



Environmental Costs Disclosures and Corporate Investment in the Oil and Gas Sector in Nigeria

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INTRODUCTION

Background to the Study

Environmental cost reporting and disclosure is now one of the most disputed reporting issues within the extractive industries as oil and gas activities will produce visible environmental externalities and at the same time will demand colossal long-term capital investments. Owoeye (2023) defined environmental accounting as a broader approach to conventional accounting through tracking costs of remediation, pollution reduction, waste management, decommissioning and environmental protection which are usually concealed in overhead accounts. The importance of the environmental cost information in the oil and gas sector in Nigeria is enhanced by recurrent issues regarding oil spills, gas flaring, site restoration requirements, and host-community conflicts. Ashibogwu (2023) observed that the industry presents high revenues and high ecological risks and since the disclosure of environmental costs are central to the legitimacy, accountability, and sustainable decision-making, visibility of the environmental costs plays a pivotal role. With mounting pressure on firms by regulators, investors, host communities and civil society, it has become increasingly expected that firms disclose environmental costs in a manner that not only demonstrates compliance, but also the quality of their long-term stewardship of assets.

The strategic importance of environmental reporting has also been intensified by the recent disclosure reforms. GRI Standards (2021) and IFRS Sustainability Disclosure Standards issued by the IFRS Foundation (2023) have driven companies to more systematized sustainability-related reporting, with Nigerian research like Wallace, et al. (2024) and Nnedu, et al. (2025) demonstrating that non-financial disclosures are becoming increasingly evaluated alongside traditional accounting figures. Practically, environmental cost disclosure has come to indicate the manner, in which the management identifies decommissioning liabilities, pollution-control commitments, host-community environmental commitments and conservation efforts. Umanah and Obarolo-Iguobaro (2025) contended that environmental disclosure in the oil and gas industry of Nigeria, ceased to be a peripheral PR practice, but rather a governance comment that reflects on profitability discipline, risk exposure and management reaction to stakeholder scrutiny.

Investment in property, plant and equipment often reflects the corporate investment decision in the oil and gas industry. PPE Investment reflects the management desire to invest in production facilities, pipelines, storage systems, pollution-control equipment, safety facilities, modular refining assets, rehabilitation infrastructure and other working assets, which will continue to generate earnings into the future. Kujore and Adegbe (2024) insisted that the quality of disclosure may influence investment behaviour since transparent reporting may decrease the level of information asymmetry and enhance the trust in the stewardship decisions made by the management. In industries where there are significant disclosed environmental commitments, such disclosure can affect the reactive or compliance-based investment that firms undertake or the proactive, strategic investment they make in safer and more efficient assets. Annual investment in PPE therefore offers a viable accounting metric of corporate investment choices in an industry where the fixed assets are the primary mode of operation, and environmental constraints cannot be isolated of capital planning.

Empirical results based on Nigeria indicate that variables of environmental accounting are significant in performance, market value and sustainability performance, but the nature and strength of the relationship are



yet to be resolved. Green (environmental) accounting cost disclosure was also found to impact differently on some of the performance indicators of oil and gas firms as reported by Odum and Arinomor (2023), and environmental expenditure disclosed was found to be applicable to market value in listed oil and gas firms as reported by Oxbulafor, et al. (2025). Halilu (2025) also indicated that the market performance of oil and gas companies listed on the Nigerian market had an implication on ESG disclosure. Nevertheless, the majority of Nigerian research continues to focus on profitability or market value and the relationship between environmental cost disclosure and capital commitment per se has received minimal attention. This creates a distinct gap as companies can comply with environmental requirements not just by manipulating earnings or by providing narrative reports, but also by investing actually annually in productive and compliance-related assets.

Statement of the Problem

One of the most consistent critiques of oil and gas activities in Nigeria has been the degradation of the environment. Oil spills, gas flaring, waste disposal, abandonment of assets and host-community environmental controversies are some of the activities that still present major environmental and economic challenges. These problems are a real cost to the oil and gas companies, but the reporting and disclosure of these costs in companies' reports is not yet consistent in the listing companies. The degree of detail, clarity and transparency vary in most situations depending on the firm. It poses a challenge to consumers of financial statements and annual reports who wish to determine whether firms are keen to be environmentally responsible, or just giving vague statements with no proper financial foundation.

The other issue is that to a large extent the current debate on environmental reporting has been less concerned with how environmental requirements can affect investment decisions with more emphasis being put on profitability, market value, or overall financial performance. This introduces a knowledge gap since in a capital-intensive business like the oil and gas industry, environmental responsibilities to be disclosed can have a more powerful implication on long term investment in productive assets than short term profit measures. In areas where companies have great environmental cleanup, environmental pollution and host-community payment, these expenses can influence the magnitude and course of investment in property, plant, and equipment.

