

A REVIEW OF ENVIRONMENTAL REPORTING PRACTICES AMONG LISTED OIL AND GAS FIRMS IN NIGERIA

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DOI: <https://doi.org/10.57233/gujaf.v6i3.13>

Abstract

Environmental degradation associated with oil and gas operations in Nigeria such as oil spills, gas flaring, and habitat destruction has amplified stakeholder demand for corporate environmental accountability. Despite the sector's economic significance, environmental disclosures by listed oil and gas firms remain inconsistent and often lack credibility. This study critically reviews environmental reporting practices among these firms, with emphasis on disclosure quality, regulatory frameworks, stakeholder influence, and governance mechanisms. Employing a systematic literature review (SLR) of 73 sources published between 2020 and 2024, the study synthesizes findings from peer-reviewed articles, policy documents, and industry reports. Results indicate that while multinational firms moderately comply with global reporting standards like GRI and TCFD, most indigenous companies offer superficial, symbolic disclosures devoid of quantitative data or third-party verification highlighting widespread green washing. Weak regulatory enforcement, poor governance structures, and limited stakeholder pressure are identified as key barriers to substantive reporting. The study concludes that environmental disclosures in Nigeria's oil and gas sector remain largely performative, undermining transparency and sustainable development. It recommends mandatory ESG reporting aligned with international frameworks, enhanced regulatory enforcement, stakeholder engagement, and capacity building within firms. These steps are essential to foster a culture of credible environmental accountability and to bridge the gap between policy and practice.

Keywords: Corporate governance, environmental reporting, Oil and gas firms, green washing, regulatory enforcement, sustainability disclosure.

1.0 Background

The oil and gas sector remains the backbone of Nigeria's economy, contributing approximately 80% of government revenue and 90% of foreign exchange earnings (NNPC, 2022). However, the industry is also associated with significant environmental degradation, including oil spills, gas flaring, and ecosystem destruction, which have dire consequences for host communities and biodiversity (Onyekwere et al., 2021). In response to global sustainability demands, environmental reporting has emerged as a critical tool for corporate transparency, accountability, and stakeholder engagement (GRI, 2021). Despite this, concerns persist regarding the adequacy, consistency, and reliability of environmental disclosures by Nigerian oil and gas firms, particularly those listed on the Nigerian Exchange Group (NGX) (Adegbite et al., 2022).

Globally, environmental reporting frameworks such as the Global Reporting Initiative (GRI), Sustainability Accounting Standards Board (SASB), and Task Force on Climate-related Financial Disclosures (TCFD) have gained prominence, encouraging firms to adopt standardized sustainability disclosures (Eccles & Krzus, 2020). However, studies indicate that Nigerian firms often lag in implementing these frameworks due to weak regulatory enforcement, limited stakeholder pressure, and a focus on short-term financial performance over long-term

sustainability (Okafor & Adeleye, 2023). While some multinational oil companies operating in Nigeria, such as Shell and Chevron, adhere to international reporting standards, indigenous firms exhibit significant variations in disclosure quality (Ekwueme et al., 2021). This discrepancy raises questions about the factors influencing environmental reporting practices in Nigeria's oil and gas sector.

Prior research on corporate environmental disclosures in Nigeria has predominantly focused on voluntary reporting motivations, regulatory impacts, and firm-specific determinants (Uwuigbe et al., 2022). However, few studies have critically examined the depth and comparability of these disclosures, particularly in relation to global best practices. Recent findings suggest that environmental reports from Nigerian oil firms often lack quantitative data, third-party verification, and forward-looking sustainability strategies (Okereke & Nnaji, 2023). Furthermore, the Nigerian Oil and Gas Industry Content Development Act (2010) and the National Environmental Standards and Regulations Enforcement Agency (NESREA) provide a regulatory framework for environmental compliance, yet enforcement remains inconsistent (Adediran & Adegbite, 2021). This gap between policy and practice underscores the need for a systematic review of current reporting trends.

The increasing global emphasis on climate change and environmental sustainability has heightened stakeholder expectations for corporate accountability (IPCC, 2021). Investors, regulators, and civil society organizations now demand greater transparency regarding environmental risks and mitigation strategies (Okonkwo et al., 2022). In Nigeria, communities affected by oil pollution have also intensified calls for improved corporate disclosure as a means of redress and environmental justice (Bassey, 2020). Despite these pressures, empirical evidence suggests that many Nigerian oil firms engage in "symbolic" rather than substantive reporting, where disclosures are made to legitimize operations rather than reflect genuine sustainability commitments (Amaeshi et al., 2021). This practice, termed "greenwashing," undermines stakeholder trust and hampers sustainable development efforts.

