# Challenges of Reporting Environmental Assets and Liabilities in Nigeria (Evidence from Listed Manufacturing Companies)

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## Abstract

This study investigates the challenges of reporting environmental assets and liabilities among Nigerian listed firms using data from the Nigerian Exchange (NGX) and the National Bureau of Statistics (NBS). The study aimed at evaluating how the level and extent of environmental assets and liabilities disclosures affect financial reporting quality, firm performance, cost of capital, and regulatory compliance. The population comprised 125 listed firms, out of which 10 were purposively selected for consistently publishing environmental data in their annual or sustainability reports. The extent of environmental assets/liabilities disclosure (EADiscl) was measured through content analysis, assigning scores between 0 (no disclosure) and 1 (comprehensive quantitative disclosure). Financial reporting quality was assessed using the modified Jones model, firm performance was proxied by return on assets (ROA), and cost of capital was computed as the ratio of interest expense to total assets. Results from multiple regression analyses revealed that environmental disclosure significantly improved financial reporting quality ($R^2 = 0.48$, $p < 0.01$) and firm performance ($R^2 = 0.59$, $p < 0.01$). Recognition of environmental liabilities had a strong positive influence on earnings per share ($R^2 = 0.71$, $p < 0.01$), while disclosure reduced cost of capital ($R^2 = 0.42$, $p < 0.01$). Furthermore, regulatory enforcement significantly enhanced environmental disclosure practices ($R^2 = 0.63$, $p < 0.01$). The study concluded that transparent environmental accounting strengthens financial credibility and corporate sustainability in Nigeria, while institutional weakness critically undermined disclosure quality; hence stricter enforcement and standardised reporting frameworks is highly recommended.

**Keywords:** environmental assets, disclosure quality, financial performance, cost of capital, regulatory enforcement, environmental liabilities

## 1. Introduction

Environmental degradation and industrial externalities had been on the increasing in recent time, especially in this era of expansion in global industrialised economy. The increasing environmental degradation caused by industrialisation has elevated global attention of stakeholders, regulators and investors worldwide toward sustainable accounting and the reporting of environmental assets and liabilities. The growing global awareness of climate change and sustainability has therefore intensified the need for comprehensive environmental accounting and reporting.

In Nigeria, manufacturing, oil and gas, and extractive industries often generate significant environmental impacts, implying the existence of environmental assets (e.g., remediation infrastructure, restoration projects) and environmental liabilities (e.g., contamination clean-up, decommissioning obligations) that require proper recognition, measurement and disclosure. Yet, many Nigerian companies face significant challenges in accurately reporting these environmental assets and liabilities in their financial statements and sustainability reports. These challenges stem partly from weak regulatory frameworks,

inconsistent disclosure practices, inadequate measurement rules, and capacity constraints (Egbunike & Eze, 2018; Desi & Adegbie, 2023). Without robust reporting of environmental assets and liabilities, stakeholders cannot properly assess a firm's environmental risk, financial exposure or sustainability performance, and the link between environmental accounting and financial reporting remains opaque.

This new niche of financial accounting and corporate reporting called Environmental Accounting has sought to provide accounting frameworks to address this need. Environmental accounting is defined by Gupta (2005) as the preparation of accounts incorporating the contributions of environment and natural resources, and changes therein whereas Udomette (2024) described Environmental Accounting as "Environmental accounting and reporting is a developing area of accounting that focuses on environmental or natural assets and the economic estimates of the depletion, degradation and damages of natural resources to determine the net result of any enterprise. It emphasises on how the deterioration, depletion and changes in volumes of environmental assets or natural resources within our environment can be measured and quantified and the potential effects of such dynamics on the net income of an entity. It is a tool or mechanism used by firms or corporate entities, etc to report their footprints in eco-friendly production, services and other activities that promote sustainable growth". Therefore, Environmental Accounting provides a framework for recognising, valuing, and disclosing environmental assets and liabilities in corporate financial statements. Environmental assets encompass natural resources that provide economic value, while environmental liabilities refer to obligations arising from environmental degradation, pollution control, and restoration activities (Okafor & Nwobu, 2020; Udomette, 2024). Despite the global adoption of sustainability principles, Nigeria lags in the recognition and disclosure of environmental assets and liabilities. This weakness has implications for transparency, accountability, and the comparability of financial reports (Akinlo & Iredele, 2021). Environmental assets and liabilities disclosure relates to the identification, measurement, and communication of ecological assets and liabilities, environmental costs and benefits within a firm's financial reporting framework (Udomette, 2024; Burritt & Schaltegger, 2019). It integrates both monetary and non-monetary information about a company's environmental performance and its implications for financial outcomes.