This issue is also escalated by the disjointed way environmental cost information is reported in annual reports. Where they exist, relevant disclosures can be found in various locations in sustainability reports, directors reports, notes to the accounts, decommissioning provisions, and host-community development disclosures. It is hard to evaluate the quality of disclosure consistently and comparably across firms and over time in such a way. In the absence of a well-defined method of determining the environmental cost disclosure, empirical research can be poor, inconsistent, and not as helpful in policy and decision-making.

The research question that the paper is therefore dealing with is whether the disclosure of environmental costs in the form of a certain index of disclosure measures influence the corporate annual investment decisions of the listed oil and gas industry in Nigeria. The research thus ascertains how environmental remediation or decommissioning cost disclosure, pollution control cost disclosure and environmental conservation or host-community environmental development cost disclosure affect annual investment in property, plant and equipment in the listed oil and gas companies in Nigeria.

Objectives of the Study

The main objective of the study is to examine the effect of environmental cost disclosure on corporate investment decisions in the oil and gas sector in Nigeria.

- i. examine the effect of environmental remediation/decommissioning cost disclosure on annual investment in property, plant and equipment of listed oil and gas firms in Nigeria;
- ii. investigate the effect of pollution control cost disclosure on annual investment in property, plant and equipment of listed oil and gas firms in Nigeria; and



- iii. evaluate the effect of environmental conservation/host-community environmental development cost disclosure on annual investment in property, plant and equipment of listed oil and gas firms in Nigeria.

Research Questions

The following questions were asked:

- i. How does environmental remediation/decommissioning cost disclosure affect annual investment in property, plant and equipment of listed oil and gas firms in Nigeria?
- ii. What is the effect of pollution control cost disclosure on annual investment in property, plant and equipment of listed oil and gas firms in Nigeria?
- iii. What is the effect of environmental conservation/host-community environmental development cost disclosure on annual investment in property, plant and equipment of listed oil and gas firms in Nigeria?

Hypotheses of the Study

The following hypotheses were stated in null form:

- H01:** Environmental remediation/decommissioning cost disclosure has no significant effect on annual investment in property, plant and equipment of listed oil and gas firms in Nigeria.
- H02:** Pollution control cost disclosure has no significant effect on annual investment in property, plant and equipment of listed oil and gas firms in Nigeria.
- H03:** Environmental conservation/host-community environmental development cost disclosure has no significant effect on annual investment in property, plant and equipment of listed oil and gas firms in Nigeria.

Significance of the Study

Regulators and policy makers find the study important as it offers country-specific evidence as to whether or not environmental cost disclosure is linked to actual corporate investment behaviour in the oil and gas industry in Nigeria. This can be helpful in enhancing disclosure structures, environmental compliance oversight and sustainability reporting guidelines in an industry that is still economically vital yet ecologically delicate.

Managers, accountants and sustainability officers are also interested in the study as it reveals the areas of environmental disclosures that have the most links with capital commitment. Where the management realizes that the transparent remediation, environmental reporting of pollution-control and host community, and disclosure are consistent with the increased investment of assets, disclosure can be more substantive and less ceremonial.

This will be beneficial to investors, creditors and other report users since the study will offer an effective prism through which they can assess whether environmental cost information contained in annual reports reflects a long-term commitment to operations. A company with a transparent declared decommissioning commitment, environmental control and conservation-related initiatives can also be more apt to invest in long-lasting and less hazardous productive resources.

Lastly, the research adds to the literature by broadening the scope of Nigerian environmental accounting studies in profitability and market-value implications to corporate decisions on investment. It thus enhances empirical discussion on whether disclosure of the environment affects the strategic resource allocation and not just short-run accounting returns.

Scope and Limitations of the Study

This research is based on environmental cost disclosure and annual corporate investment decision on the oil



and gas industry in Nigeria. The independent variables are the environmental remediation/decommissioning cost disclosure, pollution control cost disclosure and environmental conservation/host-community environmental development cost disclosure and the dependent variable is annual investment in property, plant and equipment. The research deals with the seven oil and gas firms listed on the Nigerian Exchange Group at 31 December 2025 and the years 2019 to 2025.

The research is based on secondary data sources, content analysis of annual reports and published financial statements. Even though this method suits disclosure research, it faces constraints due to variation in reporting quality, disclosure format variations between years and the fact that some companies report environmentally in narrative as opposed to quantifiable way. The coding system employed in this research addresses that issue by transforming the disclosed items into uniform disclosure indices, but the outcomes must remain open to interpretation through the constraints of publicly reported information.

Operational Definition of Terms

Corporate Investment Decisions: Corporate investment decisions are management decisions that involve the allocation of funds to long term productive assets, projects and infrastructure, which are likely to yield future economic returns.

Environmental Conservation/Host-Community Environmental Development Cost Disclosure: This is the disclosure of amounts spent or amounts owed with respect to environmental conservation, biodiversity protection, reforestation, host-community environmental development projects, climate programs and environmentally-oriented community development programs.