Recent literature highlights the role of corporate governance in enhancing environmental reporting quality (Ofoegbu et al., 2023). Firms with strong board oversight, independent directors, and sustainability committees tend to provide more comprehensive environmental disclosures (Ntim et al., 2022). However, the dominance of family-owned and government-linked entities in Nigeria's oil sector often results in weaker governance structures, further complicating reporting transparency (Adegbite & Nakajima, 2021). Additionally, the lack of stringent penalties for non-compliance reduces incentives for robust environmental reporting (Obiakor & Okoro, 2022).

Despite the existence of global reporting frameworks, disclosure standards among Nigerian firms remain inconsistent, with significant variations in quality, depth, and comparability (Okafor et al., 2023). Furthermore, weak regulatory enforcement has allowed companies to focus on basic compliance rather than meaningful, transparent reporting (Adediran & Adegbite, 2021). The prevalence of green washing where firms offer selective or misleading disclosures to portray a positive environmental stance without substantial action further undermines the credibility of reports (Amaeshi et al., 2021). Additionally, the influence of critical stakeholders such as investors, host communities, and international organizations on reporting practices is insufficiently explored within the Nigerian context (Okonkwo et al., 2022). Drawing on literature

published between 2020 and 2024, this review seeks to evaluate existing practices, highlight critical gaps, and offer practical recommendations to enhance environmental transparency and accountability in the sector.

2.0 Theoretical Framework

Environmental reporting, as a corporate communication and accountability tool, is shaped by various theoretical perspectives that explain the motivations, processes, and limitations inherent in disclosure practices. This review is underpinned by three interrelated theories: Legitimacy Theory, Stakeholder Theory, and Institutional Theory, which collectively offer a robust conceptual foundation for understanding the nature and drivers of environmental reporting among listed oil and gas firms in Nigeria.

Legitimacy Theory posits that firms operate within a broader social contract, wherein they must align their activities with the values, norms, and expectations of the society in which they operate to maintain legitimacy and continue to access critical resources (Suchman, 1995). In the context of Nigeria's oil and gas industry, where environmental degradation, community conflict, and regulatory scrutiny are prevalent, firms may engage in environmental reporting as a means of demonstrating their alignment with societal concerns and sustainability values (Okafor et al., 2023). However, Legitimacy Theory also helps explain the prevalence of greenwashing, where disclosures are strategically crafted to project compliance and responsibility, even in the absence of substantive environmental performance (Amaeshi et al., 2021). This symbolic behavior often manifests as selective, narrative-heavy reports that lack measurable indicators or third-party assurance, thus creating an appearance of legitimacy without accountability.

Complementing this, Stakeholder Theory emphasizes the role of various stakeholders such as investors, host communities, regulators, NGOs, and the media in influencing corporate disclosure decisions. According to Freeman (1984), organizations must manage and balance the interests of all stakeholders who can affect or be affected by the firm's operations. In Nigeria's oil and gas sector, where community agitation, investor concerns over ESG (Environmental, Social, and Governance) performance, and increasing global environmental advocacy are on the rise, firms face growing pressure to disclose their environmental impacts and mitigation strategies (Okonkwo et al., 2022). However, the degree to which these stakeholders exert effective influence varies, especially given weak civic infrastructure, regulatory capture, and limited environmental literacy among local populations. Thus, firms may disclose information strategically to appease powerful stakeholders while neglecting marginalized voices, further reinforcing the selective nature of environmental reporting.

Institutional Theory offers a broader systemic lens by examining how organizational behavior is shaped by the formal and informal rules, norms, and cultural expectations embedded in the institutional environment (DiMaggio & Powell, 1983). In the Nigerian oil and gas context, institutional forces such as regulatory frameworks (e.g., NESREA, the Petroleum Industry Act), professional norms, industry associations, and international standards (e.g., GRI, TCFD) influence firms' disclosure practices. However, the inconsistent enforcement of environmental regulations and the prevalence of rent-seeking behaviors among institutions create an environment where compliance is often superficial. Institutional Theory explains how firms adopt environmental reporting practices not necessarily out of conviction but to conform to expected norms, attract foreign investment, and enhance reputational standing—often mimicking

multinational companies or peer firms to gain legitimacy within the institutional field (Ekwueme et al., 2021; Ofoegbu et al., 2023).

Together, these three theories provide a multidimensional explanation for the observed patterns in environmental reporting among Nigerian oil and gas firms. They clarify not only why firms report but also how they decide what, how, and to whom they disclose. The combination of legitimacy seeking, stakeholder appeasement, and institutional mimicry offers a comprehensive framework for interrogating the symbolic and substantive dimensions of environmental disclosure and highlights the structural limitations that enable greenwashing practices.

