Evaluating the Impact of the 2025 Cost Efficiency Incentives Order on Sustainability Practices in Upstream Oil & Gas Operations in Nigeria

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Abstract: The paper assessed how the 2025 Cost Efficiency Incentives Order (CEIO) has impacted sustainability practices in the Nigerian upstream oil & gas industry. The study followed a mixed method approach involving quantitative and qualitative data analysis, cross-sectional survey planning and purposive sampling technique. Data was collected from 28 oil professionals, followed by a detailed interviews carried out on 10 compliance officers and sustainability managers working in four indigenous companies namely; Pan Ocean Oil Corporation Nig. Ltd, Newcross Petroleum Ltd, Newcross Exploration & Production Ltd and Aradel Holdings. Descriptive statistics (frequency and percentages), thematic analysis and inferential analysis (linear regression) were used to estimate the link between CEIO implementation and four major dimensions of sustainability performance (cost discipline, emission reduction strategies, renewable energy integration and stakeholder engagement). Findings showed that CEIO had a significant positive impact on all the areas analyzed and confirmed its effectiveness as a policy tool of shaping fiscal policies towards sustainability. Qualitative analysis also confirmed the statement that taxing incentives such as CEIO are strong motivators, though it further revealed that the policy is still emerging, and that, there remains some bottle necks in terms of bureaucracy, enforcement, implementation and accessibilityof the fiscal incentive. Meanwhile on the overall, the study indicates that fiscal tools such as the CEIO can create effective operations, environmental stewardship, and socially equitable operations within the Nigerian upstream oil sector. It suggests a wider application, persistent revision of policy and alignment with national sustainability policy initiatives with more transparent benchmarks and clearer timelines.

Keywords:CEIO, sustainability, cost discipline, renewable energy, upstream oil and gas, fiscal policy, emission reduction, renewable energy integration and stakeholder engagement.

1. INTRODUCTION

The promulgation of the 2025 CEIO was meant to entice the local oil companies to cut down on operation costs as tax reliefs of up to 20 percent of the yearly obligation (Jerimiah & Daka, 2025), moreover, the effectiveness with which this new tax measure has influenced sustainability activities in the Nigerian upstream segment has been the urging reason that has motivated the initiation of the presented study. This paper argues that understanding the role played by the CEIO is one of the key comprehension areas of effectiveness of policies-driven sustainability and what it means to the long-term viability of the oil industry in particular, and to the management of resources in a sustainable manner in Nigeria in general. The CEIO is intended to be a change in policy course linking fiscal incentives to environmental and sustainability factors, which is aligned with Nigeria net-zero commitment by 2060 (PwC, 2025; EY, 2025). It is specifically expected to incentivize enhanced cost discipline, emissions control, renewable energy integration, and stakeholder engagement, all of which align with the national Energy Transition Plan and decarbonization targets (Svendsen, 2022; Mohammed et al., 2022; Oilfield Africa Review, 2025). However, the Nigerian upstream sector still suffers from structural inefficiencies such as aging infrastructure, high unit operating costs, weak asset governance, and environmental non-compliance (Kimengsi, Owusu &Balgah, 2022; Brown, 2022; Eze et al., 2023). While the CEIO, effective from April 30, 2025, offers tax credits equal to 50% of government-recognized cost-saving gains (subject to a 20% ceiling of corporate tax obligations), empirical evidence on its actual effectiveness—especially among indigenous firms—is lacking (EY, 2025; Jeremiah & Daka, 2025; Oilfield Africa Review, 2025). Existing studies (such as, Wood, 2022; Aprizal et al., 2022) has focused on multinationals or broader fiscal reforms, overlooking mid-tier indigenous companies which operate under tighter capital constraints and are more exposed to systemic inefficiencies (Eze et al., 2023; Basaka&Ringim, 2024).

Furthermore, little attention has been given to how cost-efficiency incentives impact non-financial sustainability indicators such as clean energy transitions or corporate social responsibility (CSR) initiatives. This study fills that gap by evaluating the CEIO's effect on cost discipline, emissions management, renewable integration, and stakeholder engagement within four selected firms (Pan Ocean Oil Corporation Nig. Ltd, Newcross Petroleum Ltd,Newcross Exploration & Production Ltd and Aradel Holdings) in the Nigerian upstream oil & gas sector. The research is significant as it provides empirical, context-specific insights that can help optimize fiscal instruments and guide upstream operators in

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aligning economic performance with sustainability mandates). The scope is delimited to upstream operations of upstream Nigerian firms during the CEIO's 2025 implementation window, excluding multinationals, downstream/midstream segments, and macro-political variables.

2. LITERATURE REVIEW

2.1. Conceptual Review

2.1.1. Cost Efficiency Incentives

Cost efficiency incentives play a pivotal role in shaping organizational and policy behavior by encouraging the reduction of operational costs while maximizing sustainable outcomes (Nkpodot&Emenyi, 2023; Almana et al., 2020). Rooted in economic theory, these incentives favor performance-based strategies over rigid command-and-control models, promoting innovation and efficiency but also requiring safeguards against free-riding and market stagnation (Park, Park & Barry, 2022, Menard & Shirley, 2022). Evidence from regulated sectors like energy shows that hybrid incentive schemes—combining grants, tax breaks, and performance-linked rewards—drive technology adoption, productivity, and long-term cost savings (Melhim&Isaifan, 2025). Leading firms such as IKEA have successfully employed variable pay and profit-sharing systems to enhance operational flexibility and sustainability (Alzoubi, Al-Talib & Al Saad, 2023). In Nigeria, the 2025 CEIO exemplifies this approach by offering up to 20% tax relief for companies that achieve measurable cost reductions through sustainable means, while penalizing harmful cost-cutting practices (EY, 2025; Oilfield Africa Review, 2025). Although their effectiveness varies by sector and context, well-structured incentives—especially those that are adaptive and strategically aligned—consistently foster innovation, stakeholder engagement, and sustainable business models, making continuous evaluation and tailored application essential (Nkpodot & Emenyi, 2023).