Environmental Cost Disclosure: The reporting of both financial and non-financial information on environmental obligations, prevention, remediation, protection and sustainability programs in corporate annual reports and published financial statements is referred to as environmental cost disclosure.

Environmental Remediation/Decommissioning Cost Disclosure: This is the disclosure of decommissioning, site restoration costs, abandonment costs, remediation costs or asset retirement costs and other environmental costs.

Annual Investment in Property, Plant and Equipment (IPPE): PPE is the ratio of annual capital expenditure on property, plant and equipment to total assets and which is utilized in this study as the accounting proxy of corporate investment decisions.

Pollution Control Cost Disclosure: This is defined as disclosure of pollution prevention, waste management, spill response, effluent treatment, emission control and any other pollutant-abatement costs or promise.

REVIEW OF RELATED LITERATURE

Conceptual Review

Environmental Cost Disclosure

Environmental cost disclosure is a systematic reporting of costs, obligations, programmes and commitments linked with the environmental effects of business activity. According to Owoye (2023), the environmental accounting information was defined as the extension of the accounting systems in the form of the environmental prevention costs, remediation costs, waste treatment costs, compliance costs and restoration obligations, which the traditional financial reporting covers under the operating expenses. Disclosure is of particular importance in extractive industries, where organisations are based in ecologically sensitive areas and are under pressure by regulators, host communities and investors to disclose how these environmental effects are identified and addressed. Wallace, et al. (2024) proposed that sustainability-oriented disclosure has become more decision-relevant when not symbolic anymore but quantifiable, verifiable and recurring reporting items.



Environmental cost disclosure in the Nigerian oil and gas industry is especially significant since a large portion of the legitimacy of the sector is based on whether or not the stakeholder believes the firms internalise the environmental impacts as opposed to externalising them to the communities and the state. Ashibogwu (2023) noted that the environmental impact of the sector has elevated the approach of environmental accounting into the inevitability of the contemporary corporate reporting. By including decommissioning provisions, pollution-control expenditure, or environmental conservation commitments in the disclosure of a firm, it sends a signal regarding compliance with regulations, risk awareness and long-run stewardship. This is why the current study does not consider environmental cost disclosure as a generic sustainability narrative but a disclosure reporting construct that can be broken down into the dimensions of remediation, pollution-control and conservation-related disclosure.

Environmental Remediation/Decommissioning Cost Disclosure

Environmental remediation or decommissioning cost disclosure involves the information offered on the site restoration, abandonment, asset retirement obligations, decommissioning provisions and other costs that are incurred to restore land, facilities and ecological systems following extraction or use. These costs are crucial in the oil and gas business as well, since the wells, pipelines, flow stations and storage tanks and other facilities do not cease to have environmental effects when the production halts. Ogbulafor, et al. (2025) found the cost of environmental remediation as one of the most policy-relevant environmental spending items in Nigerian oil and gas companies since it connects the present operation to the future environmental commitment. A company that reports these items shows that it is aware of the life-cycle cost of extraction and not the immediate impacts on its revenue in the current period.

Reporting wise, the remediation and decommissioning disclosure is typically found in the notes to provisions, restoration requirement, changes of estimates, asset retirement requirement and site rehabilitation commitment. Bala, et al. (2024) proposed that the more prominent institutional and regulatory pressure, the more explicit environmental disclosure of the oil and gas companies in Nigeria, whereas Umanah and Obarolo-Iguobaro (2025) indicated that profitability could also influence the scope of disclosures. Since the decommissioning liabilities are long term and asset related, the decommissioning liabilities are conceptually similar to the capital investment behaviour. A company that discloses such liabilities in a comprehensive manner can also be more inclined to invest in current assets, more secure infrastructure and production systems that can withstand the environment. This renders remediation or disclosure of decommissioning a hypothetically pertinent predictor of investment in PPE.

Pollution Control Cost Disclosure

Pollution control cost disclosure is the reporting of the costs and commitments in the prevention, monitoring, treatment and reduction of environmental pollution that is a result of the operations. These expenses can be spill response, waste disposal, effluent treatment, air-emission control, gas flaring reduction, leak detection, environmental monitoring and pollution-control equipment in the oil and gas industry. According to Odum and Arinomor (2023), the environmental costs of oil and gas tend to be concealed in the operations, and as such, they must be reported in an explicit manner in case a financial statement user can fully understand its economic importance. In a situation where information on pollution control is reported in an open manner, the stakeholders will have a better understanding of the manner in which firms are dealing with operational hazards as well as environmental compliance risk.

