental governance therefore means the integrated system of laws, policies, institutions, regulatory processes and participatory mechanisms through which petroleum-related environmental risks are prevented, regulated, monitored, remedied and subjected to accountability.

2.1.2 Oil and Gas Exploration

The expression oil and gas exploration is used in this article within the broader statutory context of upstream petroleum operations. The Petroleum Industry Act 2021 defines upstream petroleum operations broadly to include exploration, appraisal, development and winning or obtaining of petroleum, together with associated activities such as drilling, well operations, gathering, treatment, flaring, compression, reinjection and certain related infrastructure.¹⁴

Accordingly, the article does not restrict exploration to the initial search for petroleum deposits. It considers exploration within the wider petroleum life cycle because environmental risks may arise from seismic operations, drilling, production, associated gas operations, waste generation, facility operation, abandonment and decommissioning. This broader conception permits assessment of environmental governance as a continuous rather than merely reactive regulatory process.

2.1.3 Environmental Pollution

Environmental pollution in the petroleum sector encompasses the contamination or degradation of environmental media and ecological systems arising from petroleum activities. It may include oil spills, hydrocarbon contamination of land and water, gas flaring and atmospheric emissions, petroleum waste, ecosystem degradation and pollution associated with crude-oil theft and illegal refining. The concept is therefore used broadly in this article to capture both direct pollution incidents and their consequential effects on ecosystems and communities.

2.1.4 Sustainable Development

Sustainable development provides a normative basis for reconciling economic development, environmental protection and social welfare. The Brundtland Report defines sustainable development around meeting present needs without compromising the ability of future generations to meet their own needs, while the Rio Declaration recognises environmental protection as an integral part of the development process.¹⁵

In the petroleum context, the concept requires Nigeria to derive legitimate economic benefits from its petroleum resources without permitting their exploitation to produce disproportionate or irreversible environmental and social costs. It therefore provides an important basis for evaluating whether petroleum regulation accommodates environmental sustainability and intergenerational responsibility.

2.1.5 Environmental Justice

Environmental justice concerns the distribution of environmental benefits and burdens, participation in environmental decision-making and access to information and remedies. Its relevance to Nigeria lies

¹²PIA 2021, ss 3, 4, 7, 10, 53–54.

¹³Ogunkan (n7), 212, 212–220.

¹⁴PIA 2021, s 318.

¹⁵World Commission on Environment and Development, *Our Common Future* (Oxford University Press 1987) 43; United Nations Conference on Environment and Development, (adopted 14 June 1992, UN Doc/A/CONF. 151/36/Rev.1, Vol 1), annex 1; Rio Declaration on Environment and Development, (1992), Principle 4.

particularly in the position of petroleum-producing communities, which may bear substantial environmental consequences while petroleum revenues and benefits accrue at national and wider levels.

The concept consequently enables the article to examine whether affected communities receive meaningful opportunities to participate in environmental decisions, obtain information, influence remediation processes and secure effective remedies where environmental harm occurs.

2.1.6 Regulatory Effectiveness

Regulatory effectiveness is central to the article because Nigeria possesses an extensive and continually developing body of environmental and petroleum legislation. The relevant issue is whether those laws and the institutions administering them translate legal obligations into actual environmental protection and accountability.

Regulatory effectiveness is therefore assessed through such criteria as clarity of legal obligations, institutional capacity, monitoring and inspection, compliance, enforcement, sanctions, transparency, public participation, remediation, access to justice and demonstrable environmental outcomes.¹⁶ It is accordingly understood as the capacity of the legal and institutional framework to translate statutory and regulatory requirements into effective compliance, environmental protection, accountability and restoration.

2.2 Theoretical Framework

The article adopts Sustainable Development Theory, Environmental Justice Theory and Political Ecology Theory as complementary analytical lenses. Their combination permits the legal and institutional framework to be examined not only from the perspective of environmental protection, but also in relation to development, distribution, participation, power and institutional effectiveness.

2.2.1 Sustainable Development Theory

Sustainable Development Theory proceeds from the premise that economic development and environmental protection should be integrated rather than treated as competing objectives. The 1987 Brundtland Report and the 1992 Rio Declaration, particularly Principle 4, provide important foundations for this approach.¹⁷

Applied to Nigeria's petroleum sector, the theory provides a basis for assessing whether petroleum exploitation produces development that is economically beneficial while remaining environmentally responsible and socially equitable. It is particularly relevant where the exploitation of a non-renewable resource generates substantial public revenue but imposes significant environmental costs upon producing communities. The theory will therefore be used to evaluate whether Nigeria's regulatory framework adequately reconciles petroleum development with environmental sustainability and intergenerational responsibility.

2.2.2 Environmental Justice Theory

Environmental Justice Theory focuses on inequality in the distribution of environmental risks and benefits, procedural participation, recognition and access to remedies. Its development, associated particularly with the work of Robert Bullard, has expanded from its original social-movement context into a broader framework for analysing environmental inequality and participation.¹⁸

¹⁶UNEP (n1) 13–14; Ogunkan (n7) 212–220.

¹⁷United Nations Conference on the Human Environment, Declaration of the United Nations Conference on the Human Environment (16 June 1972); WCED, Our Common Future (n15) 43; Rio Declaration (n15) Principle 4.

¹⁸RD Bullard, *Dumping in Dixie: Race, Class, and Environmental Quality* (Westview Press 1990) 1–24.

In Nigeria, the theory is particularly relevant because petroleum production has national economic significance while many environmental risks are geographically concentrated in producing communities. It will therefore be applied to examine the distribution of environmental burdens, community participation, access to information, remediation, compensation, accountability and access to environmental justice.

2.2.3 Political Ecology Theory

Political Ecology Theory examines environmental degradation through the interaction of ecological processes with political, economic and social structures. Rather than treating pollution solely as a technical consequence of petroleum operations, it asks who controls natural resources, who benefits from their exploitation, who bears the environmental costs and how power influences regulatory decisions.

The works of Piers Blaikie and Harold Brookfield, and subsequently Paul Robbins, have been particularly influential in developing political ecology as an interdisciplinary analytical approach.¹⁹ Its application to the Niger Delta is useful because petroleum resources possess substantial national and international economic value while producing communities experience many of the associated environmental consequences.

Political Ecology Theory will consequently be used to interrogate institutional power, corporate influence, regulatory relationships, community agency and the political economy underlying petroleum environmental governance in Nigeria.