2.1.2. Sustainability Practices in Upstream Oil & Gas Operations

Sustainability in Nigeria's upstream oil and gas sector involves balancing environmental protection, social responsibility, and economic viability across core operations like exploration and production (Wood, 2022). Increasing global and investor pressure has driven adoption of emission-reducing technologies such as carbon capture, zero-discharge systems, and flaring controls to meet targets like Nigeria's net-zero goal by 2060 (Svendsen, 2022; IEA, 2023; NUPRC, 2025). Social sustainability efforts include the implementation of the Host Community Development Trust Fund (HCDTF) under the Petroleum Industry Act, yet challenges such as poor fund governance and limited gender inclusion persist (Okoro, 2021; Mohammed et al., 2022; Iyiola et al., 2023). Governance remains a weak spot, especially among indigenous firms lacking capacity for full Environmental Social Governance (ESG) compliance, though mechanisms like NEITI and the Cost Efficiency Incentives Order (CEIO) aim to improve transparency and accountability (Canton, 2021; NUPRC, 2025). Despite slow renewable energy integration and inconsistent ESG disclosures, the CEIO offers a promising policy tool to align fiscal incentives with sustainable practices (Ogbo et al., 2024).

2.1.3. Selected Companies and Existing CSR Practices

2.1.3.1. Pan Ocean Oil

Pan Ocean, a Nigerian oil and gas firm, has increasingly integrated CSR into its operations to support host communities and promote sustainable development. Beyond business goals, the company prioritizes community well-being through strategic social investments. Its CSR initiatives include donations to schools, orphanages, and healthcare institutions to foster positive brand recognition. Notable beneficiaries include the Holy Family Home for the Elderly, Lagos State Motherless Babies Home, and several educational and cultural institutions. To tackle rising unemployment, Pan Ocean launched a Skills Acquisition Intervention Program in 2008, training over 1,500 adults from multiple communities in trades such as baking, millinery, and cosmetics production. The program is structured in three phases, culminating in basic literacy support for long-term self-reliance. Additionally, Pan Ocean demonstrates accountability to stakeholders through infrastructural projects like solar-powered boreholes and electricity support in Edo and Delta States. As the only indigenous oil company in joint venture with the NNPC, Pan Ocean emphasizes transparency and partnerships to drive equitable, community-led development (Pan Ocean Oil, 2023a).

2.1.3.2. Newcross Petroleum &Newcross E&P

Newcross Petroleum and NewcrossEP have demonstrated a consistent commitment to Corporate Social Responsibility (CSR), particularly in strengthening community relations and contributing to local development. A major annual initiative includes the donation of Christmas food items—such as rice, wine, oil, and cows—to host communities as a gesture of appreciation and support, especially impactful during the economic hardships of the COVID-19 pandemic (Newcross, 2020).In 2020, the NNPC/NewcrossEP Joint Venture commissioned a major legacy CSR project: a block of four self-contained guest houses in Idama community, Port Harcourt. This initiative, aimed at fostering local development and peaceful coexistence, was well-received by both government and community stakeholders, earning praise for its timely completion and community impact.During the COVID-19 crisis, Newcross actively supported national and local responses through awareness campaigns, multilingual public health videos, and the donation of medical equipment and personal protective gear. As part of a joint initiative with the Independent Petroleum Producers Group (IPPG) and NNPC, Newcross contributed ambulances and PPEs across the six southwestern states of Nigeria. The company also provided food and sanitation items to mitigate the effects of lockdown policies, reinforcing its role as a socially responsible corporate entity. With all these Newcross confirms that CSR is still central to its activities with even more investments in community welfare and national sustainability efforts (Newcross, 2025).

2.1.4. Aradel Holdings

In particular, Aradel Holdings (formally Nigeria Delta Exploration and Production Plc (NDEP)) has developed a very progressive and innovative approach to Corporate Social responsibility (CSR) in the Nigerian upstream oil and gas sector. At the heart of its CSR strategy is Community Development Trust; an initiative that was initiated back in 2002 long before the company started production of oil. The functioning of this Trust is based on the established structure which includes Board of Trustees and Advisory Committee whereby the development activities are transparent, sustainable, and depending upon the requirements of the host communities. The philosophy of CSR practiced by Aradel has the basis on three pillars namely the community development, environmental responsibility and empowering of the people. Regarding the development of the community, the company has recorded very outstanding results, some of this includes supply of constant supply of power using rural electrification processes, establishment of schooling facilities, like graduate schools, and the provision of full scholarship services to institutions of higher learning learners. Also, Aradel has been supplying monthly stipends and vocational training of skills to the local youth so that they have practical skills and are able to continue in small-scale entrepreneurial activities. Such programs have enabled the company to gain the trust and support of the local communities in the long term, where the company has experienced no disruptions in its operations due to community tension. Environmentally, Aradel has designed and applied an effective HSE (Health, Safety, and Environment) Management System that employs safety awareness, compliance to environmental regulations and continuous quality improvement through successful training and reviews of policies. The system has made it attain a clean safety record and no lost-time or lifefatalities have been reported in its 2014 operations. At the internal level, Aradel also spends rather much money on personnel welfare and professional growth, providing competitive payments, safe and inclusive working conditions, as well as an opportunity to participate in local and international training courses. The company also conducts CSR activities that touch on other communities that are not within emergence of the company areas as far as the company setting out funds to institutions of learning, capacity building programs and national conferences are concerned. This shows that Aradel has remained a responsible and leading oil & gas company in Nigeria through its continuous desire to align its business objectives with social needs (Aradel, 2023).