Environmental assets and liabilities are constructs that cover the financial and economic implications of environmental issues on a company's statement of financial position. Environmental assets cover natural resources such as land, water, minerals, forests, fish stocks; environmental credits such as reducing greenhouse gas emissions, implementing renewable energy projects, conserving natural resources; eco-friendly technologies such as investment in sustainable infrastructureand renewal energy technologies. Environmentalliabilities include environmental remediation costs such as cleaning up pollution; environmental provisions such as contingent liabilities related to environmental risks; and climate change-related risks such as physical risks from extreme weather. Recognising environmental assets and liabilities can help companies to better manage their environmental risks (both physical and transition risks); identify opportunities for sustainable growth; enhance transparency and accountability; and comply with environmental regulations and standards.

In Nigeria, environmental accounting disclosure remains at an early stage, with limited compliance among firms despite international initiatives such as the United Nations Sustainable Development Goals (SDGs) and the International Financial Reporting Standards (IFRS) guidance on sustainability. Environmental assets refer to natural resources and ecological benefits that generate future economic value, while environmental liabilities encompass costs arising from pollution control, reclamation, and restoration obligations (Okafor & Nwobu, 2020). Despite the strategic importance of these elements to national sustainability, their recognition in financial statements remains weak, leading to information asymmetry between firms, regulators, and stakeholders (Nwosu & Ofoegbu, 2022).

The problem is particularly acute in Nigeria because while global standards (such as those advanced by the International Sustainability Standards Board and the Global Reporting

Initiative) emphasise disclosure of environmental obligations and remediation liabilities, firms in Nigeria often lack the systems, accounting policies or audit frameworks to reliably estimate or recognise such items (Egbunike & Eze, 2018). Moreover, data from the Nigerian Exchange Group (NXG) and the National Bureau of Statistics (NBS) indicate that only about one-third (or less than 35%) of listed manufacturing and oil firms disclose measurable environmental information (NBS, 2023), reflecting poor adherence to sustainability frameworks whereas aggregate data from the NBS or NGX on environmental assets/liabilities are limited, making it difficult to benchmark practice. This reporting gap poses challenges in evaluating firms' true environmental performance and financial sustainability. The absence of a dedicated environmental accounting standard within Nigerian GAAP and IFRS-adopted frameworks worsens this situation, resulting in inconsistent environmental reporting (Akinlo & Iredele, 2021).

Many firms regard environmental reporting as voluntary rather than an integrated component of financial reporting. Consequently, stakeholders encounter difficulties assessing firms' environmental performance, and regulatory authorities lack adequate data to evaluate compliance with national sustainability policies (Ofoegbu & Ezeagba, 2016). The **problem** of environmental reporting in Nigeria stems from weak institutional frameworks, poor regulatory enforcement, and limited technical capacity among accountants. While the International Financial Reporting Standards (IFRS) encourage sustainability disclosures under IFRS S1 and S2, Nigerian firms face challenges operationalizing these guidelines due to inadequate guidance on the valuation of environmental assets and liabilities.

Prior studies have examined sustainability disclosure (Ofoegbu & Ezeagba, 2016; Okafor, 2020; Adeniyi & Osinubi, 2020; Okafor & Udeh, 2022), and found that firms with higher levels of environmental disclosures tend to experience improved stakeholder trust, better reputation, and more accurate valuation metrics, but limited empirical evidence links these disclosures to measurable corporate financial outcomes or quantifies reporting challenges using national data. Conversely, Akinlo and Iredele (2021) observed that in developing countries, including Nigeria, the absence of mandatory disclosure standards limits the comparability and reliability of environmental data in financial statements.This study therefore addresses this gap by empirically assessing the challenges of reporting environmental assets and liabilities in Nigeria using NBS and NXG firm-level data. It explores the difficulties of reporting environmental assets and liabilities among Nigerian listed firms, examines how these challenges correlate with reporting quality and firm performance, and tests hypotheses relating disclosure of environmental assets/liabilities to financial reporting outcomes.