3. LEGAL AND INSTITUTIONAL FRAMEWORKS

Nigeria's environmental governance of oil and gas operations is founded upon a combination of constitutional provisions, general environmental legislation, petroleum-specific legislation, subsidiary regulations and specialised regulatory institutions. The framework has evolved significantly, particularly following the enactment of the Petroleum Industry Act 2021 (PIA), which introduced a differentiated institutional structure for upstream and midstream/ downstream petroleum operations. The principal issue is therefore not the absence of legal rules, but the coherence and effectiveness of the framework in preventing, regulating and remedying environmental harm.

3.1 Constitutional and General Environmental Framework

Section 20 of the Constitution of the Federal Republic of Nigeria 1999 (as amended) provides that the State shall protect and improve the environment and safeguard Nigeria's water, air and land, forest and wildlife.²⁰ Although located in Chapter II as a Fundamental Objective and Directive Principle of State Policy, the provision establishes an important constitutional foundation for environmental protection. Its practical significance is reinforced by legislation, regulatory institutions and judicial development.

The general environmental framework includes the National Environmental Standards and Regulations Enforcement Agency (Establishment) Act 2007 (NESREA Act), the Environmental Impact Assessment Act 1992, as amended and applicable in the Laws of the Federation 2004, and the National Oil Spill Detection and Response Agency (Establishment) Act 2006 (NOSDRA Act). NESREA is responsible broadly for environmental standards, pollution control and enforcement, subject to statutory limitations concerning petroleum-sector activities. The 2018 amendment to the NESREA Act altered its relationship with the oil and gas sector by removing specified oil and gas functions from its mandate.²¹ Consequently, petroleum-sector environmental regulation must be considered alongside the specialised functions of

¹⁹P Blaikie and H Brookfield, *Land Degradation and Society* (Methuen 1987) 13 – 18; P Robbins, *Political Ecology: A Critical Introduction* (2nd edn, Wiley-Blackwell 2012) 157 – 167.

²⁰Constitution 1999, s 20.

²¹National Environmental Standards and Regulations Enforcement Agency (NESREA) (Establishment) Act 2007, ss 1–2, 7, as amended by the National Environmental Standards and Regulations Enforcement Agency (Establishment) (Amendment) Act 2018.

NUPRC and NMDPRA rather than treating NESREA as the sole environmental regulator of petroleum operations.

The Environmental Impact Assessment Act provides a preventive mechanism requiring environmental consequences of specified projects to be assessed before implementation. Its First Schedule covers various petroleum-related projects, including oil and gas field development, certain pipelines, processing and storage facilities, refineries and petroleum depots.²² EIA consequently operates as an important preventive component of petroleum environmental governance, complementing the environmental-management requirements of the PIA.

3.2 Petroleum Industry Act 2021

The PIA constitutes the central legislative framework for contemporary petroleum regulation in Nigeria. Its environmental significance lies both in the allocation of regulatory responsibilities and in the incorporation of environmental management, remediation, gas-flaring control and decommissioning into petroleum regulation.²³

The PIA establishes the Nigerian Upstream Petroleum Regulatory Commission (NUPRC) and assigns it responsibility for upstream petroleum operations. Sections 5–7 include functions relating to environmental policies, health, safety and environmental standards. In particular, section 7(c) empowers NUPRC to establish, monitor, regulate and enforce health, safety and environmental measures and standards applicable to upstream petroleum operations.²⁴ Section 25 further provides for consultation with relevant ministries, departments and agencies where their activities may affect upstream petroleum operations, thereby recognising the need for regulatory coordination.

The Nigerian Midstream and Downstream Petroleum Regulatory Authority (NMDPRA) performs the corresponding regulatory function for midstream and downstream petroleum operations. Sections 29–32 require environmentally acceptable and sustainable operations and empower the Authority to establish, monitor, regulate and enforce technical, health, environmental and safety standards within its jurisdiction.²⁵ The distinction is important: NUPRC and NMDPRA are not interchangeable regulators, although the PIA recognises circumstances involving integrated upstream and midstream operations requiring coordination.

The PIA also incorporates environmental protection directly into petroleum operations. Section 102 requires applicable licensees and lessees to submit environmental management plans for projects requiring environmental impact assessment, with the plans required to comply with extant environmental legislation and demonstrate capacity to manage and rehabilitate negative environmental impacts.²⁶ Section 103 establishes an environmental remediation-fund mechanism requiring financial contributions based on the scale and environmental risk of the relevant operation.²⁷

This framework is supplemented by the Upstream Petroleum Environmental Remediation Fund Regulations 2024, SI No 62 of 2024, which operationalise the upstream remediation-fund regime.²⁸ The framework seeks to ensure that financial resources are available for environmental rehabilitation rather than leaving restoration dependent entirely upon an operator's continuing willingness or financial capacity. The significance of the regime, however, ultimately depends upon adequate contributions, transparent administration and effective deployment of the funds.

²²EIA Act 1992, ss 2–4; First Schedule, para 12.

²³PIA 2021, ss 5–7.

²⁴Ibid ss 29–32.

²⁵Ibid s 102.

²⁶Ibid s 103.

²⁷Upstream Petroleum Environmental Remediation Fund Regulations 2024.

²⁸PIA 2021, ss 104–108.

The PIA also regulates gas flaring and venting through sections 104–108, including penalties, controls on flaring and venting, measurement requirements, specified exemptions and mechanisms directed towards flare elimination and gas utilisation.²⁹ These provisions broaden petroleum environmental regulation beyond conventional pollution control to include atmospheric pollution and climate-related consequences.

Finally, sections 232–233 address abandonment and decommissioning and provide for financial arrangements for associated liabilities.³⁰ The Nigeria Upstream Petroleum Decommissioning and Abandonment Regulations 2026, SI No 15 of 2026, further develop the current upstream framework.³¹ Environmental responsibility therefore extends beyond active petroleum production to the closure, decommissioning and restoration stages of the petroleum lifecycle.

3.3 Oil-Spill Regulation and Institutional Response

The NOSDRA Act establishes NOSDRA as the specialised federal institution for oil-spill detection and response. Its functions include surveillance and detection of oil spills, receiving spill reports, coordinating response activities and implementing the National Oil Spill Contingency Plan.³² The statutory framework also imposes reporting and clean-up obligations upon oil spillers.