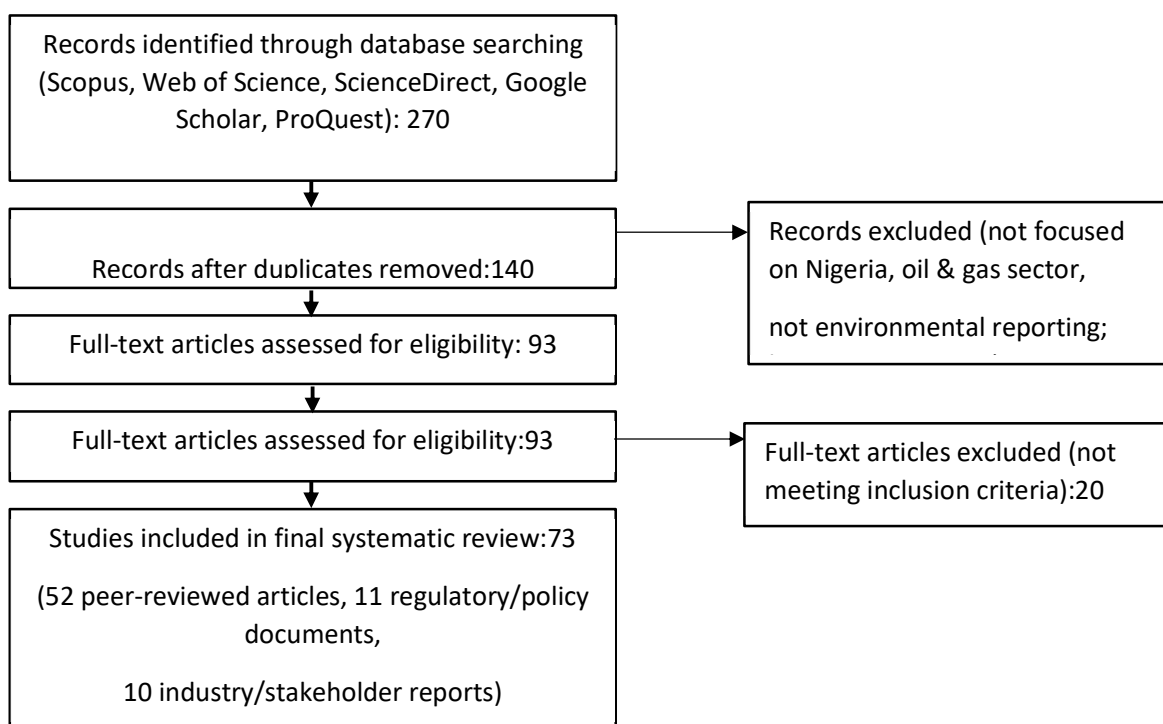
3.0 Methodology

This study adopted a systematic literature review (SLR) approach to examine environmental reporting practices among listed oil and gas firms in Nigeria. The systematic review method was chosen to ensure a comprehensive, transparent, and replicable assessment of existing scholarly work on the subject. Unlike narrative reviews, which may be prone to subjectivity, the SLR approach facilitates the identification, evaluation, and synthesis of relevant studies based on predefined criteria (Siddaway, Wood, & Hedges, 2019). This methodology enabled the study to systematically collate insights on reporting trends, theoretical perspectives, regulatory contexts, and disclosure quality in the Nigerian oil and gas sector, with the ultimate goal of identifying critical gaps and drawing evidence-based conclusions. The review focused on peer-reviewed journal articles, institutional reports, regulatory documents, and grey literature published between 2020 and 2024. The rationale for selecting this time frame is to capture the most recent developments in environmental reporting frameworks, such as updates to the Global Reporting Initiative (GRI) Standards and the global shift toward enhanced climate-related disclosures, particularly following the intensification of sustainability and ESG reporting expectations in the post-COVID-19 period (Eccles & Krzus, 2020; GRI, 2021). Moreover, this period encompasses the release and implementation of relevant national policies, such as the Petroleum Industry Act (2021), which has implications for environmental accountability in Nigeria.