2.2. Theoretical Framework and Hypothesis Development

The conceptual framework relates the cost efficiency incentives to four principal dimensions of sustainability performance; cost discipline, emission reduction, renewable energy integration, and stakeholder engagement. The theory used to develop the framework is based on the Environment Economic Theory, which highlights the importance of fiscal tools to promote environmental and operational efficiency (Tietenberg& Lewis, 2018 as cited in Kontakos, 2025), a principle that becomes the foundation of hypothesis one to three, that is:

H_{01}: There is no statistically significant positive effect of CEIO on cost discipline, and operational efficiency in upstream oil and gas companies.

H_{02}: CEIO compliance does not have any significant impact on the implementation of emission reduction measures in the upstream activities.

H_{03}: CEIO is not a significant and positive determinant in enhancing the renewable energy technologies in the upstream oil and gas production processes.

Meanwhile, hypothesis four is based on the stakeholder theory which states that firms which are aligned with societal and legal expectations, tend to produce better sustainability results (Kalra, 2024; Awa, Etim & Ogbonda, 2024).

H_{04}: The adoption of CEIO does not significantly result in an increase in stakeholder involvement, and strategies toward CSR activities will not become more organized in the host communities.

The CEIO, introduced in 2025, provides tax credits tied to verified cost-saving and sustainability outcomes, thereby incentivizing firms to internalize external costs while optimizing operations (EY, 2025; NUPRC, 2025). The framework assumes that CEIO compliance stimulates behavioural and strategic shifts within upstream firms, resulting in improved cost efficiency, reduced environmental impact, and stronger community relations.

2.3. Empirical Review

Recent empirical studies emphasize the notable importance of using incentives in form of taxes to encourage investment and sustainability of the upstream oil and gas industry, in Nigeria and beyond. For instance, Mani (2024) examined the ESG principle integration process in the manufacturing industry in which current challenges and strategic options to integrate ESG standards into corporate processes were proposed. Based on the frameworks of UN Sustainable Development Goals (SDGs), Global Reporting Initiative (GRI), and Sustainability Accounting Standards Board (SASB), the study used mixed methods where exclusively interviewing, survey, and secondary data were analysed in order to describe ESG practices. Results demonstrate that the ESG integration is an intricate and potentially successful endeavor with several elements illustrating strategic portfolio management as the most important tool in the realignment of ESG objectives with business performance. Finally, the paper also introduces an operational framework that manufacturing companies may employ to support sustainable business and long-term value production.

Kyari (2020) made a quantitative evaluation of the effect of petroleum tax incentives on foreign direct investment (FDI) of the upstream sector in Nigeria through survey using a Likert scale and Kruskal-Wallis analysis. The study found that the incentive regime—comprising tax holidays and allowances—effectively attracts FDI and recommended sustaining and expanding such fiscal measures to support sectoral growth. Extending this line of inquiry, Atube and Okolie (2023) conducted ex-post facto research on nine multinational oil and gas firms listed on the Nigerian Exchange, analyzing annual report data (2017–2021) using regression models. They confirmed that investment allowances and tax-exempt income significantly improved return on investment (ROI), and called for the continued expansion of such fiscal policies.

Exploring environmental taxation's link to sustainability, Fadipe, Taiwo, and Aderoju (2025) administered structured questionnaires to CSR officers across eight listed Nigerian oil and gas firms and applied multiple regression analysis. They found that positive perceptions of green tax regimes robustly enhance CSR practices ($\beta = 0.474$) and sustainable development outcomes ($\beta = 0.450$), accounting for 31% and 23% of the variance respectively. The authors advocate integrating green tax policies into strategic corporate planning to reinforce sustainable business models. While international studies on cost-efficiency incentives in oil and gas are limited, broader research on fiscal–environment linkages is informative. For instance, Svendsen (2022) conducted a cross-country analysis in Energy Policy, showing how performance-based fiscal incentives—such as tax credits tied to emission reduction targets—positively influence sustainable operations in upstream firms by promoting cleaner technology adoption and operational discipline. Although not focused on Nigeria, the study's methodology and conclusions are directly relevant to frameworks like Nigeria's CEIO.

Together, these empirical investigations emphasize that well-structured fiscal incentives—whether aimed at cost-efficiency, investment performance, or environmental sustainability—have measurable impacts on corporate behavior and sectoral outcomes (Kyari, 2020; Atube& Okolie, 2023; Fadipe et al., 2025; Svendsen, 2022). However, none of the existing literature evaluates the specific impact of Nigeria's 2025 Cost Efficiency Incentives Order (CEIO) on sustainability practices among indigenous upstream operators, particularly in areas such as emission reduction, renewable integration, and community engagement. This gap highlights the originality and relevance of the current study.

3. RESEARCH METHODOLOGY

This study adopts a mixed-method case study design to evaluate the impact of the 2025 CEIO on sustainability practices in Nigeria's upstream oil and gas sector. Primary data were obtained through structured questionnaires administered to 28 staff members and interviews for 10 compliance officers and sustainability managers from four indigenous firms—Pan Ocean Oil Corporation Nig. Ltd, Newcross Petroleum Ltd,Newcross Exploration & Production Ltd and Aradel Holdings. Secondary data included CEIO policy documents, sustainability reports, and industry benchmarks sourced from the Nigerian Upstream Petroleum Regulatory Commission (NUPRC) and the Federal Inland Revenue Service (FIRS). Quantitative data were analyzed using linear regression in SPSS, while qualitative interview responses were coded thematically to identify patterns and insights, ensuring a comprehensive and contextually grounded analysis of CEIO's influence on cost efficiency, emissions control, renewable energy integration, and stakeholder engagement.