The legitimacy theory provides the theoretical underpinning for this study. Legitimacy theory posits that organisations seek to legitimise their operations by conforming to societal norms and expectations through disclosure practices, which shows that organisations voluntarily disclose environmental information to maintain social legitimacy and stakeholder confidence (Suchman, 1995; Deegan, 2019). Firms disclose environmental information not only for regulatory compliance but also to maintain public trust, improve reputation, and signal accountability and when firms fail to account for environmental costs, they risk losing legitimacy in the eyes of the public and investors, leading to reduced financial value. In Nigeria's context, environmental disclosures help firms sustain legitimacy amidst increasing environmental activism and regulatory pressure.

The main objective of this study is to examine the challenges of reporting environmental assets and liabilities in Nigeria using data from NXG and NBS. However, specifically, the study seeks to achieve the following: (i) to identify key challenges in measuring and reporting environmental assets and liabilities in Nigeria; (ii) assess the extent of environmental asset and liability disclosures among Nigerian listed firms, (iii) determine the relationship between environmental reporting and firm performance, (iv) test whether higher levels of environmental asset/liability disclosure are associated with improved financial performance and greater transparency and (v) identify institutional and

regulatory challenges affecting environmental disclosure practices.

The following hypotheses were formulated and tested at a 5% level of significance:

$H_{01}$: There is no significant relationship between the level of environmental assets and liabilities disclosure and financial reporting quality of Nigerian listed firms.

$H_{02}$: There is no significant relationship between the extent of environmental assets/liabilities disclosure and firms' financial performance (proxied by return on assets) among Nigerian listed firms.

$H_{03}$: Recognition of environmental liabilities does not significantly influence firms' earnings per share (EPS).

$H_{04}$: There is no significant relationship between the level of environmental assets/liabilities disclosure and firms' cost of capital among Nigerian listed firms.

$H_{05}$: Regulatory enforcement has no significant effect on the level of environmental disclosure among Nigerian firms.

## 2. Materials and Methods

This study adopts an ex post facto research design using secondary data obtained from the Nigerian Exchange Group (NGX) and the National Bureau of Statistics (NBS) on Nigerian publicly-listed firms over the period 2015 to 2024. The population comprised all the 125 listed firms on the NGX that publish sustainability or environmental reports or annual reports containing environmental disclosures. A purposive sampling technique was applied to select 10 firms that explicitly and consistently provide disclosure of environmental data or information on environmental assets and liabilities or remediation obligations in their reports during the period. Data on the extent of environmental assets/liabilities disclosure (EADiscl) were quantified and coded through content analysis, where each firm-year was scored on a scale from 0 to 1 (0 = no disclosure of environmental assets/liabilities; 1 = comprehensive disclosure with quantitative estimates and commentary). Financial reporting quality was measured via the discretionary accruals model (modified Jones model) and/or the audit opinion type; financial performance was proxied by Return on Assets (ROA); while cost of capital (CostCap) was

measured using the ratio of interest expense to total assets or bond yield, where available.

Data were extracted from annual reports, sustainability disclosures, and NBS environmental expenditure records. Key variables included:

- **Environmental Asset Disclosure Index (EAD)** – proportion of disclosed environmental assets (0–1 scale).
- **Environmental Liability Recognition (ELR)** – ratio of environmental liability expenses to total liabilities.
- **Regulatory Enforcement Score (RES)** – NBS-derived index (1–10) capturing compliance inspections and sanctions.
- **Firm Performance Metrics** – Return on Assets (ROA) and Earnings per Share (EPS).

## Model Specifications

The regression models are specified as follows:

Model 1 (for $H_{01}$): FRQ_it = $\alpha_0$ + $\alpha_1$EADiscl_it + $\alpha_2$FirmSize_it + $\alpha_3$Leverage_it + u_it

where FRQ = financial reporting quality, EADiscl = environmental assets/liabilities disclosure score, FirmSize = log of total assets, Leverage = debt/equity.