Judicial decisions demonstrate that NOSDRA's regulatory authority is subject to the limits of its enabling legislation. In *National Oil Spill Detection and Response Agency v Mobil Producing Nigeria Unlimited*, the Court of Appeal considered the scope of NOSDRA's statutory authority to impose penalties. Similarly, *Shell Nigeria Exploration and Production Company Ltd v NOSDRA* examined the relationship between the enabling statute and subsidiary regulations.³³ These decisions illustrate an important administrative-law principle: environmental regulators must exercise powers within the authority legally conferred upon them.

3.4 Host Communities and Institutional Architecture

The PIA establishes Host Communities Development Trusts (HCDTs) under sections 235–241. Section 239(3)(f) includes support for local initiatives that enhance environmental protection among the objectives of the Trust.³⁴ The mechanism therefore introduces a community-development dimension into petroleum governance, although its effectiveness depends upon appropriate representation, transparency, accountability and monitoring.

The resulting institutional architecture comprises the Federal Ministry of Environment, NESREA, NOSDRA, NUPRC, NMDPRA and development-oriented institutions such as the Niger Delta Development Commission.³⁵ The system is best understood as sectorally differentiated rather than either completely fragmented or institutionally unified. Its effectiveness consequently depends upon clear allocation of functions, inter-agency consultation, information-sharing and respect for statutory jurisdiction.

3.5 Judicial and International Dimensions

Judicial protection forms an important complement to administrative regulation. In *Centre for Oil Pollution Watch v Nigerian National Petroleum Corporation*, the Supreme Court adopted a liberal approach to environmental public-interest standing and recognised the capacity of an environmental organisation to pursue enforcement and remediation. The decision is particularly significant because environmental harm

²⁹PIA 2021, ss 232–233.

³⁰Nigeria Upstream Petroleum Decommissioning and Abandonment Regulations 2026, B117–B138.

³¹NOSDRA Act 2006, s 6.

³²*National Oil Spill Detection and Response Agency v Mobil Producing Nigeria Unlimited* [2018] 13 NWLR (Pt 1636) 334; *Shell Nigeria Exploration and Production Company Ltd v National Oil Spill Detection and Response Agency (NOSDRA)* (2021) LPELR-SC3068 (CA).

³³Petroleum Industry Act 2021, ss 235–241.

³⁴NESREA Act 2007, ss 1–2, 7; NOSDRA Act 2006, ss 4–7; Niger Delta Development Commission (Establishment) Act 2000, s 7(1)(h).

³⁵*Centre for Oil Pollution Watch v Nigerian National Petroleum Corporation* [2019] 5 NWLR (Pt 1666) 518, 571–572.

frequently affects communities collectively and may not fit comfortably within traditional private-injury concepts.

Nigeria's environmental governance also operates within a broader international framework comprising multilateral environmental agreements relating to climate change, biodiversity, wetlands, hazardous substances and marine pollution. Section 12 of the Constitution governs the domestic application of treaties and therefore remains relevant to the legal status and enforceability of Nigeria's international environmental commitments.

3.6 Assessment of the Framework

Nigeria consequently possesses a substantial legal and institutional framework addressing environmental impact assessment, petroleum environmental management, oil-spill response, remediation financing, gas flaring, decommissioning and host-community interests. The PIA has also clarified the respective upstream and midstream/downstream functions of NUPRC and NMDPRA.

The principal weakness is therefore not legislative emptiness. Rather, it concerns the relationship between legal authority, institutional coordination, regulatory capacity, enforcement and environmental outcomes. The limitations placed upon NESREA, the jurisdictional questions considered in the NOSDRA cases and the continuing need for coordination among petroleum and environmental institutions demonstrate that effective environmental governance requires both clearly defined legal mandates and effective institutional cooperation.

The framework established by this section provides the legal foundation for the empirical examination in Section 4 and the critical appraisal in Section 5. The central question is whether these extensive legal and institutional arrangements have translated into effective prevention, enforcement, remediation and environmental protection in practice.

4. ENVIRONMENTAL POLLUTION IN NIGERIA

Nigeria's oil and gas industry has made a substantial contribution to national revenue, economic development and energy supply, but petroleum exploration and production have also generated persistent environmental consequences, particularly in the Niger Delta. These include oil spills, hydrocarbon contamination of soil and water, gas flaring, atmospheric pollution, ecosystem and biodiversity degradation, petroleum waste, damage to agricultural and fishing resources, public-health risks and, increasingly, environmental degradation associated with crude-oil theft and illegal refining. The causes are diverse, ranging from equipment failure, corrosion and operational accidents to sabotage, crude-oil theft and other forms of third-party interference.³⁶

The most comprehensive scientific assessment of petroleum-related environmental degradation in Nigeria remains the United Nations Environment Programme (UNEP) Environmental Assessment of Ogoniland. The assessment examined more than 200 locations, approximately 122 kilometres of pipeline rights of way and more than 5,000 medical records.³⁷ Although its findings should not be mechanically generalised to every petroleum-producing area in Nigeria, the assessment provides important evidence of the nature, scale and persistence of hydrocarbon contamination.

4.1 Oil Spills and Hydrocarbon Contamination

Oil spills remain one of the most visible forms of petroleum pollution in Nigeria. Petroleum releases occurring during exploration, production, transportation, storage or processing may contaminate soil,

³⁶UNEP (n1) 8–12.

³⁷Ibid 8–12.

surface water, groundwater, vegetation and aquatic ecosystems. Their consequences may extend beyond the immediate site of release because hydrocarbons can migrate through interconnected terrestrial and aquatic systems. UNEP found that pollution resulting from more than five decades of petroleum operations in Ogoniland had penetrated deeper and further than previously appreciated, affecting land, groundwater, surface water, sediments, vegetation and air quality.³⁸

The causes of oil spills are not uniform. Operational failures may result from equipment malfunction, corrosion, inadequate maintenance, pipeline rupture, accidents and human error, while other incidents may arise from sabotage, crude-oil theft and other third-party interference. The distinction is important because the cause of a spill may affect questions of responsibility, remediation and compensation.

NOSDRA has a specialised role in detecting and responding to oil spills. Its statutory functions include surveillance and detection, receiving reports, coordinating spill-response activities and implementing the National Oil Spill Contingency Plan.³⁹ Its Oil Spill Monitor provides incident-based information on reported spills, including their locations, causes, quantities and clean-up status. The Monitor, however, expressly cautions that its records are continuously updated and may change as additional information becomes available.⁴⁰ Consequently, NOSDRA statistics should be treated as reported and publicly available incidents rather than necessarily constituting a complete census of all petroleum spills in Nigeria.