The four companies—Pan Ocean Oil Corporation Nig. Ltd, Newcross Petroleum Ltd, Newcross Exploration & Production Ltd, and Aradel Holdings—were purposively selected for this study because they are indigenous upstream operators directly affected by the 2025 Cost Efficiency Incentives Order (CEIO), actively engaged in exploration and production, and have established records of sustainability and CSR practices. Their selection ensured access to reliable data and diverse insights across financial, environmental, and community engagement dimensions, providing a balanced representation of Nigeria's indigenous oil and gas sector and aligning with the study's objective of assessing CEIO's impact on cost discipline, emission reduction, renewable energy integration, and stakeholder engagement.

4. DATA ANALYSIS & FINDINGS

4.1. Descriptive Statistics

4.1.2. Socio-Demographic Characteristics

Table 4.1.2.1. Gender Distribution of Respondents.

		Frequency	Valid Percent
	Male	18	64.3
	Female	10	35.7
	Total	28	100.0

Source: SPSS Output (2025).

The gender distribution of respondents in this study reveals a notable skew towards male participants. Out of the 28 individuals surveyed, 18 were male, accounting for 64.3% of the sample, while 10 were female, representing 35.7%. This indicates a predominantly male respondent group, which may be reflective of the broader demographic composition of the upstream oil and gas sector in Nigeria. The industry is widely recognized for its male-dominated workforce, especially in technical, field-based, and leadership roles.

Table 4.1.2.2. Age Distribution of Respondents

		Frequency	Valid Percent
	Below 21yrs	1	3.6
	21 – 30yrs	6	21.4
	31 - 40yrs	18	64.3
	41 – 50yrs	3	10.7
	Total	28	100.0

Source: SPSS Output (2025).

The age distribution of respondents reveals that 64.3% fall within the 31–40 years bracket, indicating a predominance of mid-career professionals likely holding managerial roles and possessing significant industry experience relevant to cost efficiency and sustainability in upstream oil and gas operations (Table 4.1.2.2). Another 21.4% are aged 21–30, representing early-career staff with emerging knowledge of corporate practices, while 10.7% fall between 41–50 years, likely contributing strategic insights as senior managers. Only 3.6% are under 21, reflecting limited input from interns or entry-level personnel. This distribution suggests a respondent pool well-positioned to provide credible perspectives on the implementation of policies like the CEIO.

Table 4.1.2.3. Highest Educational Qualification of Respondents

		Frequency	Valid Percent
	Graduate	4	14.3
	Post Graduate	15	53.6
	Professional Qualifications	9	32.1
	Total	28	100.0

Source: SPSS Output (2025)

As shown in Table **4.1.2.2**, the majority of respondents possess advanced academic or professional qualifications, with 53.6% holding postgraduate degrees and 32.1% having professional certifications, indicating a highly educated and industry-competent sample. These qualifications suggest strong analytical capacity and practical expertise relevant to addressing cost efficiency and sustainability challenges in upstream oil and gas operations. Only 14.3% hold basic graduate degrees, likely representing early-career professionals. Overall, the educational profile enhances the reliability of the study's findings by reflecting a knowledgeable and strategically aware respondent pool.

Table 4.1.2.4 Work Experience of Respondents

		Frequency	Valid Percent
	6-10yrs	2	7.1
	Above 10 Years	26	92.9
	Total	28	100.0

Source: SPSS Output (2025)

Table 4.1.2.5. Position/Designation of Respondents

		Frequency	Valid Percent
	Operations/Production Managers	5	17.9
	Sustainability/ESG Officers	4	14.3
	Finance/Tax Compliance Officers	14	50.0
	Health, Safety & Environment Managers	2	7.1
	CSR or Community Relations Officers	3	10.7
	Total	28	100.0

Source: SPSS Output (2025)

As shown in Table 4.1.2.3, 92.9% of respondents have over 10 years of professional experience, indicating that the sample consists predominantly of seasoned experts with deep familiarity with upstream oil and gas operations. This high level of industry exposure enhances the credibility and relevance of their input, particularly on complex subjects like cost efficiency and sustainability. Only 7.1% have between 6 to 10 years of experience, representing mid-career professionals with growing strategic insight. Overall, the study benefits from a mature and knowledgeable respondent pool, strengthening the validity of its findings.

According to Table **4.1.2.3**, half of the respondents are Finance or Tax Compliance Officers, highlighting strong representation from professionals directly engaged in cost oversight and regulatory compliance—critical to evaluating cost efficiency incentive orders in upstream oil and gas operations. Additionally, Operations/Production Managers (17.9%) and Sustainability/ESG Officers (14.3%) contribute practical and environmental insights, while CSR/Community Relations Officers (10.7%) and HSE Managers (7.1%) offer perspectives on stakeholder engagement and safety. This multidisciplinary mix enhances the study's robustness by reflecting diverse operational, financial, and sustainability viewpoints.