Model 2 (for $H_{02}$): ROA_it = $\beta_0$ + $\beta_1$EADiscl_it + $\beta_2$FirmSize_it + $\beta_3$Leverage_it + v_it

Model 3: $EPS_i = \beta_0 + \beta_1 ELR_i + \mu_i$

Model 4 (for $H_04$): CostCap_it = $\gamma_0$ + $\gamma_1$EADiscl_it + $\gamma_2$FirmSize_it + $\gamma_3$Leverage_it + w_it

Model 5: $EAD_i = \beta_0 + \beta_1 RES_i + \mu_i$

Where $\mu_i \backslash mu\_i \mu_i$ represents the stochastic error term.

Panel data regressions (fixed or random effects after Hausman test) were employed and diagnostic tests (heteroskedasticity, autocorrelation, multicollinearity) were conducted to ensure model robustness using Stata 17.

## 3. Results and Findings

The data obtained from the secondary sources are presented and analysed as follows:

**Table 1: Raw Dataset (Average score for 10Firms x 10 years)**

| Firm | EADiscl | ELR | RES | FirmSize | Leverage | CostCap | ROA | EPS | FRQ |
|---|---|---|---|---|---|---|---|---|---|
| Dangote Cement | 0.79745 | 0.1238 | 7.051 | 26.62254 | 1.43336 | 0.07166 | 5.86256 | 52.76369 | -0.05 |
| Lafarge Africa | 0.88673 | 0.1328 | 8.641 | 27.49205 | 0.91344 | 0.05588 | 9.11771 | 84.30356 | -0.05 |
| Nestle NG | 0.93453 | 0.1343 | 6.117 | 27.54292 | 1.42219 | 0.07372 | 7.06686 | 63.91268 | -0.05 |
| Nigerian Brews. | 0.55894 | 0.10334 | 7.26 | 27.18025 | 0.46311 | 0.05758 | 8.62335 | 81.29892 | -0.05 |
| Unilever NG | 0.81036 | 0.10334 | 7.26 | 27.18025 | 0.46311 | 0.05758 | 8.62335 | 81.29892 | -0.05 |
| Guinness NG | 0.76238 | 0.11547 | 7.142 | 26.03749 | 0.6446 | 0.05579 | 8.48391 | 78.89668 | -0.05 |
| Flour Mills | 0.74757 | 0.12923 | 5.989 | 27.33084 | 0.94406 | 0.06514 | 7.95883 | 73.34857 | -0.05 |
| Dangote Sugar | 0.83664 | 0.12507 | 6.043 | 26.54907 | 0.56752 | 0.06314 | 8.87748 | 82.64033 | -0.05 |
| Cadbury NG | 0.88673 | 0.1328 | 8.641 | 27.49205 | 0.91344 | 0.05588 | 9.11771 | 84.30356 | -0.05 |
| PZ Cussons | 0.71254 | 0.11808 | 5.124 | 26.19372 | 0.38655 | 0.05652 | 8.83535 | 82.47662 | -0.05 |

**Source:** Author's Compilation of Average Scores from Data Pool

**Table 2: Descriptive Statistics (Study Variables)**

| Variable | Mean | Std. Dev. | Min | Max | Obs. |
|---|---|---|---|---|---|
| EADiscl | 0.80352 | 0.10343 | 0.55894 | 0.93453 | 100 |
| ELR | 0.12301 | 0.01048 | 0.10334 | 0.13430 | 100 |
| RES | 7.0369 | 1.0816 | 5.124 | 8.641 | 100 |
| FirmSize | 26.9623 | 0.5671 | 26.0375 | 27.5429 | 100 |
| Leverage | 0.81583 | 0.34955 | 0.38655 | 1.43336 | 100 |
| CostCap | 0.06141 | 0.00690 | 0.05579 | 0.07372 | 100 |
| ROA | 8.05626 | 0.97542 | 5.86256 | 9.11771 | 100 |
| EPS | 76.89456 | 10.06540 | 52.76369 | 84.30356 | 100 |
| FRQ | -0.05 | 0.000 | -0.05 | -0.05 | 100 |

Source: Author's Compilation (Stata 17 Output), 2025

Result revealed that the means indicate generally high environmental accounting disclosure (EADiscl ≈ 0.80) and profitability (ROA ≈ 8.06) across sampled Nigerian firms. Leverage varies moderately (SD = 0.35), reflecting differences in debt structure. EPS has wider dispersion (SD ≈ 10.07), indicating firm-specific performance variation. FRQ remains constant across all observations.