To retrieve relevant studies, a comprehensive search was conducted using multiple academic databases, including Scopus, Web of Science, ScienceDirect, Google Scholar, and ProQuest. The inclusion criteria required that selected studies: (i) focused on environmental reporting or sustainability disclosure practices; (ii) examined listed oil and gas firms in Nigeria or provided regionally relevant insights; (iii) were published in peer-reviewed journals or reputable institutional reports; and (iv) were available in English. Studies that did not focus on Nigeria or the oil and gas industry, as well as those published prior to 2020 or lacking methodological rigor, were excluded from the final selection. To ensure a focused and relevant literature base, the search was guided by carefully selected keywords and Boolean operators. Search terms included *Environmental reporting, sustainability disclosure, oil and gas firms in Nigeria, corporate environmental responsibility, green washing, GRI in Nigeria, environmental regulation compliance Nigeria, and corporate governance and environmental reporting*. The search strategy was refined through iterative screening of abstracts and full texts, with data extraction guided by thematic relevance, theoretical framing, and methodological robustness. In total, 73 sources were reviewed, including 52 peer-reviewed journal articles, 11 regulatory and policy documents, and 10 industry or stakeholder reports. The collected literature was then thematically categorized into core areas: (i) environmental disclosure practices and trends, (ii) regulatory and

institutional factors, (iii) stakeholder influence, (iv) corporate governance determinants, and (v) global reporting standards adoption. This structured approach allowed for a detailed synthesis of the current state of environmental reporting in Nigeria’s oil and gas sector, paving the way for identifying best practices, critical gaps, and future research directions.

PRISMA Flow Diagram



4.0 Review of Environmental Reporting Practices

Extent and Nature of Disclosures

Environmental reporting among listed oil and gas firms in Nigeria has evolved over the past decade, reflecting growing awareness of sustainability imperatives and increasing stakeholder expectations. However, the extent and quality of disclosures remain varied and largely inconsistent. A review of recent disclosures indicates that while some firms, particularly multinationals, are gradually aligning their environmental reporting practices with international expectations, many indigenous companies still adopt a minimalist approach, often disclosing only the most basic environmental information (Okafor et al., 2023; Uwuigbe et al., 2022).

Disclosures by Nigerian firms generally range from qualitative narratives to limited quantitative metrics. Qualitative disclosures often include descriptive statements of environmental policies, general commitments to sustainability, and statements of intent, with limited substantiation through measurable outcomes (Ekwueme et al., 2021). Quantitative disclosures, such as emission figures, water usage, and waste management statistics, are less common and frequently lack independent verification. This undermines the reliability and comparability of reports across the industry.

Furthermore, there exists a distinction between standalone sustainability reports and integrated reports that embed environmental information within annual financial statements. Standalone reports, though more detailed, are published by only a few firms in multinational corporations

such as Shell and Chevron while the majority of indigenous firms either do not report or incorporate minimal sustainability content within their annual reports (Adediran&Adegbite, 2021). The reporting landscape also reflects a dichotomy between voluntary and mandatory disclosures. Although some regulatory frameworks such as those from the Nigerian Stock Exchange (now Nigerian Exchange Group, NGX) encourage ESG disclosures, enforcement remains weak, and compliance is largely voluntary. As a result, most disclosures are driven by corporate discretion rather than regulatory compulsion, contributing to inconsistent and selective reporting practices (Okereke & Nnaji, 2023).

Compliance with Global Standards

The degree of compliance with global environmental reporting standards among Nigerian oil and gas firms remains uneven. Frameworks such as the Global Reporting Initiative (GRI), Sustainability Accounting Standards Board (SASB), and Task Force on Climate-related Financial Disclosures (TCFD) have become international benchmarks for sustainability disclosures, offering comprehensive guidelines on materiality, stakeholder engagement, and environmental performance indicators (Eccles & Krzus, 2020; GRI, 2021). However, adoption in the Nigerian context has been modest and selective.

Multinational companies operating in Nigeria such as Total Energies, Shell, and ExxonMobil have demonstrated relatively higher levels of compliance with global standards, often producing GRI-compliant reports and integrating TCFD-aligned climate risk disclosures into their sustainability communication. These firms are subject to stricter international oversight, global investor scrutiny, and home-country regulations, which influence their disclosure practices across jurisdictions, including Nigeria (Ntim et al., 2022). In contrast, indigenous oil and gas firms often lack the capacity, expertise, or incentive to implement these frameworks, leading to fragmented and inconsistent reporting (Adegbite& Nakajima, 2021). Many local firms are also constrained by weak internal governance mechanisms and limited access to technical reporting resources, further hampering compliance efforts. Additionally, the lack of a nationally harmonized ESG reporting standard compounds this challenge. Although the NGX has introduced the Sustainability Disclosure Guidelines to guide listed firms, enforcement and adoption remain suboptimal. Consequently, multinational-indigenous disparities in reporting quality persist, limiting comparability across firms and undermining efforts to benchmark industry-wide environmental performance (Ofoegbu et al., 2023).

Greenwashing and Symbolic Reporting

Empirical evidence increasingly points to the prevalence of symbolic or "greenwashed" reporting among Nigerian oil and gas companies. Greenwashing refers to the practice of disclosing selective or superficial environmental information to project an image of environmental responsibility, often without corresponding substantive action (Amaeshi et al., 2021). This phenomenon is especially evident in contexts where regulatory enforcement is weak, and where firms are under pressure to maintain legitimacy in the eyes of stakeholders while avoiding significant structural changes to operations.