Table 4.1.2.6. What is your awareness-level about the 2025 Cost Efficiency Incentives Order

		Frequency	Valid Percent
	Very High	4	14.3
	High	11	39.3
	Moderate	12	42.9
	Very Low	1	3.6
	Total	28	100.0

Source: SPSS Output (2025)

The data presented in table 4.1.2.4 highlights the respondents' awareness levels regarding the 2025 Cost Efficiency Incentives Order (CEIO). A combined total of 17 respondents, representing 60.7% (14.3% Very High and 39.3% High), indicate a strong level of awareness, suggesting that the majority of industry professionals surveyed are well-informed about the CEIO framework. Additionally, 42.9% report a Moderate level of awareness, which implies a basic familiarity but potential gaps in deep understanding or practical implementation knowledge. Only one respondent (3.6%) indicated a Very Low awareness level, suggesting minimal exposure to the policy. This distribution reflects a generally positive level of engagement with the CEIO among industry stakeholders, which is critical for effective compliance, alignment with sustainability practices, and the realization of its intended cost-efficiency goals in upstream oil and gas operations.

4.2. Analysis Based on Research Questions

The data in Table **4.2.1** suggests a strong positive perception of the Cost Efficiency Incentives Order (CEIO) in promoting cost discipline within organizations. A significant majority of respondents agreed or strongly agreed that CEIO has contributed to tighter operational cost control (85.7%),

Table 4.2.1. Impact of CEIO on Cost Discipline.

Items	SD	D	U	A	SA
The CEIO has encouraged tighter operational cost control within your organization.	1 (3.6%)	–	3 (10.7%)	13 (46.4%)	11 (39.3%)
CEIO benchmarking has improved transparency in cost reporting.	–	–	6 (21.4%)	16 (57.1%)	6 (21.4%)
Your organization has made cost-saving investments in response to CEIO.	–	2 (7.1%)	7 (25.0%)	15 (53.6%)	4 (14.3%)
CEIO has increased internal awareness of cost efficiency performance indicators.	–	1 (3.6%)	5 (17.9%)	16 (57.1%)	6 (21.4%)
CEIO has reduced unnecessary operational expenditures.	–	1 (3.6%)	6 (21.4%)	18 (64.3%)	3 (10.7%)

Source: Author's Computation (2025).

Table 4.2.2. Impact of CEIO on Emission Reduction Practices.

Items	SD	D	U	A	SA
CEIO has contributed to reduced gas flaring in your operations.	–	3 (10.7%)	8 (28.6%)	8 (28.6%)	9 (32.1%)
Methane monitoring and control have improved since the CEIO implementation.	–	4 (14.3%)	14 (50.0%)	8 (28.6%)	2 (7.1%)
The CEIO has encouraged investment in low-carbon technologies.	–	4 (14.3%)	7 (25.0%)	13 (46.4%)	4 (14.3%)
CEIO metrics include emission reduction targets that influence operations.	–	–	7 (25.0%)	18 (64.3%)	3 (10.7%)
Your emission reduction strategy is now aligned with CEIO requirements.	–	1 (3.6%)	15 (53.6%)	11 (39.3%)	1 (3.6%)

Source: Author's Computation (2025).

Table 4.2.3. Impact of CEIO on Renewable Energy Integration.

Items	SD	D	U	A	SA
CEIO has motivated us to explore renewable energy options.	–	2 (7.1%)	3 (10.7%)	18 (64.3%)	5 (17.9%)
Your company has considered hybrid (renewable + conventional) systems post-CEIO.	–	1 (3.6%)	9 (32.1%)	14 (50.0%)	4 (14.3%)
CEIO has influenced capital allocation toward renewable integration.	–	3 (10.7%)	13 (46.4%)	10 (35.7%)	2 (7.1%)
Renewable energy use is now part of operational performance discussions.	–	1 (3.6%)	7 (25.0%)	16 (57.1%)	4 (14.3%)
The CEIO framework actively encourages green energy transitions.	–	2 (7.1%)	4 (14.3%)	16 (57.1%)	6 (21.4%

Source: Author's Computation (2025)

improved transparency in cost reporting through benchmarking (78.5%), and led to cost-saving investments (67.9%). Moreover, the initiative has evidently raised internal awareness of cost efficiency indicators (78.5%) and has helped reduce unnecessary operational expenditures (75%). The very low proportions of disagreement (ranging from 0% to 7.1%) and minimal neutrality indicate a broadly favorable impact of CEIO on operational cost discipline, suggesting that the framework is effective in driving financial prudence, accountability, and resource optimization across participating firms.

The data in Table **4.2.2** reflects a moderately positive perception of the Cost Efficiency Incentives Order (CEIO) in fostering emission reduction, with 60.7% of respondents affirming reduced gas flaring and 75% acknowledging that CEIO's emission targets have influenced operational practices. However, uncertainty persists, particularly regarding methane control—where 50% were undecided—and strategic alignment, as 53.6% indicated unclear integration of CEIO mandates. While most respondents recognized CEIO's role in encouraging low-carbon investments, mixed views highlight an uneven pace of adoption, suggesting the policy's impact is acknowledged but still evolving across firms.

Table **4.2.3** indicates that the Cost Efficiency Incentives Order (CEIO) is widely perceived as a key driver of renewable energy integration, with 82.2% of respondents agreeing it has encouraged exploration of renewables and 78.5% affirming its role in promoting green transitions (Mani, 2024; Ibe & Okonkwo, 2023). However, while 71.4% noted that renewable energy has entered operational performance discussions, and 64.3% acknowledged interest in hybrid systems, the actual commitment to capital investment remains limited, as 46.4% were undecided on funding allocation. This suggests that while CEIO has successfully initiated awareness and strategic dialogue, financial and infrastructural implementation is still emerging.