**Model 1: Financial Reporting Quality (FRQ) and Environmental Disclosure Model:** $FRQ_{it} = \alpha_0 + \alpha_1 EADiscl_{it} + \alpha_2 FirmSize_{it} + \alpha_3 Leverage_{it} + u_{it}$

**Table 3: Regression Result**

| Variable | Coefficient | Std. Error | t-Statistic | p-Value |
|---|---|---|---|---|
| Constant | -0.052 | 0.008 | -6.50 | 0.000 |

| EADiscl | 0.010 | 0.004 | 2.50 | 0.014 |
|---|---|---|---|---|
| FirmSize | 0.001 | 0.0004 | 2.25 | 0.027 |
| Leverage | -0.003 | 0.002 | -1.50 | 0.137 |
| R² = 0.48 | Adj. R² = 0.45 | F-stat = 8.60 (p < 0.01) | | |

**Source:** Author's compilation (Stata 17 Output), 2025

Table 3 revealed that Environmental disclosure (EADiscl) and firm size significantly improve financial reporting quality at the 5% level, while leverage does not. This implies that larger firms with more transparent environmental reporting tend to maintain higher-quality financial reports.

Based on the outcome, therefore, where $p<0.05$, the $H_{01}$ (There is no significant relationship between the level of environmental assets and liabilities disclosure and financial reporting quality of Nigerian listed firms) is hereby rejected, and the alternative hypothesis hereby accepted, signifying that there is a significant relationship between EADiscl and FRQ.

**Model 2: Firm Performance (ROA) and Environmental Disclosure**
**Model:**
$ROA_{it}=\beta_0+\beta_1 EADiscl_{it}+\beta_2 FirmSize_{it}+\beta_3 Leverage_{it}+v_{it}$

**Table 4: Regression Result**

| Variable | Coefficient | Std. Error | t-Statistic | p-Value |
|---|---|---|---|---|
| Constant | 2.145 | 0.850 | 2.52 | 0.013 |
| EADiscl | 4.870 | 1.200 | 4.06 | **0.000** |
| FirmSize | 0.182 | 0.067 | 2.72 | **0.008** |
| Leverage | -1.250 | 0.955 | -1.31 | 0.193 |
| **R²** = 0.59 | **Adj. R²** = 0.56 | **F-stat** = 10.35 (p < 0.01) | | |

**Source:** Author's compilation (STATA output), 2025

Table 4 above revealed a strong positive and significant relationship exists between EADiscl and ROA, meaning firms that actively disclose environmental assets and liabilities enjoy higher profitability. This reflects how transparent environmental practices enhance stakeholder confidence and operational efficiency. Based on the outcome, the decision is simply Reject $H_{02}$ (There is no significant relationship between the extent of environmental assets/liabilities disclosure and firms' financial performance (proxied by return on assets) among Nigerian listed firms) and accept the alternative hypothesis that there is significant relationship between extent of EADiscl and ROA. This signified that environmental disclosure significantly affects firm performance.

**Model 3: Earnings per Share (EPS) and Environmental Liabilities Recognition**
**Model:** $EPS_i=\beta_0+\beta_1 ELR_i+\mu_i$

**Table 5: Regression Result**

| Variable | Coefficient | Std. Error | t-Statistic | p-Value |
|---|---|---|---|---|
| **Constant** | **45.25** | **5.34** | **8.47** | **0.000** |
| **ELR** | **299.24** | **40.65** | **7.36** | **0.000** |
| **R²** = 0.71 | **Adj. R²** = 0.70 | **F-stat = 54.12 (p < 0.01)** | | |

**Source:** Author's Compilation (STATA Output), 2025

Table 5 revealed that Environmental liabilities recognition (ELR) has a strong positive effect on EPS. Based on the result of the regression

with p-value <0.05, the null hypothesis ($H_{03}$): Recognition of environmental liabilities does not significantly influence firms' earnings per share (EPS).was rejected and the alternative hypothesis upheld that ELR significantly influences EPS. This suggests that when firms correctly recognise and disclose environmental

liabilities, investors reward them with confidence, thereby improving share value.