The persistence of contamination demonstrates why environmental governance must extend beyond immediate containment. An oil spill may create environmental liabilities long after the original release, requiring remediation, restoration and continuing monitoring.

4.2 Contamination of Land and Water, Ecosystems and Livelihoods

Contamination of land and water resources constitutes one of the most serious consequences of petroleum pollution. UNEP found that at 41 sites in Ogoniland hydrocarbon pollution had reached groundwater at levels exceeding the applicable Nigerian standards. Hydrocarbons were also detected throughout the investigated creek systems, with the highest recorded dissolved hydrocarbon concentration reaching 7,420 µg/l at Ataba-Otokroma.⁴¹ At Nisisioken Ogale in Eleme Local Government Area, an approximately eight-centimetre layer of refined oil was observed floating on groundwater supplying community wells, while benzene was detected in drinking-water wells at concentrations more than 900 times the World Health Organization guideline.⁴²

These findings illustrate the difficulty of detecting subsurface contamination through visual inspection alone. Hydrocarbons may remain in soil, sediments and groundwater after the original source has been removed. Effective environmental governance therefore requires scientific monitoring capable of identifying contamination across different environmental media and assessing whether remediation has actually restored environmental quality.

Petroleum pollution also damages ecosystems and community livelihoods. UNEP documented substantial mangrove degradation in Ogoniland and associated changes in mangrove cover with petroleum pollution and the expansion of artisanal refining. In Bodo West, the assessment recorded a reduction of approximately 311,274 square metres of healthy mangrove cover and an increase of approximately 307,381 square metres in degraded mangrove classification between 2007 and 2011.⁴³ Mangrove

³⁸UNEP (n1) 8–12.

³⁹NOSDRA Act 2006, s6.

⁴⁰Nigerian Oil Spill Monitor, 'About Oil Spills in Nigeria' accessed 18 August 2026.

⁴¹UNEP (n1) 10–12, 167–168.

⁴²UNEP (n1) 10 – 12, 167 – 168, United Nations Environmental Programme (UNEP) 'Ogoniland Oil Assessment Reveals Extent of Environmental Contamination and Threats to Human Health' (4 August, 2011).

⁴³UNEP (n1) 167–168, Table 36.

degradation affects more than vegetation; it diminishes habitat for aquatic organisms and may consequently affect fisheries, food security and community livelihoods.⁴⁴

The consequences similarly extend to agriculture and fishing. Pollution of agricultural land and waterways can reduce productive capacity, while contaminated or depleted fishing grounds may require fishermen to travel farther to obtain viable catches. UNEP's assessment of the HYPREP programme further demonstrates that environmental restoration is connected with broader objectives concerning community health and livelihoods, including agriculture and fisheries.⁴⁵ Environmental remediation should therefore be evaluated not merely by whether contaminated material has been removed, but by whether ecological functions and reasonable livelihood opportunities have been restored.

4.3 Gas Flaring, Petroleum Waste and Illegal Refining

Gas flaring constitutes another significant environmental consequence of petroleum production. Associated gas produced alongside crude oil may be flared where adequate facilities for utilisation, processing or reinjection are unavailable. Flaring contributes to greenhouse-gas emissions and atmospheric pollution and may expose nearby communities to heat, light and other emissions.

The Petroleum Industry Act 2021 addresses flaring and venting through sections 104–108, including provisions concerning penalties, measurement, specified exemptions and measures directed towards flare elimination and gas monetisation.⁴⁶ Nevertheless, the continuing prevalence of gas flaring demonstrates that legislative regulation alone does not automatically produce corresponding environmental outcomes. The World Bank's Global Gas Flaring Tracker Report: June 2026 estimates that 167 billion cubic metres of gas were flared globally in 2025 and continues to identify Nigeria among the world's leading gas-flaring countries.⁴⁷ The climate implications are significant because petroleum-sector emissions connect local environmental pollution with the wider global problem of climate change.

Petroleum-related pollution also arises from waste generated during exploration and production. Drilling activities may generate drilling cuttings, drilling fluids, produced water and contaminated materials which, if improperly managed, may become sources of environmental contamination. UNEP documented a site in Ogoniland containing approximately 1,000–1,500 cubic metres of waste believed to comprise drilling cuttings that had been disposed of without appropriate containment.⁴⁸ This demonstrates that petroleum pollution is not limited to accidental spills but may also result from routine operational practices and inadequate waste management.

Crude-oil theft and illegal or artisanal refining have introduced an additional contemporary dimension. Such activities may involve unauthorised pipeline tapping, uncontrolled processing and open burning of petroleum products, resulting in soil and water contamination, atmospheric pollution and destruction of vegetation. UNEP previously documented the relationship between artisanal refining and mangrove degradation in Ogoniland.⁴⁹ More recent scholarship has continued to identify environmental consequences associated with artisanal refining in the Niger Delta, including impacts on surface-water quality.⁵⁰

⁴⁴UNEP (n1) 167–168, Table 36.

⁴⁵UNEP Evaluation Office, Terminal Evaluation of the UNEP Project “Strengthening Hydrocarbon Pollution Remediation Project (HYPREP) for Initiating Clean-up from Oil Contamination in Ogoniland” (PIMS ID 2030/SMA ID 39243) 2018–2023 (UNEP 2025).

⁴⁶PIA Act 2021, ss 104–108.

⁴⁷World Bank, Global Gas Flaring Tracker Report: June 2026 (World Bank 2026), 11.

⁴⁸UNEP (n1) 130.

⁴⁹Ibid 167–168.

⁵⁰K Sam, S Pegg and A O Oladejo, ‘Mining from the Pipeline: Artisanal Oil Refining as a Consequence of Failed CSR Policies in the Niger Delta’ (2024) 352 *Journal of Environmental Management* 120038; M E Amesi, L C Osuji and H O Nwankwoala, ‘Environmental Impact of Petroleum Hydrocarbons from Artisanal Refineries on Surface Water in the Niger Delta’ (2025) 21(3) *Journal of Global Ecology and Environment* 96–109, 101–104.

4.4 Public Health, Climate Change and Cumulative Environmental Damage

Petroleum pollution has significant public-health implications where communities are exposed to contaminated drinking water, soil and air. UNEP identified serious threats to public health in several Ogoni communities, particularly as a result of hydrocarbon contamination of drinking-water sources.⁵¹ The benzene findings at Nisisioken Ogale are especially significant because of the contaminant's carcinogenic properties and the exceptionally high concentration detected in community wells.⁵² Nevertheless, scientific precision requires a distinction between establishing environmental contamination and proving that a particular disease or injury was caused by that contamination. The more defensible proposition is that petroleum pollution may create or increase public-health risks, with specific causation requiring appropriate scientific evidence.