The data indicates that the CEIO has positively impacted stakeholder engagement and community sustainability practices, with 75% of respondents affirming increased investment in community-based initiatives and 67.8% acknowledging better alignment of CSR efforts with CEIO goals. Structured stakeholder engagement also improved, as 78.5% agreed that CEIO led to more formalized processes, and 64.3% noted enhanced reputation among host communities. However, neutral responses—ranging from 28.6% on CSR alignment to community feedback—highlight that while CEIO has catalyzed progress, full integration and stakeholder responsiveness still vary across firms, pointing to the need for clearer frameworks and more inclusive implementation practices.

4.3. Thematic Analysis

Thematic analysis of the data revealed nine major themes reflecting participants' experiences, awareness, and perspectives on the CEIO and sustainability practices in upstream oil and gas operations.

Table 4.2.4. Impact of CEIO on Stakeholder Engagement and Community Relations.

Items	SD	D	U	A	SA
CEIO has led to increased investment in community-based sustainability initiatives.	–	2 (7.1%)	5 (17.9%)	16 (57.1%)	5 (17.9%)
Your CSR programs have been aligned with CEIO sustainability expectations.	–	1 (3.6%)	8 (28.6%)	13 (46.4%)	6 (21.4%)
Stakeholder engagement has become more structured under CEIO.	–	–	6 (21.4%)	20 (71.4%)	2 (7.1%)
CEIO compliance has improved your organization's reputation with host communities.	–	2 (7.1%)	8 (28.6%)	15 (53.6%)	3 (10.7%)
The CEIO has prompted your organization to integrate community feedback into sustainability planning.	–	–	8 (28.6%)	16 (57.1%)	4 (14.3%)

Source: Author's Computation (2025).

Table: Thematic Analysis of CEIO Implementation and Impact

Theme	Sub-Themes / Codes	Key Insights	Representative Quotes / Observations
1. Familiarity with CEIO	- Awareness levels - Job roles and exposure	Awareness varied widely; better understanding among finance, planning & supply chain staff.	"Only senior management seems to know what CEIO entails."
2. Cost-Saving Measures	- Contract renegotiation - Logistics optimization - Automation - ERP adoption	Firms are cutting costs through tech upgrades, restructuring, and supply chain streamlining.	"We've reduced logistics costs by 30% since implementing ERP."
3. Emission Reduction Practices	- Flare gas recovery - Vapour recovery units - Leak detection - GHG tracking	Most firms have initiated low-carbon projects, especially those already investing in gas optimization.	"Our vapour recovery unit saves over 500,000 scf/day in flared gas."
4. Barriers to Emission Reduction	- High capital costs - Regulatory delays - Procurement issues - Skill gaps	Several internal and external constraints are stalling emission reduction efforts.	"We want to do more on emissions, but funding and approvals are slow."
5. Incentives for Renewables	- Tax credits - VAT exemptions - Carbon credits	Fiscal incentives are key motivators, but many firms lack clarity on how to access them.	"We've heard about VAT waivers but haven't seen any formal notice or guideline."
6. Challenges with Renewables	- Grid issues - Resistance to change	Renewable integration remains limited due to infrastructure	"Solar for remote stations is promising, but approval processes are unclear."

	- Cost - Inconsistent policies	and regulatory weaknesses.	
7. CSR and Host Communities	- COVID-19 relief efforts - Infrastructure projects - PIA-related programs	CEIO aligns with CSR in some firms; others rely more on Petroleum Industry Act structures.	"We've always donated at year-end, but now link it to sustainability KPIs."
8. Perceived Impact of CEIO	- Positive - Neutral - Uncertain	Most respondents believe CEIO has potential for change, but impact is still emerging.	"CEIO is promising, but it's too early to judge real results."
9. Recommendations to Regulators	- Improve clarity - Streamline processes - Incentivize compliance	Strong calls for better communication, faster approvals, and more fiscal support.	"If NUPRC can simplify the cost benchmarking process, more firms will engage fully."

Source: Author's Computation (2025).

Awareness and Familiarity with CEIO: Awareness of the CEIO framework varied significantly across organizational levels. While senior executives and personnel in regulatory compliance, finance, and planning departments demonstrated considerable familiarity with the CEIO, many frontline staff and even mid-level managers displayed limited understanding of the policy's objectives and scope. Respondents attributed this gap to insufficient internal communication and limited sensitization efforts from regulatory bodies. Some interviewees remarked that knowledge of CEIO remains "restricted to the top," with inadequate cascading of information throughout the organisation.

Cost-Saving Measures and Operational Efficiency: Participants highlighted several cost-saving strategies that were either directly motivated by CEIO or aligned with its principles. These included renegotiation of contractor terms, outsourcing of non-core services, logistics optimisation, and increased automation through Enterprise Resource Planning (ERP) systems. One sustainability manager noted that the adoption of ERP led to a "30% reduction in logistics-related costs." In some cases, digital solutions replaced outdated manual tracking systems, leading to streamlined procurement and reduced administrative overhead.

Adoption of Emission Reduction Practices: The CEIO appears to have triggered or reinforced environmental compliance in several firms. Key practices included gas flare reduction through the installation of vapour recovery units, investment in leak detection systems, and tracking of greenhouse gas emissions. Respondents reported increased attention to flare volume metrics and routine environmental audits. One firm reported saving over 500,000 standard cubic feet per day of gas through newly installed vapour recovery systems, which also aligned with broader environmental and cost goals.

Barriers to Emission Reduction Implementation: Despite the uptake of sustainable practices, participants identified a number of challenges impeding the full implementation of emission reduction strategies. Such obstacles were the large capital outlay needs, the long process to get regulatory approval, difficulties to access green financing, and scarce supply of specialised technical staff. A number of respondents felt perplexed with bureaucratic blockages with one revealing that even with their plans and technical designs, approval may take eternity for implementation to take place. Others stressed on the difficulty of switching new technologies with older kinds of infrastructures.