Studies show that many firms disclose generalized statements about environmental stewardship or corporate social responsibility without providing verifiable data or measurable goals (Okonkwo et al., 2022). For instance, some reports include vague references to environmental

initiatives or compliance with local regulations but fail to disclose specific figures related to carbon emissions, energy consumption, or environmental remediation efforts. Moreover, there is often an absence of third-party assurance or independent audits, raising concerns about the credibility of such disclosures (Okereke & Nnaji, 2023).

The implications of greenwashing are far-reaching. Stakeholders—including investors, regulators, and local communities may be misled into believing that firms are committed to environmental sustainability, when in fact such disclosures may serve primarily as a tool for reputation management. This erodes stakeholder trust and undermines the broader objectives of environmental accountability and corporate transparency (Bassey, 2020). The lack of accountability for misleading disclosures further exacerbates the issue, enabling companies to maintain legitimacy without adopting meaningful environmental practices. Addressing greenwashing requires a combination of stronger regulatory enforcement, enhanced stakeholder activism, and increased adoption of third-party assurance mechanisms. Without these, environmental disclosures will continue to be used more as a symbolic tool rather than a substantive mechanism for driving sustainability in Nigeria's oil and gas sector.

5.0 Determinants of Environmental Reporting in Nigeria

Environmental reporting practices among listed oil and gas firms in Nigeria are shaped by a complex interplay of internal corporate governance structures, regulatory and institutional frameworks, and external stakeholder pressures. Understanding these determinants is crucial to identifying the underlying drivers and barriers to comprehensive and credible environmental disclosures.

Corporate Governance Factors

Corporate governance plays a pivotal role in shaping the quality, depth, and integrity of environmental reporting. Strong governance mechanisms such as board independence, the existence of sustainability or environmental committees, and active audit committees enhance oversight and accountability, thereby encouraging more substantive disclosures. Independent directors, in particular, are often more inclined to advocate for transparent reporting and compliance with global standards, as they bring external perspectives and are less influenced by internal management biases (Ntim et al., 2022). Similarly, the establishment of dedicated sustainability committees ensures focused attention on environmental performance metrics and fosters alignment with frameworks such as the Global Reporting Initiative (GRI) and the Sustainability Accounting Standards Board (SASB) (Ofoegbu et al., 2023).

However, the governance landscape within Nigeria's oil and gas sector is often characterized by ownership structures that hinder transparency. Family-owned firms and companies with strong political affiliations typically lack robust governance frameworks and exhibit weaker board accountability, which negatively impacts the quality of environmental disclosures (Adegbite & Nakajima, 2021). These ownership patterns often prioritize short-term profitability and political patronage over long-term sustainability commitments. Moreover, when boards are dominated by insiders or politically connected directors, there is a reduced likelihood of adopting global best practices, leading to symbolic or greenwashed reporting rather than genuine accountability (Obiakor & Okoro, 2022).

Regulatory and Institutional Factors

Regulatory and institutional environments also exert significant influence on environmental reporting in Nigeria. Key regulatory agencies such as the National Environmental Standards and Regulations Enforcement Agency (NESREA) and legal instruments like the Petroleum Industry Act (PIA) of 2021 are intended to mandate and guide environmental compliance across the oil and gas value chain. While these frameworks represent important milestones in the institutionalization of environmental governance, their implementation has been inconsistent and, at times, ineffective (Adediran&Adegbite, 2021). NESREA, despite its statutory powers, suffers from limited enforcement capacity, budgetary constraints, and jurisdictional overlaps with other agencies, which collectively undermine its regulatory effectiveness (Okafor & Adeleye, 2023).

The Petroleum Industry Act (2021), designed to overhaul the oil sector's governance and environmental obligations, introduces new regulatory structures such as the Host Communities Development Trust. Nonetheless, empirical observations suggest that the policy-to-practice gap remains wide. Many companies comply minimally to avoid sanctions but fail to internalize sustainability as a core business value. Weak enforcement mechanisms, coupled with a lack of stringent penalties for non-compliance, have enabled firms to adopt a check-the-box approach to environmental disclosures without implementing meaningful changes to environmental management practices (Okereke & Nnaji, 2023).

Stakeholder Pressures and External Influences

External pressures from stakeholders such as civil society organizations, host communities, investors, and international partners significantly shape environmental reporting outcomes. Civil society groups and non-governmental organizations (NGOs) have played a vital role in exposing environmental abuses and demanding greater corporate accountability. Through advocacy campaigns, litigation, and public disclosures, these organizations have raised awareness of the environmental impacts of oil exploration and production activities in the Niger Delta (Bassey, 2020). Host communities, who often bear the brunt of environmental degradation, have also intensified calls for transparency and environmental justice. Their resistance and mobilization efforts have, in some cases, led to increased scrutiny of corporate practices and improved reporting behaviour (Okonkwo et al., 2022).