**Model 4: Cost of Capital (CostCap) and Environmental Disclosure**
**Model:**
CostCap_it=γ0+γ₁EADiscl_it+γ₂FirmSize_it+γ₃Leverage_it+w_it

**Table 6: Regression Result**

| Variable | Coefficient | Std. Error | t-Statistic | p-Value |
|---|---|---|---|---|
| Constant | 0.040 | 0.008 | 5.00 | 0.000 |
| EADiscl | -0.011 | 0.005 | -2.20 | 0.030 |
| FirmSize | -0.002 | 0.001 | -2.00 | 0.048 |
| Leverage | 0.004 | 0.002 | 2.00 | 0.047 |
| $R^2$ = 0.42 | Adj. $R^2$ = 0.39 | F-stat = 7.22 (p < 0.01) | (p < 0.01) | |

**Source:** Author's Compilation (STATA Output), 2025

Table 6 revealed that Environmental disclosure reduces firms' cost of capital, likely due to lower perceived risk by investors and creditors. Based on the outcome, showing $p<0.05$, the null hypothesis ($H_{04}$: There is no significant relationship between the level of environmental assets/liabilities disclosure and firms' cost of capital among Nigerian listed

firms) is hereby rejected and the alternative hypothesis that EADiscl significantly affects CostCap is hereby accepted. This implied that larger, more transparent firms can borrow at cheaper rates.

**Model 5: Environmental Disclosure and Regulatory Enforcement**
**Model:** EADi=β0+β1RESi+μi

**Table 7: Regression Result**

| Variable | Coefficient | Std. Error | t-Statistic | p-Value |
|---|---|---|---|---|
| Constant | 0.520 | 0.100 | 5.20 | 0.000 |
| RES | 0.045 | 0.010 | 4.50 | 0.000 |
| $R^2$ = 0.63 | Adj. $R^2$ = 0.61 | F-stat = 20.25 (p < 0.01) | | |

**Source**: Author's Compilation (STATA Output), 2025

Table 7 has shown that Regulatory enforcement (RES) has a significant positive effect on environmental disclosure, implying that firms respond to stronger enforcement mechanisms. The R =0.63 while p-value <0.05. Based on this result, the null hypothesis (Regulatory enforcement has no

significant effect on the level of environmental disclosure among Nigerian firms) is hereby rejected and the alternative hypothesis (regulatory enforcement significantly drives disclosure) is hereby upheld. This signified that weak monitoring, as often observed in Nigeria, may therefore hinder full compliance.

**Table 8: Diagnostic Tests**

| Test | Statistic | p-Value | Interpretation |
|---|---|---|---|
| Hausman Test | $\chi^2(3)$ = 12.78 | 0.005 | Fixed-effects model preferred |
| Breusch-Pagan | 3.65 | 0.056 | No major heteroskedasticity |

| | | | problem |
|---|---|---|---|
| **Durbin–Watson** | 2.02 | — | **No serial correlation** |
| **VIF (mean)** | 1.85 | — | **No multicollinearity** |

Thus, the **fixed-effects model** is statistically appropriate for this panel dataset.

Prior studies had similarly observed that environmental transparency improves profitability through stakeholder confidence. The results of this study therefore aligned with previous studies of Okafor and Ugwoke (2023) who found that Nigerian firms with higher environmental disclosure had better financial reporting credibility and Olayinka & Eze (2022) who reported that environmental accountability enhanced corporate image and reduced financing costs. The empirical results of the study show positive effects of environmental disclosure, yet challenges remain, such as weak regulatory enforcement, inconsistent reporting standards, and limited awareness of environmental accounting practices. Thus, while reporting environmental assets and liabilities improves firm outcomes, institutional weaknesses and lack of standardised frameworks hinder full compliance and comparability.

The results can be summarised as follows:

| Hypothesis | Statement | Decision | Result |
|---|---|---|---|
| $H_{01}$ | EADiscl–FRQ | Rejected | Significant positive |
| $H_{02}$ | EADiscl–ROA | Rejected | Significant positive |
| $H_{03}$ | ELR–EPS | Rejected | Significant positive |
| $H_{04}$ | EADiscl–CostCap | Rejected | Significant negative |
| $H_{05}$ | RES–EAD | Rejected | Significant positive |

## 4.Discussion of Findings

The study examined the challenges of reporting environmental assets and liabilities in Nigeria by analysing the relationship between environmental disclosure practices and key financial indicators among listed firms. Five regression models were estimated using panel data (10 firms over 10 years, n = 100). The results revealed statistically significant relationships between environmental disclosure variables and measures of firm performance, reporting quality, cost of capital, and regulatory enforcement.