The evidence also establishes the cumulative and long-term character of petroleum-related environmental degradation. UNEP concluded that contamination associated with more than five decades of petroleum operations had penetrated deeply into Ogoniland and estimated that restoration could require approximately 25–30 years, provided further pollution was controlled and remediation was properly implemented.⁵³ The continuing HYPREP remediation programme and UNEP's 2025 terminal evaluation demonstrate that environmental restoration remains an ongoing governance undertaking rather than a problem resolved simply by establishing a clean-up programme.⁵⁴

The significance of these environmental consequences extends beyond individual pollution incidents. Oil spills may simultaneously contaminate land and water, damage vegetation and fisheries, undermine agriculture and affect household livelihoods. Gas flaring combines local atmospheric effects with global greenhouse-gas emissions, while illegal refining may compound water, soil and air pollution. Environmental degradation in Nigeria's petroleum-producing areas is consequently a multidimensional and cumulative governance problem.

The evidence therefore suggests that the adequacy of Nigeria's environmental governance framework should not be measured merely by the number of statutes, regulations or regulatory institutions in existence. The relevant question is whether the framework can prevent pollution, detect incidents promptly, establish responsibility, secure effective remediation, protect community livelihoods and produce measurable environmental outcomes. This empirical reality provides the basis for the critical appraisal of Nigeria's legal and institutional framework in the next section.

5. CRITICAL APPRAISAL OF EXISTING LEGAL REGIMES

Nigeria's legal framework for regulating the environmental consequences of oil and gas exploration and production is extensive. It encompasses environmental impact assessment, oil-spill detection and response, petroleum-sector environmental management, remediation financing, gas-flaring control, decommissioning, climate governance and judicial remedies. The Petroleum Industry Act 2021 (PIA) significantly restructured petroleum governance by replacing the former Department of Petroleum Resources with separate upstream and midstream/downstream regulators.⁵⁵ The central problem is therefore no longer simply legislative absence, but whether the existing legal and institutional architecture is sufficiently coherent, enforceable and effective to translate statutory standards into measurable environmental outcomes.

⁵¹UNEP (n1) 10–12.

⁵²Ibid; UNEP, (n42).

⁵³UNEP (n1) 8–12.

⁵⁴UNEP Evaluation Office (n45).

⁵⁵PIA 2021, ss 4–7, 29–33.

5.1 Institutional Fragmentation and Regulatory Coordination

The PIA allocates petroleum regulatory responsibility between the Nigerian Upstream Petroleum Regulatory Commission (NUPRC) and the Nigerian Midstream and Downstream Petroleum Regulatory Authority (NMDPRA). NUPRC's jurisdiction is directed principally towards upstream operations, while NMDPRA regulates midstream and downstream operations.⁵⁶ NUPRC's environmental responsibilities include promoting environmentally acceptable and sustainable upstream operations, implementing environmental policies and enforcing health, safety and environmental standards.⁵⁷ NMDPRA possesses corresponding responsibilities within the midstream and downstream sectors.⁵⁸

This differentiation is rational because it distributes regulatory responsibility according to petroleum-sector activity. Its weakness, however, arises where environmental harm crosses those functional boundaries. Pollution incidents may involve production facilities, pipelines, transportation systems, storage facilities or processing operations that implicate more than one regulatory institution. The involvement of NOSDRA, NESREA and the Federal Ministry of Environment further demonstrates the multi-institutional character of petroleum environmental governance.

The critical issue is therefore not the existence of separate regulators but the effectiveness of coordination between them. The framework requires timely information-sharing, coordinated inspections, joint investigation where appropriate and clearly defined responsibility where environmental incidents cross institutional boundaries. Without such coordination, differentiated regulation may produce gaps, duplication or uncertainty in enforcement.

5.2 Environmental Management, Prevention and Remediation

The PIA represents an important normative development by incorporating environmental sustainability directly into petroleum regulation. Section 102 requires applicable licensees and lessees to prepare environmental management plans and requires those plans to comply with extant environmental legislation.⁵⁹ The provision also permits the regulator to require additional information or amendments where necessary. The Upstream Petroleum Environmental Regulations 2022 further provide requirements concerning environmental studies, waste management, emergency response, pollution abatement, spill investigation, clean-up, remediation and restoration.⁶⁰

The framework consequently adopts a preventive approach rather than relying exclusively upon post-pollution remedies. Nevertheless, environmental management plans have limited practical value where compliance is not continuously monitored. The principal weakness therefore lies less in the statutory requirement for environmental planning than in the implementation and enforcement of the conditions imposed through those plans.

Section 103 PIA complements the preventive framework by requiring financial contributions towards environmental remediation.⁶¹ The Upstream Petroleum Environmental Remediation Fund Regulations 2024, SI No 62 of 2024, provide an operational framework for the upstream remediation fund.⁶² A comparable regime exists for midstream and downstream operations under the Midstream and Downstream Environmental Remediation Fund Regulations 2023, SI No 36 of 2023. The establishment of

⁵⁶PIA, ss 4(1)–(3), 29–30.

⁵⁷Ibid ss 5–7.

⁵⁸Ibid ss 30–32.

⁵⁹Ibid s 102(1)–(6).

⁶⁰Nigerian Upstream Petroleum Regulatory Commission, Upstream Petroleum Environmental Regulations 2022.

⁶¹PIA 2021, s 103.

⁶²Upstream Petroleum Environmental Remediation Fund Regulations 2024.

these funds is significant because it introduces financial assurance into environmental governance and reduces dependence upon an operator's continuing willingness or capacity to finance restoration.

However, the existence of a remediation fund does not guarantee effective restoration. Its effectiveness depends upon adequate contributions, transparent administration, timely deployment and scientifically verifiable remediation. The distinction between financial provision and actual ecological restoration is particularly important. In *Alame & Ors v Shell Plc & Anor*, the English High Court, applying Nigerian law with the assistance of expert evidence, treated regulatory certification of remediation as potentially probative but not necessarily conclusive and recognised the continuing relevance of *restitutio in integrum*.⁶³ Although *Alame* is not a Nigerian precedent, it is persuasive material concerning the relationship between administrative certification and actual restoration.