Investors particularly those with environmental, social, and governance (ESG) mandates—are increasingly influencing disclosure practices through capital allocation decisions. As global investors demand alignment with sustainability benchmarks, firms are compelled to improve their reporting to attract funding and maintain reputational capital (Eccles & Krzus, 2020). Additionally, international organizations and development partners such as the United Nations Environment Programme (UNEP) and the World Bank have introduced guidelines, provided technical support, and facilitated capacity building for environmental disclosure in developing countries. The role of media and investigative journalism has also been instrumental in shaping public discourse and pressuring firms to be more transparent (Amaeshi et al., 2021). Collectively, these external influences have contributed to a gradual, albeit uneven, improvement in environmental reporting practices in Nigeria.

Summary Table of Thematic Findings

Theme	Key Findings (Synthesis)	Representative Citations	Weight of Evidence*
1. Extent and Nature of Environmental Disclosures	Disclosures remain inconsistent and generally low in quality. Multinationals demonstrate relatively richer reporting, while many indigenous firms provide only basic, mostly qualitative information. Quantitative and verifiable metrics are rare, and standalone sustainability reports are uncommon.	Okafor et al. (2023); Uwuigbe et al. (2022); Ekwueme et al. (2021); Adediran&Adegbite (2021)	Strong -Evidence is consistent across multiple studies and aligns with global assessments of emerging-market disclosure patterns.
2. Compliance with Global Standards (GRI, SASB, TCFD)	Compliance is uneven. Multinationals tend to adopt global frameworks due to stricter oversight, while local firms struggle with capacity and motivation. Gaps persist due to weak domestic enforcement and lack of harmonized national ESG standards.	Eccles & Krzus (2020); GRI (2021); Ntim et al. (2022); Adegbite& Nakajima (2021); Ofoegbu et al. (2023)	Moderate to Strong - Several studies highlight persistent gaps, though evidence varies by firm type (multinational vs. indigenous).
3. Greenwashing and Symbolic Reporting	Many firms engage in symbolic reporting general statements without measurable indicators. Quantitative data, verifiable metrics, and third-party assurance are frequently missing. This undermines stakeholder trust and leads to legitimacy-seeking disclosures rather than substantive environmental accountability.	Amaeshi et al. (2021); Okonkwo et al. (2022); Okereke & Nnaji (2023); Bassey (2020)	Strong -Evidence of greenwashing appears repeatedly across empirical and conceptual studies.
4. Corporate Governance Determinants	Strong governance (independent directors, active audit committees, sustainability committees) improves reporting quality. Weak governance- especially in family-controlled or politically connected firms- leads to low-quality, symbolic, or minimal reporting.	Ntim et al. (2022); Ofoegbu et al. (2023); Adegbite& Nakajima (2021); Obiakor& Okoro (2022)	Moderate to Strong - Multiple studies establish clear links between governance strength and quality of disclosures.
5. Regulatory and Institutional Factors	Regulatory bodies (NESREA, PIA) exist but enforcement remains weak. Capacity constraints, overlapping mandates, and limited sanctions lead to “check-the-box” compliance. Firms often comply superficially without embedding sustainability into practices.	Adediran&Adegbite (2021); Okafor & Adeleye (2023); Okereke & Nnaji (2023)	Moderate -Evidence consistently highlights regulatory weakness, though empirical depth varies across studies.
6. Stakeholder and External Pressures	Pressure from civil society, host communities, ESG-focused investors, and international organizations increases transparency demands. Engagements, protests, litigation, and global capital requirements gradually push firms toward better reporting.	Bassey (2020); Okonkwo et al. (2022); Eccles & Krzus (2020); Amaeshi et al. (2021)	Moderate to Strong - External stakeholder influence is widely documented, though its impact differs by company type.

Note on Weight of Evidence

1. **Strong:** Findings appear consistently across multiple peer-reviewed studies and align with international literature.
2. **Moderate:** Evidence is substantial but varies across contexts or firm types.
3. **Weak:** Not applicable here; none of the themes in the provided document fall below moderate strength.