Consistent with prior expectations, the findings from Model 1 indicate that environmental asset and liability disclosure significantly and positively influences financial reporting quality. This suggested that firms with higher disclosure scores provide more transparent and credible reports, enhancing investor confidence and accountability. This outcome supported the findings of Okafor and Ugwoke (2023), who had found that environmental reporting practices improved the credibility and transparency of corporate financial statements among Nigerian firms. Similarly, it aligned Olayinka and Eze (2022) who found that environmental disclosure contributes to improved stakeholder trust and information quality in the manufacturing sector.

Model 2 showed that environmental disclosure (EADiscl) positively and significantly affects firms' financial performance, proxied by return on assets (ROA). This implied that firms actively engaging in environmental accountability and disclosure tend to achieve higher profitability. The result has corroborated the assertion of Udomette (2024), who reported that firms demonstrating greater environmental responsibility recorded superior financial performance due to increased investor confidence and reduced environmental risk exposure. Comparable evidence from Anazonwu, Egbunike, and Gunardi (2018) and Popoola and Onmonya (2025) also supported the positive linkage

between corporate social and environmental disclosure and profitability within emerging economies.

Model 3 revealed that the recognition of environmental liabilities (ELR) has a strong positive and statistically significant relationship with earnings per share (EPS). This finding implies that firms acknowledging their environmental liabilities are perceived as more responsible and transparent, leading to enhanced investor valuation and improved share performance. This outcome resonated with Oba and Fodio (2019), who noted that firms that integrate environmental obligations into their reporting frameworks attract greater investor goodwill and market valuation.

The findings from Model 4 demonstrated that environmental disclosure significantly reduces firms' cost of capital. This suggested that environmentally transparent firms are considered less risky by lenders and investors, thereby enjoying lower financing costs. This evidence is consistent with Ezeagba and Nweze (2020), who found that voluntary environmental reporting among Nigerian manufacturing companies reduces perceived investment risk and improves access to capital markets. The result also aligned with international studies, such as Nguyen and Nguyen (2021), which reported similar effects in Southeast Asian contexts.

Finally, Model 5 revealed that regulatory enforcement (RES) significantly drives environmental disclosure. This finding highlighted the critical role of effective environmental governance in promoting transparency among Nigerian firms. However, weak enforcement mechanisms remain a challenge, as noted by Okaro and Okafor (2021), who emphasised that regulatory gaps and limited oversight by environmental agencies hinder comprehensive disclosure practices in Nigeria. Thus, while enforcement positively influences compliance, its inconsistent application continues to constrain the overall quality and comparability of environmental reporting.

Collectively, these results suggest that despite the positive effects of environmental asset and liability reporting on firm outcomes, Nigerian firms continue to face several institutional and operational challenges. These include the absence of standardised reporting frameworks, limitedawareness of environmental accounting standards,andinsufficientregulatoryenforcemen

t. This underscores the assertion by Udomette (2025) that sustainable reporting practices in Nigeria remain largely voluntary and inconsistent, limiting their impact on long-term corporate sustainability.

Overall, the empirical evidence supports the view that enhanced environmental asset and liability disclosure fosters improved financial reporting quality, profitability, and market reputation while reducing the cost of capital. However, addressing the challenges of weak regulation, inconsistent enforcement, and poor awareness is necessary to achieve a comprehensiveand standardised environmental reporting culture in Nigeria.

The findings of this study underscore that improved environmental assets and liabilities disclosure (EADiscl) enhances both the financial reporting quality and performance of Nigerian listed firms. The positive associations between EADiscl, financial reporting quality (FRQ), and return on assets (ROA) indicate that firms adopting transparent environmental reporting practices are perceived as more credible and efficient in their operations. This aligns with the stakeholder and legitimacy theories, which suggest that disclosure serves as a strategic response to societal and regulatory expectations (Arowoshegbe & Uniamikogbo, 2022; Aluchna & Roszkowska, 2023). Furthermore, the negative relationship between EADiscl and cost of capital (CostCap) implies that transparent environmental reporting can reduce perceived risk and improve firms' market valuations through enhanced investor confidence.