The disclosure of the cost of pollution control is also an important aspect in the investment decision-making process since most pollution-abatement obligations involve the use of tangible and frequently costly assets. The capital work implemented in pollution-controlling systems, closed-loop infrastructure, safer storage, flare-out projects, wastewater treatment units and electronic monitoring systems represents a capital expense that is reflected in the PPE investment. Halilu (2025) attributes that the impact of environmental and broader ESG disclosures in the oil and gas companies in Nigeria on the market perception of the quality of operation and risk exposure are increasing. In situations where the costs of pollution control have been revealed with reasonable specificity, the disclosure could imply that it is not the management that is delaying environmental



risk but rather it is adopting preventive and corrective infrastructure. In this study, the pollution control cost disclosure, in turn, is considered a visible driver of disclosure that can potentially account for the variation in corporate investment in PPE among firms and years.

Environmental Conservation/Host-Community Environmental Development Cost Disclosure

Host-community environmental development and environmental conservation cost disclosure captures data on programmes and spending that are intended to conserve ecosystems, minimize ecological degradation and promote environmentally related community development along operating regions. This can cover, biodiversity programs, forest planting, reclamation, green projects, water projects, host community environmental infrastructure, climate adaptation programs and host community development trust commitments. The Nigerian situation is the most relevant to the community-oriented environmental promises, as the harm to the environment is frequently socially concentrated within the host communities. Kujore and Adegbie (2024), stated that decision-useful environmental disclosure was not limited to firm-based cost items but should also report how firms managed environmental externalities that impacted the community and stakeholder trust.

This type of disclosures is also important since the host-community environmental commitments may affect the type of social licence to operate, continuity of the project and long-term asset sustainability. Research including Nnedu, et al. (2025) revealed that sustainability disclosure has the ability to form the ways of how users assess corporate resilience and long-horizon profitability and company-level findings on Nigerian oil and gas companies are expanding to emphasize the role of community-oriented ESG reporting in maintaining legitimacy. As companies report their conservation and host-community environmental development activities, they present indications of preventive and not reactive environmental management. As most of these programmes demand environmental facilities, green infrastructure and the associated physical investment, the revelation is theoretically connected to PPE growth and investment choice. This construct is thus used as the third independent variable in the current study.

Corporate Investment Decisions

Corporate investment decisions are the decisions made by management over the distribution of financial resources to long term assets and projects with anticipations of future benefits. Investment decisions are common in corporate finance and accounting research including capital expenditure, fixed-asset increase, project growth and spending on productive infrastructure. Wallace, et al. (2024) underline that the companies are more and more driven by financial and non-financial factors to make such decisions, such as sustainability and expectations of stakeholders. In the case of oil and gas companies, investment decisions include not only factors of expansion of production but also environmental compliance, operational safety, energy transition, readiness and resilience of infrastructure.

Investment choices in industries where the environmental liability is high can be influenced by the degree to which the management takes into consideration corporate reporting of environmental liability. When the environmental costs are revealed in transparent manner, the managers are likely to internalise the environmental costs in their project appraisal, capital budgeting and replacement of their assets. Owioye (2023) argued that environmental management accounting enhances strategic decision-making by increasing the visibility of the hidden environmental costs to the management. Based on this, this paper defines corporate investment decision as a strategic response which can be seen in the case of asset commitment, particularly in an industry where production, compliance and sustainability are so asset-intensive. The study quantifies investment, instead of viewing investment as an abstract managerial intention, by a tangible accounting product: investment in property, plant and equipment.

Investment in Property, Plant and Equipment

Investment in property, plant, and equipment is the sum of money that a firm commits in the purchase, building, renovation or growth of long-term physical assets that are utilized in the operations of a firm. PPE



investment in oil and gas corporations can include wells, flow stations, pipelines, depot, service stations, storage, modular refining, treatment, safety, and pollution-control infrastructure. Since these companies are very capital intensive, IPPE is an effective operational proxy of corporate investment decision. Directly or indirectly, both Halilu (2025) and Ogbulafor, et al. (2025) recommended that environmental and sustainability commitments in the sector could not be made without long-term asset decisions since compliance and operational credibility is often pegged on installed physical capacity.

The greater the ratio, the greater the asset commitment and, consequently, more aggressive investment posture. The IPPE is especially appropriate in the framework of this research as disclosure of environmental costs is likely to impact tangible operational commitments as opposed to short-term profits only. In countries where companies are required to report decommissioning, pollution-control and conservation requirements, they can as well invest more in the assets necessary to handle the requirements. Therefore, annual IPPE is an ideal and theoretically consistent dependent variable to study corporate investment decisions in the listed oil and gas companies in Nigeria.

Theoretical Framework

Legitimacy Theory by Dowling and Pfeffer (1975).

This was a theory propounded by to Dowling and Pfeffer in 1975. Legitimacy theory explicates corporate disclosure as an endeavor by organisations to ensure the further acceptance to the society that it is operating in. The current debates by Owuoye (2023) and Wallace, et al. (2024) incorporate the concept of legitimacy as the harmonisation between corporate behaviour and the larger societal expectations of responsibility, transparency and acceptable behaviour. In industries which are sensitive to the environment like oil and gas, companies do not operate on the basis of commercial contract only, companies also operate on a larger social licence influenced by communities, regulators, investors and the media. Environmental cost disclosure is one of the most important channels on which the firms inform about the fact that they realise that they have environmental obligations and make efforts to address them in a responsible way.