Gaps in Practice and Literature

Despite increasing scholarly attention and global advocacy for enhanced environmental transparency, several critical gaps persist in both the practice and academic discourse surrounding environmental reporting among Nigerian oil and gas firms. One prominent issue is the widespread underreporting of material environmental impacts, particularly among indigenous companies. While multinational firms such as Shell and Chevron often publish extensive sustainability reports in alignment with international standards, many local firms offer limited or superficial disclosures. These reports frequently lack quantitative environmental performance indicators, clear targets, or detailed accounts of environmental remediation efforts (Okereke & Nnaji, 2023; Uwuigbe et al., 2022). Moreover, third-party assurance a practice that enhances the credibility and reliability of disclosures-is rarely employed in Nigeria's oil and gas sector. This absence undermines stakeholder confidence in the integrity of the reports and limits their utility for informed decision-making by investors, regulators, and affected communities (Adegbite et al., 2022).

From a scholarly perspective, methodological limitations in existing research also impede a comprehensive understanding of environmental disclosure practices. Much of the literature is cross-sectional, relying heavily on content analysis of annual or sustainability reports within a limited time frame. As a result, there is a scarcity of longitudinal studies that could reveal trends, progress, or regression in reporting practices over time (Ekwueme et al., 2021). Additionally, few studies employ mixed-method approaches that combine quantitative content analysis with qualitative interviews or stakeholder surveys to assess the motivations behind disclosure and perceptions of its quality and relevance.

Geographical gaps in the literature are equally notable. Most empirical studies focus on firms headquartered in Lagos or operating in the Niger Delta region, often excluding firms with smaller operations or those listed more recently on the Nigerian Exchange Group (NGX). This narrow focus neglects the broader spectrum of oil and gas firms and limits the generalizability of research findings across the industry (Onyekwere et al., 2021). Furthermore, comparisons across companies are frequently hampered by the lack of standardization in reporting formats and terminologies, even among firms that claim adherence to frameworks such as the Global Reporting Initiative (GRI) or Sustainability Accounting Standards Board (SASB). The weak comparability of disclosures due to inconsistencies in structure, scope, and depth presents a formidable barrier to benchmarking environmental performance and enforcing compliance (Okafor et al., 2023). Collectively, these gaps reflect both systemic weaknesses in the reporting ecosystem and scholarly oversights that require redress. Bridging these divides will necessitate stronger regulatory mandates for third-party assurance, broader methodological diversity in academic inquiry, and a sustained push toward harmonized reporting standards that allow for industry-wide comparability and continuous performance assessment.

Limitations of this Review

Despite the rigorous and systematic approach adopted in this review, certain limitations remain. First, the review focused exclusively on studies published in English, which may introduce language bias. Although English is the dominant language of academic publishing in Nigeria, relevant studies, reports, or regional assessments published in other languages could have been overlooked. Additionally, the search strategy relied on selected databases such as Scopus, Web of Science, ScienceDirect, Google Scholar, and ProQuest. While these platforms are widely recognized for their comprehensive coverage, the exclusion of other databases particularly region-specific repositories, local institutional archives, or specialized environmental databases means that some valuable insights may not have been captured.

A further limitation relates to the publication time frame (2020-2024), which was intentionally chosen to align with recent regulatory developments and global reporting trends. However, restricting the scope to this period may have excluded earlier foundational studies that offer historical context or long-term perspectives on disclosure evolution. Similarly, the reliance on published and publicly accessible reports may introduce publication bias, as studies with significant or positive findings are more likely to be published than those reporting minimal or negative disclosure practices. Grey literature was included to mitigate this, but access to internal corporate or confidential regulatory documents—which could offer deeper insights was limited.

Finally, although the review employed predefined inclusion and exclusion criteria to enhance transparency and replicability, the process of thematic categorization still involves an element of researcher judgment. This may influence how studies were grouped or interpreted, especially in cases where research findings overlapped multiple themes. While steps were taken to minimize subjectivity, such as iterative screening and cross-referencing, the potential for interpretive bias cannot be completely eliminated. These limitations should be considered when interpreting the findings and conclusions of the review.

Implications for Policy and Practice

The findings of this review underscore the urgent need for a strategic realignment of both policy frameworks and corporate practices to enhance the quality, credibility, and impact of environmental reporting among listed oil and gas firms in Nigeria. The current state of environmental disclosure is characterized by inconsistencies, symbolic compliance, and limited alignment with globally recognized sustainability frameworks. Addressing these challenges requires coordinated action among regulators, corporate entities, investors, and oversight institutions.

Regulatory Reforms and Enforcement Mechanisms

A fundamental implication of this review is the need for robust regulatory reforms to compel compliance with environmental reporting standards. Regulatory agencies such as the National Environmental Standards and Regulations Enforcement Agency (NESREA), the Department of Petroleum Resources (DPR), and the Federal Ministry of Environment must transition from passive monitoring to active enforcement. This includes instituting *mandatory* environmental disclosure requirements based on globally recognized frameworks such as the Global Reporting Initiative (GRI), Sustainability Accounting Standards Board (SASB), and the Task Force on Climate-related Financial Disclosures (TCFD). To enhance enforcement, regulatory bodies should introduce stiffer penalties and sanctions for non-compliance, including public naming and

shaming, delisting threats for serial defaulters, and financial fines proportional to firm size and environmental impact. Equally important is the need to strengthen institutional capacity for audit, verification, and monitoring of sustainability reports through third-party assurance mechanisms.