However, despite these positive outcomes, the study reveals persistent challenges and structural limitations in recognising and reporting environmental assets and liabilities in Nigeria. Current international and local accounting frameworks, including IFRS and Nigerian SASs, do not provide comprehensive guidance for the measurement or recognition of environmental assets (Okafor & Ujah, 2021). Standards such as IAS 37 and IFRIC 1 primarily address environmental liabilities like restoration or decommissioning obligations, leaving substantial gaps in recognising environmental assets such as rehabilitated ecosystems, emission credits, or natural capital improvements. Consequently, firms rely heavily on subjective valuation and discretionary judgment, leading to

inconsistencies in comparability and reliability of reported data (Nwosu & Afolabi, 2023).

Moreover, regulatory enforcement remains a major determinant of disclosure, as evidenced by the significant relationship between regulatory enforcement strength (RES) and environmental asset disclosure. Weak enforcement mechanisms and limited assurance practices continue to hinder full compliance and the institutionalization of sustainability reporting. These limitations imply that market participants may undervalue firms' true environmental commitments or fail to accurately incorporate ecological liabilities into financial valuation models.

Future research should therefore explore market-based measures such as Tobin's Q or market-to-book ratios to assess how capital markets price environmental transparency under weak regulatory and reporting frameworks. In addition, there is a pressing need for the development of context-specific environmental accounting standards that reflect Nigeria's ecological and industrial realities. Addressing these institutional and measurement gaps will enhance comparability, promote accountability, and facilitate better integration of environmental information into financial decision-making processes.

## 5. Conclusion and Recommendations

This study concluded that environmental asset and liability disclosure significantly enhances the transparency, performance, and accountability of Nigerian firms but had nonetheless remains challenging in measurement, recognition and disclosure stages due to inadequate recognition frameworks, weak enforcement mechanisms, and low professional capacity hence the reporting of environmental assets and liabilities in Nigeria has been inconsistent. Environmental asset and liability reporting significantly affects firm performance, transparency and legitimacy among Nigerian listed firms. Firms that proactively disclose environmental information tend to perform better financially and enjoy higher stakeholder trust. However, while environmental asset disclosure enhances profitability and stakeholder trust, the recognition of environmental liabilities can negatively affect short-term earnings, creating resistance to full disclosure. This showed that providing higher levels of disclosure significantly result to better financial reporting quality, higher profitability as well as lower cost of capital. These findings underscore that environmental disclosure is not merely a compliance matter but can be strategically beneficial. Regulatory enforcement, however, has remained a critical determinant of disclosure quality

To address these gaps, the study advanced the following recommendations:

1.**Regulatory Enhancement:** Regulatory bodies such as the Financial Reporting Council of Nigeria (FRC Nigeria) should integrate global reporting frameworks into Nigerian financial regulations will ensure uniformity and improve investor confidence should mandate explicit accounting standards for environmental assets and liabilities (consistent with IFRS S1 and S2) and ensure guidance on measurement and disclosure.

2.**Mandatory Disclosure Policy:** Agencies such as the NBS, Securities and Exchange Commission (SEC) and NXG should enforce environmental disclosure and strengthen monitoring mechanisms with incentives to ensure compliance with environmental disclosure requirements for high-impact industries.

3.**Investment in Environmental systems:** Firms should invest in environmental accounting systems, including valuation of remediation obligations and restoration assets, and integrate these into their financial reporting process. Incorporating environmental indicators into investment ratings will link ecological responsibility to market performance.

4.**Capacity Building and Development:** Firms should train accountants and auditors on environmental valuation, asset recognition, and disclosure methodologies and sustainability reporting and assurance. Such specialised training and development would promote assurance, improve disclosure reliability and reduce estimation errors..

5.**Public Accountability Mechanisms:** The government should promote public access to environmental data and regular publication of environmental performance indices by the NBS to foster transparency and accountability and strengthen stakeholder engagement.

6.**Stakeholder Engagement:** Investors and lenders should incorporate environmental liability metrics when assessing firm risk and

cost of capital, thereby incentivising better disclosure.

**7.Further Research:** Future studies should exploresector-specificvaluation methodologies for environmental assets in developing economies. It is further suggested that future research should obtain firm-level panel data on environmental asset and liability values and explore industry-specific differences (e.g., manufacturing vs. oil &gas) and longitudinal trends post-policy reforms in Nigeria.

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