This theory can be applied to this study since it offers a rational rationale to establish the linkage between environmental cost disclosure and corporate investment decisions. In the case where firms feel a sense of legitimacy pressure, they need not restrict their response to narrative reporting, they can also invest in PPE that reflects environmental responsibility in the real world. These investments can be pollution control systems, restoration plants, safer operating equipment and community-related infrastructure. Therefore, the legitimacy theory assists in understanding why disclosure of environmental costs may be higher when investors are transparent about their investment in PPE. It positions disclosure as a communication process and catalyst to actual organisational action and so it is a suitable anchoring point to the current study.

Empirical Review

In their study, Odum and Arinomor (2023) determined the relationship between green accounting cost Disclosed and financial performance of oil and gas firms in Nigeria in terms of return on equity, shareholders fund, earnings per share, profit after tax and net profit margin as outcome variables. The research was based on the annual-reports of the selected oil and gas companies and examined the data using panel ordinary least squares and Granger causality models. Their data revealed that the disclosed cost of green accounting did not have a consistent impact on all indicators of financial performance, and environmental cost variables may have different impacts on the results under study.

Nwachukwu and Ugwueze (2023) assessed the influence of corporate performance and environmental accounting disclosures of listed oil and gas companies in Nigeria focusing on the waste-management-related environmental costs. The research was based on ex-post facto design and annual report information of listed companies and found evidence that environmental accounting disclosure was related to corporate performance indicators. Their results confirm the general perspective that the items of environmental accounting are not insignificant to corporate performance.



Ashibogwu (2023) examined how environmental accounting information influence sustainable development of oil and gas sector in Nigeria by disaggregating environmental accounting information disclosed into oil pollution cost, oil spillage cost, oil drilling and waste disposal cost and oil degradation cost. The study, based on secondary data (2009-2020) and ordinary least squares analysis, identified mixed reactions of sustainable-development indicators to the environmental accounting variables. The major implication was that the categories of environmental costs disclosed have an analytical meaning and cannot be considered a one-dimensional entity.

Itotaziba and Nwosu (2024) studied the impact of environmental cost disclosure on financial performance of oil and gas companies with a particular focus on the health-and-safety costs and waste-management costs. Their analysis revealed that the environmental cost disclosure proxies are operationalisable with tangible annual-report items and that such items can be correlated with the corporate performance through regression analysis.

Wallace, et al. (2024) assessed the effects of environmental, social and governance factors on the financial performance of financial companies listed in Nigeria. Despite the fact that the disclosed information in the sector does not correlate with performance of the oil and gas firms, the study is beneficial in the sense that it demonstrates that disaggregated ESG measures have unique explanatory power and must be studied individually instead of aggregating into a large index. Their results support the methodological choice of the current research of considering environmental remediation, pollution control and conservation-related disclosure as various aspects.

In his study, Musa (2024) employed annual report and panel regression analyses to examine ownership structure and environmental disclosure in Nigerian listed firms. The analysis revealed that certain ownership qualities, in particular, foreign, government and institutional ownership, had a positive impact on environmental cost disclosure. This study has contributed to the understanding of the firm-level disclosure drivers. In the current research, it offers some contextual support to the argument that disclosure is systematic and can explain other corporate outcomes.

Umanah and Obarolo-Iguobaro (2025) explored the environmental disclosure determinants in the Nigerian oil and gas industry using annual report, descriptive statistics and fixed/random effects estimation. They added that profitability enhanced environmental disclosure and leverage decreased it by a considerable percentage. This research is inherently relevant as it addresses the same industry and it proves that there is a significant difference in the environmental disclosure between firms.

Ogbulafor, et al. (2025) examined the effect of environmental expenditures disclosed and market value of listed oil and gas companies in Nigeria with specific focus on environmental remediation cost and environmental conservation cost disclosed. Their results indicate that environmental expenditure is not the only compliance cost; it also has valuation costs in capital markets. This finding is very applicable to the current study as it confirms the applicability of remediation and conservation-related environmental variables to the context of oil and gas in Nigeria.

Halilu (2025) studied the ESG disclosure and market performance in oil and gas companies that have been listed in Nigeria between the year 2015 and 2024. The research found that ESG reporting was relevant to market performance, thus lending credence to the expanding argument that sustainability-related reporting is relevant to the evaluation of firms by stakeholders. The relevance of the study by Halilu to the current study is that it focuses on the sector and it discusses oil and gas disclosure as a signal of economic relevance.

Nnedu, et al. (2025) investigated the relationship between sustainability reporting and firm performance of listed consumer goods firms in Nigeria using firm size as a moderating variable. They carried out panel regression analysis and discovered that the disclosure variables have the ability to influence the operating outcomes in different ways depending on contextual factors.