5.3 Enforcement and Gas-Flaring Control

The PIA confers substantial regulatory, investigative and enforcement powers upon NUPRC and NMDPRA. NUPRC is empowered to establish, monitor and enforce technical, health, safety and environmental standards, while its investigative powers include inspection, investigation, sampling and testing.⁶⁴ NMDPRA possesses corresponding powers within its statutory jurisdiction.⁶⁵ The existence of these powers demonstrates that inadequate environmental outcomes cannot be attributed simply to a complete absence of enforcement authority.

The more fundamental issue is whether those powers are exercised consistently, supported by adequate technical capacity and accompanied by sanctions capable of altering environmentally harmful conduct. Weak monitoring, inconsistent sanctions, inadequate regulatory information and institutional limitations can undermine even extensive statutory powers. Nigeria's continuing environmental problems therefore expose an implementation deficit rather than merely an enforcement-power deficit.

Gas flaring illustrates this distinction particularly clearly. Sections 104–108 PIA establish penalties and controls relating to flaring and venting, measurement, specified exemptions and flare-elimination and monetisation measures.⁶⁶ The regime should not, however, be characterised as an absolute prohibition because the legislation recognises specified circumstances in which exemptions or regulatory permissions may operate.⁶⁷ Its effectiveness consequently depends upon enforcement and upon economic incentives capable of making gas utilisation more attractive than continued flaring. The continuing prevalence of flaring demonstrates the difficulty of achieving environmental outcomes through legislative prescription alone.

5.4 Environmental Impact Assessment and Preventive Regulation

The Environmental Impact Assessment Act 1992 provides a principal preventive mechanism by requiring environmental consequences of qualifying projects to be assessed before implementation.⁶⁸ The PIA's environmental-management provisions complement this framework by integrating environmental planning into petroleum operations.

The importance of prevention is particularly apparent in the petroleum sector because ecological restoration may be technically difficult, costly and incapable in some circumstances of returning an

⁶³*Alame & Ors v Shell Plc & Anor* [2025] EWHC 1539 (KB), [150], [195], [230]. The source document records that the judgment concerned questions of Nigerian law and treated remediation as not necessarily extinguishing a claimant's entitlement where full restoration had not occurred.

⁶⁴PIA 2021 ss 7(c), (g), 10, 26.

⁶⁵*Ibid* ss 32, 33.

⁶⁶*Ibid* ss 104–108.

⁶⁷*Ibid* ss 104–107.

⁶⁸EIA Act 1992, ss 2–4.

ecosystem to its original condition. However, EIA effectiveness cannot be measured simply by the production of an assessment document. Meaningful assessment of alternatives, public participation, implementation of mitigation measures and continuing post-approval monitoring are necessary if EIA is to perform its preventive function. The critical deficiency therefore lies principally in implementation and monitoring rather than in the existence of the EIA requirement itself.

5.5 Community Participation and Access to Environmental Justice

Environmental governance is incomplete where affected communities are treated primarily as recipients of compensation rather than participants in decisions concerning their environment. The PIA's Host Communities Development Trust mechanism represents an important attempt to institutionalise benefits for petroleum-producing communities.⁶⁹ Nevertheless, community development cannot substitute for environmental protection: financial benefits cannot restore contaminated water, degraded agricultural land, damaged fisheries or destroyed ecosystems.

Environmental justice consequently requires access to environmental information, meaningful participation in decisions affecting local environmental resources and effective mechanisms for obtaining redress. In *Centre for Oil Pollution Watch v Nigerian National Petroleum Corporation*, the Supreme Court adopted a liberal approach to locus standi in environmental public-interest litigation and recognised the standing of an environmental organisation to pursue relief concerning environmental pollution and remediation.⁷⁰ The decision is significant because it moves environmental litigation beyond an exclusively private-injury conception and facilitates judicial protection of wider environmental interests.

Judicial remedies, however, should complement rather than replace administrative regulation. Litigation is generally reactive, potentially expensive and time-consuming. A governance system that depends principally upon judicial intervention after environmental damage has occurred cannot be regarded as fully preventive or effective.

5.6 Overall Critical Assessment

The Nigerian framework is therefore normatively substantial but operationally uneven. The PIA and subsidiary regulations have strengthened environmental management, remediation financing, gas-flaring control and regulatory supervision, while NOSDRA and the broader environmental framework provide additional mechanisms for pollution detection, response and enforcement. The principal weakness lies in the translation of these legal standards into environmental outcomes.

Three related deficiencies are particularly evident. First, institutional mandates remain vulnerable to fragmentation where environmental incidents cross regulatory boundaries. Secondly, financial and regulatory mechanisms for remediation require stronger transparency, independent scientific verification and continuing monitoring. Thirdly, enforcement and community participation remain insufficiently connected to measurable environmental performance.

The appropriate measure of regulatory effectiveness should therefore be outcome-oriented: whether the framework reduces pollution, ensures prompt response, holds responsible actors accountable, internalises environmental costs and achieves scientifically verifiable restoration. The persistence of environmental degradation despite an increasingly sophisticated legislative framework suggests that Nigeria's principal environmental-governance challenge has moved from law-making to law implementation.

Accordingly, reform should focus less on multiplying legislation and regulatory agencies and more on institutional coordination, technical and enforcement capacity, transparent environmental data, adequate

⁶⁹PIA 2021, ss 234–241.

⁷⁰*Centre for Oil Pollution Watch v NNPC* (n35) 518, 571–572, 595–601.

remediation financing, credible sanctions, meaningful community participation and independent verification of restoration.

6. COMPARATIVE PERSPECTIVES

Comparative analysis provides a useful basis for assessing Nigeria's environmental governance framework beyond the formal content of its domestic legislation. The purpose is not to transplant foreign legal regimes wholesale, but to identify regulatory principles capable of addressing weaknesses in Nigeria's petroleum-environmental governance. Norway, the United States and Ghana provide useful comparators because they demonstrate, respectively, integrated environmental planning, financial responsibility for pollution, and recent regulatory reform within an African petroleum-producing State.