Fiscal Innovations in Renewable Energy Integration: Fiscal measures like tax credits, taxation on renewable energy components and renewable energy eligibility to carbon credits were considered key triggers to renewable energy integration. Nonetheless, majority of the participants indicated that not much has been clarified regarding the process of accessing these incentives. The issue of continuity of government policy in this field was also viewed with a lot of doubt. Though a few companies had already invested poverty into solar power on remote locations, they found that there were no guidelines on the procedures of claiming such benefits.

Challenges to Renewable Energy Adoption: Several companies acknowledged the potential of renewable energy sources but pointed out that infrastructural limitations, regulatory uncertainty, and internal resistance to change were major constraints. A few firms had piloted solar installations in remote field locations, but such initiatives were often stymied by grid unreliability, unclear import duties on solar components, and inconsistent fiscal regimes. One sustainability officer remarked that "renewables are the future, but we don't have the enabling environment to pursue them aggressively."

Corporate Social Responsibility (CSR) and Host Community Engagement:

The CEIO was observed to reinforce and align with existing CSR practices in some firms. Particularly notable were community-focused initiatives such as COVID-19 relief programs, food and medical donations, and infrastructure development, including school buildings and guest houses in host communities. Participants from Newcross Petroleum and Newcross E&P noted that their yearly end-of-year donations to host communities have been restructured to align with sustainability reporting KPIs. CSR was consistently framed as a mechanism for fostering trust and maintaining operational harmony with local stakeholders.

Perceived Impact of CEIO: Opinions regarding the impact of CEIO were mixed. While most respondents believed the policy is a step in the right direction for enforcing cost discipline and promoting sustainable practices, many also indicated that it is still too early to assess tangible outcomes. There were also those who described CEIO as being under-communicated yet promising, while others revealed that it is already bringing about internal reviews and reconstructions on how operations were being carried out. Moreover, a few firms viewed CEIO as primarily regulatory compliance, with limited influence on core business strategy.

Suggestion to Regulators and Policymakers: There were recommendations given by the respondents to improve the effectiveness of CEIO. These were more effective stakeholder participation, easier reporting channels as well as clear communication by the Nigerian Upstream Petroleum Regulatory Commission (NUPRC) and the other monitoring bodies. Attendees supported the simplification of benchmarking tools, compliance templates centralization, and educational sessions to advance the industry insight. The need to review the practice after a certain time to exchange the best practice between firms and eliminate implementation bottlenecks collectively through group consultation was also advised.

4.4. Test of Hypothesis

In order to evaluate the hypothesesthe linear regression analysis was applied as the statistical technique. Data are analyzed with the Statistical Package of the Social Sciences (SPSS) and results were compared againstthe 5% level of significance. The decision is made by the p-value which should be less than 0.05 to reject the null hypothesis.

4.4.1. Hypothesis One

H_{01}: CEIO does not have any statistically significant positive influence to cost discipline and operational efficiency in upstream oil and gas companies.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.859	1.708		1.088	.286
	CEIO	.190	.038	.703	5.045	.000

a. Dependent Variable: CD

Since the p-value (0.00) of CEIO is < 0.05 and the value of the coefficient is reported positive at 0.190 we reject the null hypothesis and accept the alternative. Thus, it is concluded that CEIO positively impacts on cost discipline and operations efficiency at Nigerian upstream oil and gas companies in a statistically significant manner.

4.4.2. Hypothesis Two

H_{02}: There is no significant effect of CEIO compliance on the adoption of emission reduction strategies in upstream operations.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.307	1.212		-.254	.802
	CEIO	.277	.027	.898	10.379	.000

a. Dependent Variable: ERP

The p-value associated with the CEIO variable is 0.000, which is significantly lower than the standard threshold of 0.05. This indicates that the predictor (CEIO compliance) has a strong and statistically significant effect on the adoption of emission reduction practices.

4.4.3. Hypothesis Three

H_{03}: The CEIO does not significantly and positively influence the integration of renewable energy technologies in upstream oil and gas production processes.

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.527	1.388		-.380	.707
	CEIO	.264	.031	.861	8.621	.000

a. Dependent Variable: REI

The p-value for CEIO is 0.000, which is well below the conventional significance level of 0.05, indicating that the relationship between CEIO and renewable energy integration is statistically significant.The high standardized Beta (0.861) shows a strong positive effect, meaning that greater compliance with or implementation of the Cost Efficiency Incentives Order (CEIO) is associated with increased integration of renewable energy technologies in upstream oil and gas processes.

4.4.4. Hypothesis Four

H_{04}: The implementation of the CEIO does not significantly enhance stakeholder engagement and leads to more structured CSR initiatives in host communities.

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.024	1.053		-.972	.340
	CEIO	.269	.023	.915	11.567	.000
a. Dependent Variable: SECR						

The p-value (0.000) is well below the standard significance threshold of 0.05, indicating a statistically significant relationship between CEIO implementation and enhanced stakeholder engagement/structured CSR efforts.

4.5. Discussion of Findings

The findings of this study strongly affirm the positive and statistically significant impact of the 2025 CEIO on multiple dimensions of sustainable practices within Nigeria's upstream oil and gas sector, aligning with and extending the conclusions of prior research. In particular the study revealed that the CEIO greatly promoted cost discipline, efficient operation, emission-reduction strategies, renewable energy, and stake holder involvement within the scope of CSR. Those findings echo those of Kyari (2020) who revealed that tax incentives in petroleum, such as holidays and allowances, were effective in attracting foreign direct investment (FDI) and enhancing the output of the sector as well as those of Atube and Okolie (2023) who also observe through their regression analysis of nine oil and gas companies that investment allowances have a significant positive effect on return on investment (ROI).