The authors, Aniefuna and Ijeoma (2025) discovered that the profitability of the firm had a significant positive



impact on environmental disclosure by listed manufacturing companies in Nigeria, indicating that more profitable companies report more environmental disclosures. Bello (2026) also indicated that ESG practices enhanced financial performance of listed companies in Nigeria through the use of a larger panel designs. Although these studies are not directly related to the behaviour of oil and gas investments, they reinforce the modern Nigerian evidence that the sustainability-related disclosure is associated with the significant corporate results.

METHODOLOGY

Research Design

The research design used was *ex-post facto*. The design is suitable since the researchers used already available data in the form of annual reports and published financial statements of listed oil and gas companies without corrupting any of the variables. It is also an appropriate design to use in disclosure studies due to its ability to enable the researcher to observe real reporting behaviour and the correlation it has with corporate outcome over time.

Population of the Study

In this study, all the oil and gas companies listed on the Nigerian Exchange Group between 2019 and 2025 were taken into account. By 31 December 2025 the Exchange had seven (7) oil and gas companies. Table 3.1 shows the seven listed oil and gas companies.

Table 3.1: Oil and Gas Companies in Nigeria

S/N	Name of Oil and Gas Companies	Ticker	Date Listed	Date Incorporated
i.	Holdings PLC	ARADEL	14-Oct-24	25-Mar-92
ii.	Conoil PLC	CONOIL	-	30-Jun-70
iii.	Eterna PLC	ETERNA	-	13-Jan-89
iv.	Japaul Gold and Venture PLC	JAPAULGOLD	10-Aug-05	29-Jun-94
v.	Oando PLC	OANDO	24-Feb-92	25-Aug-69
vi.	Seplat Energy PLC	SEPLAT	-	17-Jun-07
vii.	Totalenergies Marketing Nigeria PLC	TOTAL	-	6-Jan-56

Source: Nigerian Exchange Group (2025)

Sample Size and Sampling Technique

The sample size was the seven (7) oil and gas companies that made the total population. Census sampling method was preferred due to the small size of the population, which was available and manageable, and the lack of sample-selection bias in the listed oil and gas segment due to the use of the entire population.

Source and Nature of Data

The secondary data were used in the study and its sources were audited annual reports and published financial statements of the sample oil and gas firms in the years 2019 to 2025. The content analysis of data was used to extract data on the dependent and independent variables and data were collated using Microsoft Excel. The independent variables, the disclosures were collated using a check list to determine the disclosure index (attached), while the dependent variable was computed as a percentage of annual IPPE to total asset per annum. The panel-data approach was settled on since the research involved seven cross-sectional and seven time-series observations, thus giving rise to a balanced panel of forty-nine (49) pooled observations. The *a priori* expectation is that all disclosures should have a positive impact on the dependent variable.

Empirical Specification of the Model

The model for the study was adapted from recent Nigerian environmental accounting literature and modified to suit the objectives of this study. The econometric functions are specified as follows:

$$IPPE_{it} = \beta_0 + \beta_1 ERC_{it} + \mu \quad \text{Equation 3.1}$$

$$IPPE_{it} = \beta_0 + \beta_2 PCC_{it} + \mu \quad \text{Equation 3.2}$$

$$IPPE_{it} = \beta_0 + \beta_3 ECC_{it} + \mu \quad \text{Equation 3.3}$$

Where:

IPPE = Investment in property, plant and equipment

ERC = Environmental remediation/decommissioning cost disclosure index

PCC = Pollution control cost disclosure index

ECC = Environmental conservation/host-community environmental development cost disclosure index

β_0 = Regression constant

$\beta_1 - \beta_3$ = Coefficients of the independent variables

μ = Stochastic error term

i = Number of firms

t = Time period

Method of Data Analysis

The analysis used descriptive statistics and simple regression analysis with the help of SPSS 27.0 output interpretation. The rule of decision is that the null hypothesis is accepted when the p-value exceeds 0.05 and rejected when the p-value is less than 0.05.

DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

Data Presentation

This section reported the variables calculated in this study. These were environmental remediation/disclosure of the cost of environment remediation (ERC), pollution control cost disclosure (PCC), environmental conservation/host-community environmental development cost disclosure (ECC) and investment in property, plant and equipment (IPPE). These are the variables that constitute the firm-specific parameters that are applied to listed oil and gas firms in Nigeria. They were computed using the information extracted on the sampled firms that had annual reports and financial statements released in the year 2019 to 2025. Appendix II presents the pooled data used to conduct the study.

Descriptive Statistics

Table 4.1: Descriptive Statistics of the Variables

Variables	N	Mean	Std. Dev.	Skewness	Kurtosis
Investment in PPE	49	7.972	4.025	0.351	-1.233



ERC Disclosure	49	0.521	0.268	0.111	-0.896
PCC Disclosure	49	0.536	0.239	-0.148	-0.303
ECC Disclosure	49	0.571	0.228	0.073	-0.846

Source: Researcher's Computation (2026).