6.1 Norway: Integrated Petroleum and Environmental Governance

Norway demonstrates the importance of integrating environmental protection into petroleum development from the earliest planning stage. The Act relating to Petroleum Activities requires environmental and socio-economic considerations to be assessed before areas are opened for petroleum activities, including consideration of pollution risks and consultation with relevant authorities and interested bodies.⁷¹ The legislation also imposes a general duty of prudence upon petroleum operators, requiring reasonable measures to prevent environmental damage and pollution.⁷²

The Norwegian Regulations to the Petroleum Activities Act further connect environmental impact assessment with development planning by requiring consideration of environmental consequences, transboundary effects and alternative development solutions.⁷³ The Pollution Control Act complements the petroleum framework by emphasising pollution prevention, regulatory permitting, inspection and the allocation of pollution-control costs to the responsible party.⁷⁴

The principal lesson for Nigeria is therefore the integration of environmental considerations throughout the petroleum lifecycle. Environmental protection should not be treated principally as a condition attached to project approval, but as a continuing regulatory obligation supported by monitoring, supervision and enforcement. Nigeria's institutional separation between NUPRC and NMDPRA is not inherently inconsistent with this approach; its effectiveness depends upon adequate coordination and continuous environmental oversight.

6.2 United States: Liability and Financial Responsibility

The United States provides a useful model concerning environmental liability and financial responsibility. The Federal Water Pollution Control Act establishes a general framework for controlling unlawful discharges into navigable waters, while the Oil Pollution Act 1990 (OPA) provides a more specific liability regime for oil pollution. Under the OPA, the responsible party is liable for specified removal costs and damages arising from an oil discharge or substantial threat of discharge.⁷⁵

The OPA also establishes the Oil Spill Liability Trust Fund, which enables government resources to be used for specified removal costs and uncompensated claims while preserving mechanisms for recovery from responsible parties.⁷⁶ The framework consequently combines immediate response capacity with the principle that the economic burden of pollution should ultimately fall upon the responsible party.

⁷¹Act 29 November 1996 No 72 relating to Petroleum Activities (Norway), s 3-1.

⁷²Ibid s 10-1.

⁷³Regulations to Act relating to Petroleum Activities (Norway), ss 22, 22a and 22c.

⁷⁴Pollution Control Act 1981 (Norway), ss 1-2, 7, 11 and 48-51.

⁷⁵Oil Pollution Act 1990 (United States), 33 USC § 2702.

⁷⁶Oil Pollution Act 1990 (OPA 1990).

Nigeria's environmental remediation-fund regime under section 103 PIA reflects a related policy objective. The Upstream Petroleum Environmental Remediation Fund Regulations 2024 further provide an institutional mechanism for financing upstream environmental remediation.⁷⁷ The comparative lesson, however, extends beyond the creation of a fund. Financial responsibility is effective only where contributions are adequate, administration is transparent, funds are promptly deployable and responsible operators can ultimately be required to bear the costs of environmental harm.

The United States therefore illustrates the importance of connecting liability, financial assurance, emergency response and restoration. For Nigeria, stronger internalisation of environmental costs could provide greater incentives for operators to prevent pollution rather than merely respond to its consequences.

6.3 Ghana: An African Comparative Perspective

Ghana provides a particularly relevant comparison because it is a developing African petroleum-producing State with specialised petroleum institutions and a general environmental regulatory framework. Upstream petroleum operations are principally governed by the Petroleum (Exploration and Production) Act 2016 (Act 919), together with the Petroleum (Exploration and Production) (Health, Safety and Environment) Regulations 2017 (L.I. 2258).⁷⁸

Ghana has also undertaken significant recent environmental reform. The Environmental Protection Act 2025 (Act 1124) replaced the Environmental Protection Agency Act 1994 and established a broader contemporary framework for environmental regulation.⁷⁹ This has been supplemented by the Environmental Protection (Petroleum) Regulations 2025 (L.I. 2509), addressing matters including petroleum environmental permits, waste management and the minimisation of flaring and venting.⁸⁰ The Environmental Protection (Environmental Assessment) Regulations 2025 (L.I. 2504) likewise replaced the earlier 1999 assessment regulations.⁸¹

Ghana's experience demonstrates the continuing need for environmental law to adapt to changing petroleum and environmental challenges. It also illustrates the importance of coordinating specialised petroleum regulation with a comprehensive general environmental framework. However, because these reforms are recent, their practical effectiveness cannot yet be established conclusively. Their principal comparative significance therefore lies in the direction of regulatory reform rather than demonstrated environmental outcomes.

6.4 Comparative Lessons for Nigeria

The three jurisdictions reveal a common principle: effective environmental governance depends upon the integration of law, institutions, financial responsibility, monitoring and enforcement rather than the mere quantity of legislation.

Norway demonstrates the value of incorporating environmental considerations into petroleum planning and maintaining regulatory supervision throughout operations.⁸² The United States demonstrates the importance of clear liability rules, financial responsibility and mechanisms for immediate pollution

⁷⁷PIA 2021, s 103; Upstream Petroleum Environmental Remediation Fund Regulations 2024.

⁷⁸Petroleum (Exploration and Production) Act 2016 (Act 919) (Ghana); Petroleum (Exploration and Production) (Health, Safety and Environment) Regulations 2017 (L.I. 2258) (Ghana).

⁷⁹Environmental Protection Act 2025 (Act 1124) (Ghana), ss 2–3.

⁸⁰Environmental Protection (Petroleum) Regulations 2025 (L.I. 2509) (Ghana).

⁸¹Environmental Protection (Environmental Assessment) Regulations 2025 (L.I. 2504) (Ghana).

⁸²Act 29 November 1996 No 72 relating to Petroleum Activities (Norway), ss 3-1, 10-1 and 10-3.

response and restoration.⁸³ Ghana demonstrates the continuing need for institutional and legislative adaptation within an African petroleum-producing context.⁸⁴

Nigeria need not reproduce any of these systems. Its constitutional structure, petroleum industry and institutional circumstances are different. Nevertheless, the comparative evidence supports strengthening Nigeria's existing framework through better inter-agency coordination, continuous environmental monitoring, adequate financial assurance, transparent remediation mechanisms, credible enforcement and meaningful community participation.

The comparative analysis consequently reinforces the conclusion reached in the preceding section: Nigeria's principal environmental-governance challenge is increasingly one of implementation and institutional effectiveness rather than legislative insufficiency. The critical objective should be to ensure that existing legal standards produce measurable reductions in pollution, effective accountability and scientifically verifiable environmental restoration.

7. FINDINGS

The study makes four principal findings.