Corporate Best Practices and Capacity Building

From a corporate governance standpoint, firms must internalize environmental reporting as a strategic imperative rather than a perfunctory exercise. This calls for the institutionalization of sustainability governance structures such as board-level sustainability committees, integration of environmental KPIs in executive performance evaluations, and the adoption of technology-driven reporting tools to enhance transparency and comparability.

Moreover, there is a pressing need for capacity building through continuous training and professional development of corporate sustainability officers, internal auditors, and reporting personnel. Corporate leadership should also be incentivized to go beyond compliance by adopting long-term sustainability strategies, embedding ESG goals in their operational models, and committing to external assurance for their environmental disclosures. Industry associations, such as the Oil Producers Trade Section (OPTS) and the Nigerian National Petroleum Corporation (NNPC), can also play a critical role by championing industry-wide sustainability benchmarks and voluntary codes of best practice.

Role of the Nigerian Exchange Group (NGX)

The Nigerian Exchange Group (NGX) is strategically positioned to serve as a catalyst for improved environmental transparency through its listing requirements, sustainability indices, and market-based incentives. Building on its launch of the NGX Sustainability Disclosure Guidelines and the NGX ESG Disclosure Platform, the Exchange should mandate standardized ESG disclosures as part of the continuing listing obligations for oil and gas firms. Additionally, the NGX can introduce sector-specific sustainability indices that rank listed firms based on their environmental performance, thereby incentivizing firms to improve their disclosure practices for reputational and investment advantages. By collaborating with international organizations, investor networks, and sustainability rating agencies, the NGX can further promote transparency and foster a culture of responsible investing in Nigeria's capital market.

In summary, advancing environmental reporting in Nigeria's oil and gas sector requires a concerted multi-stakeholder approach. Regulatory stringency, corporate accountability, professional training, and capital market incentives must work in synergy to ensure that environmental disclosures are not only compliant but also meaningful, data-driven, and impactful.

Conclusion and Future Research Directions

This review has critically examined the environmental reporting practices of listed oil and gas firms in Nigeria, revealing significant inconsistencies in the depth, quality, and comparability of disclosures. While the global momentum toward standardized sustainability reporting—anchored by frameworks such as the GRI, SASB, and TCFD—continues to strengthen, many Nigerian oil firms, particularly indigenous ones, exhibit limited compliance with these benchmarks. The prevalence of greenwashing, characterized by symbolic rather than substantive environmental disclosures, remains a major concern. This practice not only erodes stakeholder

trust but also undermines the broader objectives of sustainable development and environmental accountability.

A key insight from the review is that regulatory gaps, weak enforcement, inadequate stakeholder pressure, and poor corporate governance structures contribute significantly to the suboptimal reporting landscape in Nigeria's oil and gas sector. While multinational corporations often align with international disclosure standards, the lack of robust governance mechanisms and effective oversight within indigenous firms has created a fragmented and unreliable reporting environment. Strengthening regulatory enforcement, institutionalizing third-party verification, and embedding sustainability into corporate governance are therefore imperative steps toward improving the credibility and utility of environmental reports.

Looking forward, future research should explore emerging areas that are reshaping the sustainability reporting landscape globally. One promising avenue is the integration of climate risk disclosures, especially in light of Nigeria's vulnerability to climate change and the energy sector's role in greenhouse gas emissions. Additionally, there is a growing need to examine how environmental, social, and governance (ESG) investment flows influence corporate reporting behaviour and whether market-based incentives can drive better transparency. Another critical area for inquiry is the application of artificial intelligence (AI) and big data analytics in environmental auditing and reporting. Such technological advancements offer the potential to enhance data accuracy, timeliness, and stakeholder engagement.

Moreover, longitudinal studies are required to assess the evolution of reporting practices over time and to determine whether recent regulatory reforms, such as the Petroleum Industry Act (2021), have had any measurable impact on disclosure quality. Cross-country comparative studies could also offer valuable lessons for Nigeria by benchmarking practices against those of countries with similar institutional settings but stronger sustainability performance. Overall, the transformation of environmental reporting in Nigeria's oil and gas sector requires a concerted effort from academia, policymakers, regulators, and corporate actors to bridge the gap between rhetorical compliance and meaningful, accountable reporting.

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