Table 4.1 indicates that the mean investment in PPE is 7.972 with standard deviation of 4.025 (descriptive statistics) which suggests that there is prominent variation in corporate capital commitment across the sampled firms and years. The skewness of 0.351 is positive which implies that the distribution is mildly skewed towards the right, and the kurtosis of -1.233 implies that the shape of the distribution is not very steep as compared to that of the normal curve. The ERC disclosure, PCC disclosure and ECC disclosure have a mean of 0.521, 0.536 and 0.571 respectively. The three disclosure variables have low to moderate dispersion and near-symmetric distribution, which means that the environmental disclosure practices of firms vary, but are not concentrated at the extremes. In general, it can be ascertained that the statistics indicate that there is enough variability to do regression.

Test of Hypotheses

H₀₁: Environmental remediation/decommissioning cost disclosure has no significant effect on investment in property, plant and equipment of listed oil and gas firms in Nigeria.

Table 4.2a: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.93	0.864	0.861	1.5

a. Predictors: (Constant), ERC

Source: Researcher's Computation (2026).

Table 4.2b: ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	671.895	1	671.895	298.701	0
Residual	105.721	47	2.249		
Total	777.616	48			

a. Dependent Variable: IPPE

b. Predictors: (Constant), ERC

Source: Researcher's Computation (2026).

Table 4.2c: Coefficients

Model	B	Std. Error	Beta	t	Sig.	Remark
(Constant)	0.713	0.472		1.512	0.137	
ERC	13.944	0.807	0.93	17.283	0	Significant

a. Dependent Variable: IPPE

Source: Researcher's Computation (2026).

The outcome of the first hypothesis reveals that the environmental remediation/decommissioning cost disclosure has a strong positive and statistically significant impact on investment in PPE of listed oil and gas



companies in Nigeria. The model summary shows the correlation coefficient (R) of 0.930 and the coefficient of determination (R^2) of 0.864 which implies that approximately 86.4% of investment in PPE variation is attributed to ERC disclosure. In the ANOVA table, the F-value of 298.794 and a significant level of 0.000 is less than 0.05, meaning that the model is not significant. The coefficient table also indicates that the ERC disclosure positively impacts IPPE as indicated by the unstandardized coefficient ($B = 13.944$) and a t-value of 17.283 at a p-value of 0.000. This means that companies that are consistently disclosing remediation and decommissioning commitments will invest more in property, plant and equipment. Hence, the null hypothesis is rejected.

H₀₂: Pollution control cost disclosure has no significant effect on investment in property, plant and equipment of listed oil and gas firms in Nigeria.

Table 4.3a: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.824	0.68	0.673	2.302

a. Predictors: (Constant), PCC

Source: Researcher's Computation (2026).

Table 4.3b: ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	528.502	1	528.502	99.712	0
Residual	249.114	47	5.3		
Total	777.616	48			

a. Dependent Variable: IPPE

b. Predictors: (Constant), PCC

Source: Researcher's Computation (2026).

Table 4.3c: Coefficients

Model	B	Std. Error	Beta	t	Sig.	Remark
(Constant)	0.546	0.813		0.671	0.505	
PCC	13.863	1.388	0.824	9.986	0	Significant

a. Dependent Variable: IPPE

Source: Researcher's Computation (2026).

The outcome of the second hypothesis shows that the cost of disclosure for pollution control affects investment in PPE of Nigerian-listed oil and gas firms positively and the statistics are significant. The model summary indicates that the correlation coefficient (R) is 0.824 and the coefficients of determination (R^2) is 0.680, which means that 68.0% of the changes in IPPE is explained by PCC disclosure. The ANOVA table gives the F-value of 99.680 with the significance value of 0.000 which is lower than 0.05, thus indicating that the model is statistically significant. According to the coefficient table, PCC disclosure positively influences the IPPE with the unstandardized coefficient ($B = 13.863$), the t-value of 9.986 and a significance value of 0.000. This implies that companies that report and disclose pollution control costs, tend to invest more in long-term operating assets as well. Thus, the null hypothesis is disregarded.



H03: Environmental conservation/host-community environmental development cost disclosure has no significant effect on investment in property, plant and equipment of listed oil and gas firms in Nigeria.

Table 4.4a: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.875	0.766	0.762	1.966

a. Predictors: (Constant), ECC

Source: Researcher's Computation (2026).

Table 4.4b: ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	596.028	1	596.028	154.269	0
Residual	181.588	47	3.864		
Total	777.616	48			

a. Dependent Variable: IPPE

b. Predictors: (Constant), ECC

Source: Researcher's Computation (2026).

Table 4.4c: Coefficients

Model	B	Std. Error	Beta	t	Sig.	Remark
(Constant)	-0.851	0.764		-1.114	0.271	
ECC	15.441	1.243	0.875	12.42	0	Significant

a. Dependent Variable: IPPE

Source: Researcher's Computation (2026).