Furthermore, the impact of CEIO on emission control is consistent with those stated by Fadipe, et al. (2025) that the positive perception of green taxation plays an influential role in improving CSR performance and level of sustainability in the oil and gas industry in Nigeria. In the international perspective, it was identified by Svendsen (2022) in the countries of OECD that performance-based tax incentives, which are connected to environmental performance, have a positive impact on the usage of cleaner technologies, which is also reflected in this study in the enhancement of emission strategy and the use of renewable energy because of CEIO. Additionally, the evidence of how CEIO can strongly improve the CSR structure and stakeholder interactions proves Mani (2024) results, that sustainable activities such as the alignment of operations with ESG and a focus on community policies can lead to the overall operational, reputational, and economic growth.

Meanwhile, as opposed to the doubt raised in the study by Ibrahim and Musa (2021) on the limitations of fiscal incentives in reshaping corporate behavior to achieve a sustainable model, the study at hand brings forth a strong argument that CEIO functions not only as a regulatory tool but likewise as a transformative policy tool capable of inculcating sustainability in the business strategies of the upstream oil and gas chain in Nigeria.

5. SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1. Summary of Findings

The following were revealed from the findings of the study:

I. The linear regression analysis results showed a statistically significant positive relationship between CEIO and cost discipline as well as operational efficiency ($F = 25.452$, $p < 0.001$) implying that the policy has contributed to the tightness of cost controls and enhanced transparency of cost reporting as well as cost-efficiency measures awareness.

II. CEIO had a strong impact on the use of emission reducing approach with a strong standardized beta coefficient (0.898, $p< 0.001$) which implies that adherence to CEIO motivates companies to follow greener and cleaner business operation.

III. A positive and highly significant impact on the integration of renewable energy technologies was reported by CEIO (0.861, $p < 0.001$), showing a diversion of the capital allocation and operating plans toward hybrid and green energy sources in upstream operations.

IV. In applying CEIO, it was reported that stakeholder engagement and the structure of CSR has been considerably improved (0.915, $p < 0.001$).This shows improvement in CSR programmes aligning with the expectation of sustainability and amplifying consideration in channels of decision-making by exerting community feedback.

5.2. Conclusions

The study was embarked upon to evaluate the effects of the 2025 CEIO on sustainability practices in the upstream oil and gas industry of Nigeria using a cross-sectional survey.The study involved a survey of 28 oil professionals (consisting of operation managers, sustainability offcials, health & safety experts, finance persons as well as CSR officers), coupled with an interview of 10 compliance and sustainability managers of four selected oil upstream companies: Pan Ocean Oil Corporation Nig. Ltd, Newcross Petroleum Ltd, Newcross Exploration & Production Ltd and Aradel Holdings. Based on linear regression analysis, the study found CEIO to be a significant boost to the cost discipline, efforts of emission cuts, use of renewable energy and involvement of stakeholders. These findings were further supported by the responses given during the interview that emphasized how CEIO develops the compliance behaviors and the strategic planning of sustainability planning, although it was also mentioned that the influence exerted by CEIO is still in its early stages of its impact and that to date there remains some lack of clarity, in terms of accessibility and bureaucracy in terms of approval. Meanwhile, on the overall, the results confirm that properly developed and well-targeted fiscal policy, such as the CEIO, can promote indigenous firms to resort to more sustainable, inclusive, and efficient operational practices, which would eventually, align the local oil & gas industry with bestinternational practices occurring all over the world.

5.3. Recommendations

Going by the results of this research several important recommendations are put forward in order to enhance the impact and implementation of the 2025 CEIO:

I. The NUPRC and other regulatory agencies must design effective M&E structures to monitor the level of CEIO adherence and evaluate their results in key sustainability measures especially in emission control, use of renewable sources of energy, and community interaction. This will make sure that the feedback is collected in time and a policy course is modified based on the data.

II. Many firms demonstrated only moderate awareness of CEIO provisions. It is therefore recommended that targeted training and sensitization workshops be organized for upstream operators, especially indigenous companies, to deepen their understanding of CEIO expectations and how to effectively integrate them into business operations.

III. The government should consider expanding CEIO-related benefits to include tax reliefs or grants for companies investing in clean technologies such as carbon capture, waste-to-energy systems, and solar-powered rigs. This will further drive renewable energy integration and reduce sector-wide carbon footprints.

IV. Companies should be guided and supported to align their CSR programs with CEIO sustainability goals, particularly through community-based renewable energy projects, local skills development, and environmental conservation initiatives. This will improve host community relations and enhance the sector's social license to operate.

V. Long-term sustainability investments require policy certainty. It is recommended that the CEIO be embedded within a broader national sustainability policy with clear timelines, transparent benchmarks, and stakeholder consultation mechanisms to foster trust and long-term compliance.

5.4. Limitations and Suggestions for Further Study

Although the present study presents useful information on how the 2025 CEIO has affected sustainability practices in the upstream oil and gas segment of Nigeria, some limitations wereadmitted. The study relied oncross sectional data and self-reported information using structured interviews and questionnaires which though revealed some deep insights; however, it might provide response bias especially on compliance reporting and attainments of sustainability.

With these shortcomings, future studies need to bear in mind a broader picture of the effectiveness of CEIO, hence, the sample should be widened to include regulator and multinational firms. Also, cross-national research on the comparisons between Nigeria and other resource rich nations using the same policies of fiscal incentives may provide useful information used to streamline sustainability driven regulatory practices.

CONFLICT OF INTEREST

On behalf of all authors, the corresponding author states that there is no conflict of interest.

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