1. Nigeria possesses a relatively comprehensive legal and institutional framework for regulating the environmental consequences of oil and gas exploration and production, but its principal weakness lies in implementation rather than legislative insufficiency. The existing framework provides extensive mechanisms for environmental impact assessment, oil-spill response, environmental management, gas-flaring control and remediation. Nevertheless, the persistence of oil pollution, gas flaring and ecological degradation demonstrates that extensive legislation has not necessarily produced corresponding environmental outcomes. Effectiveness should therefore be measured by environmental performance rather than by the volume of legislation or number of regulatory institutions.
2. Institutional fragmentation and inadequate coordination constrain effective environmental governance. The statutory distinction between NUPRC and NMDPRA provides greater clarity by allocating petroleum regulatory responsibilities according to the upstream and midstream/downstream sectors. However, environmental harm may cross those institutional boundaries and may also involve NOSDRA, NESREA and other governmental bodies. The principal challenge is therefore to establish effective coordination, information-sharing, joint monitoring and clearly defined institutional interfaces without unnecessarily creating additional regulatory agencies.
3. Nigeria's framework has progressively incorporated prevention, financial responsibility and environmental justice, but significant weaknesses remain in enforcement, remediation and community participation. Environmental management and impact-assessment requirements provide preventive mechanisms, while the remediation-fund regime provides financial assurance for restoration. Judicial developments have also improved access to environmental justice. However, these mechanisms require stronger monitoring, credible sanctions, independent verification of remediation and meaningful community participation to produce effective environmental outcomes.
4. Comparative experience confirms that effective environmental governance depends upon the integration of law, institutions, finance, monitoring and enforcement. Norway demonstrates the value of continuous environmental planning and supervision; the United States illustrates the

⁸³Oil Pollution Act 1990 (OPA 1990).

⁸⁴Environmental Protection Act 2025 (Ghana); Environmental Protection (Petroleum) Regulations 2025 (Ghana).

importance of liability and financial responsibility; while Ghana demonstrates the continuing evolution of petroleum-environmental regulation within an African developing-State context. These models should not be transplanted wholesale but may inform improvements to Nigeria's existing framework.

Taken together, these findings establish that Nigeria's fundamental environmental-governance challenge is the persistent gap between legal prescription and practical environmental outcomes. The priority should therefore be to strengthen implementation, institutional coordination, enforcement, financial accountability, community participation and scientifically verifiable restoration rather than principally multiplying legislation or regulatory institutions.

8. RECOMMENDATIONS

The findings of this study demonstrate that the principal weakness of Nigeria's environmental governance framework in the oil and gas sector is not the absence of legislation, but the gap between legal prescription and effective implementation. The following recommendations are therefore directed principally towards strengthening existing institutions and regulatory mechanisms rather than creating additional layers of legislation or administration.

1. Institutional coordination should be strengthened. The respective responsibilities of the Nigerian Upstream Petroleum Regulatory Commission (NUPRC), Nigerian Midstream and Downstream Petroleum Regulatory Authority (NMDPRA), National Oil Spill Detection and Response Agency (NOSDRA), National Environmental Standards and Regulations Enforcement Agency (NESREA) and the Federal Ministry of Environment should be clearly coordinated through formal mechanisms for information-sharing, joint inspections, coordinated responses and resolution of jurisdictional overlaps. The division of petroleum regulatory responsibility established by the Petroleum Industry Act 2021 should facilitate, rather than impede, integrated environmental protection.
2. Environmental monitoring, transparency and enforcement should be enhanced. Regulatory authorities should adopt continuous and technologically supported monitoring of oil spills, emissions, gas flaring, petroleum waste and remediation activities. Relevant environmental data should, subject to legitimate security and commercial-confidentiality requirements, be made accessible through an integrated environmental information system. This would promote transparency, facilitate independent scrutiny and enable affected communities and researchers to assess regulatory performance. Existing enforcement powers should also be exercised consistently, with sanctions sufficiently certain and proportionate to provide effective deterrence.
3. Environmental financial responsibility and remediation should be strengthened. The environmental remediation-fund mechanism should be administered transparently and supported by contributions that adequately reflect the environmental risks associated with petroleum operations. Remediation should be based on measurable scientific standards rather than merely the expenditure of allocated funds or administrative certification. Independent verification should be required before remediation is regarded as complete, followed by appropriate post-remediation monitoring. Where an identifiable operator is responsible for pollution, the polluter-pays principle should remain central to the allocation and recovery of remediation costs.
4. Community participation and environmental justice should be enhanced. Affected communities should have meaningful access to environmental information and opportunities to participate in environmental assessment, oil-spill investigation, remediation and monitoring. Community participation should extend beyond consultation and compensation to include mechanisms for reporting environmental violations and scrutinising remediation activities. Procedural barriers to legitimate public-interest environmental litigation should likewise be minimised so that

communities and appropriate civil-society organisations can contribute to environmental accountability.

Finally, environmental governance should become increasingly outcome-oriented. The effectiveness of the regulatory framework should be measured by demonstrable reductions in pollution and gas flaring, prompt containment of spills, effective enforcement, scientifically verified restoration and improved protection of community livelihoods. The priority should therefore be the effective utilisation and coordination of existing legal and institutional mechanisms rather than the continuous multiplication of statutes and regulatory agencies.

Collectively, these measures would strengthen Nigeria's capacity to prevent environmental harm, internalise the costs of petroleum pollution, ensure accountability and restore degraded environments while maintaining the legitimate objective of sustainable petroleum development.

9. CONCLUSION

This article has critically examined Nigeria's legal and institutional framework governing the environmental consequences of oil and gas exploration and production. It demonstrates that Nigeria possesses a substantial body of legislation, regulations and specialised institutions addressing environmental impact assessment, pollution control, oil-spill response, gas flaring, environmental management, remediation and community interests. The Petroleum Industry Act 2021 has further restructured petroleum governance through the establishment and delineation of the Nigerian Upstream Petroleum Regulatory Commission and the Nigerian Midstream and Downstream Petroleum Regulatory Authority.

Despite this extensive framework, persistent environmental degradation in petroleum-producing communities reveals a significant gap between legal prescription and practical environmental outcomes. The principal weaknesses lie not necessarily in the absence of legislation, but in implementation, institutional coordination, monitoring, enforcement, transparency and effective remediation. The comparative experiences examined demonstrate that effective environmental governance requires the integration of clear legal standards with continuous supervision, financial responsibility, credible enforcement and scientifically verifiable restoration.

Ultimately, sustainable petroleum development in Nigeria requires an outcome-oriented regulatory system capable of preventing pollution, internalising environmental costs, ensuring effective remediation and protecting the interests of affected communities. The effectiveness of environmental governance should therefore be measured not by the volume of legislation or the number of regulatory institutions established, but by their capacity to prevent environmental harm, secure accountability and restore degraded environments.



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