The outcome of the third hypothesis indicates that there is a positive and statistically significant impact of environmental conservation/host-community environmental development cost disclosure is on investment in PPE of listed oil and gas firms in Nigeria. The model summary shows a correlation coefficient (R) of 0.875 and coefficient of determination (R^2) of 0.766 indicating that ECC disclosure explains 76.6 percent of the variation in IPPE. The result of ANOVA is that, the F-value is 154.278 with a significant value of 0.000 and it is less than 0.05, this indicates that the model is statistically significant. A positive correlation between ECC disclosure and IPPE is displayed in the coefficient table with the unstandardized coefficient ($B = 15.441$), t-value of 12.420 and p-value of 0.000. This shows that companies with a wider environmental conservation and host-community environmental development disclosure are more likely to invest in assets. Thus, the null hypothesis will be rejected.

DISCUSSION OF THE FINDINGS

The result of the first hypothesis indicates that the disclosure of environmental remediation/decommissioning costs has a positive and significant impact on investment in PPE of Nigerian listed oil and gas companies. What this means is that those companies that report their site-restoration, abandonment and decommissioning liabilities in a more transparent way also invest more in long-term physical assets. The result reinforces a legitimacy perspective that companies experiencing a greater environmental accountability pressure react not just by providing narrative reporting but by making tangible asset-based engagements. The finding is generally in line with Ogbulafor, et al. (2025), who have discovered that remediation-related environmental spending possessed economic significance in the oil and gas companies in Nigeria.



The second hypothesis demonstrates that disclosure of pollution control cost has positive and significant impact on investment in PPE. This means that the pollution-control reporting of the oil and gas industry in Nigeria seems to be correlated with actual expenditure on long-term investments like treatment systems, safer plants and storage upgrades and other compliance-based infrastructure. This result corresponds to both the overall Nigerian evidence presented by Halilu (2025) and the oil-and-gas-specific arguments of Odum and Arinomor (2023) that the categories of environmental costs are not symbolic, but have an economic impact. The finding indicates that when managers make pollution-control commitments visible, there is also an increased likelihood that they will transform these commitments into capital investment.

The third hypothesis discloses that the cost of investment in PPE is positively and significantly influenced by environmental conservation, as well as the host-community environmental development cost disclosure. This implies that those firms, who disclose conservation programmes and host-community environmental projects and other environmental development commitments, also demonstrate better capital commitment. The finding suggests that environmental responsibility facing the community can strengthen long-run investment discipline by ensuring stakeholder support and minimizing operating frictions. It aligns with the larger disclosure arguments put forward by Kujore and Adegbe (2024) and with modern Nigerian sustainability literature like Nnedu, et al. (2025) which views disclosure as a meaningful act of strategic seriousness as opposed to a ritual.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary of Findings

- i. There is a positive and significant effect of environmental remediation/decommissioning cost disclosure on investment in property, plant and equipment of listed oil and gas firms in Nigeria.
- ii. There is a positive and significant effect of pollution control cost disclosure on investment in property, plant and equipment of listed oil and gas firms in Nigeria.
- iii. There is a positive and significant effect of environmental conservation/host-community environmental development cost disclosure on investment in property, plant and equipment of listed oil and gas firms in Nigeria.

Conclusion

The research findings conclude that the environmental cost disclosure is significant in explaining corporate investment direction in the oil and gas industry in Nigeria. Precisely, the three (3) aspects of environmental cost disclosure considered in this study; environmental remediation/decommissioning cost disclosure, pollution control cost disclosure and environmental conservation/host-community environmental development cost disclosure were observed to have positive and significant impacts on investment in PPE. This suggests that companies with more detailed reports on environmental commitments are also more likely to have long-term commitments to productive and compliance-related assets. The paper thus confirms that environmental disclosure in the Nigerian oil and gas industry is not just a reputational tool, but rather tied to actual asset-based decision-making, which determines future operations. The evidence generally indicates that disclosure of environmental costs can assist more responsible and disciplined and forward-looking capital investment behaviour.

Recommendations

The following recommendations were made:

- i. The oil and gas companies listed are encouraged to better the scope and uniformity of their environmental remediation and decommissioning reporting by offering better clarity regarding the abandonment duties, restoration terms and associated asset-retirement estimates, as the disclosure of this nature is linked to increased investment in PPE.
- ii. To enhance pollution-control disclosures, the management needs to report individual waste-management, spill-response, flaring-reduction and pollution-abatement commitments in annual reports



and also needs to correlate pollution-control disclosures with long-term investment in treatment and compliance assets.

- iii. Oil and gas companies ought to disclose more on environmental conservation and host-community environmental development by presenting quantifiable data on conservation initiatives, host-community environmental infrastructure and associated trust pledges, and strengthening the plausibility of their long-term capital investment stance.