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Environmental Accounting Practices and Sustainability Performance: Evidence from Federal Polytechnic Ekowe, Bayelsa State, Nigeria*

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ABSTRACT

This study examined environmental accounting practices and sustainability performance at Federal Polytechnic Ekowe, Bayelsa State, Nigeria. The study adopted a descriptive and analytical survey design, involving 120 academic and administrative staff selected through stratified sampling. Primary data were collected using structured questionnaires and key informant interviews, while secondary data were obtained from relevant financial and environmental records. Data were analysed using descriptive statistics, correlation analysis, and regression analysis. Environmental accounting practices were assessed through environmental cost identification, expenditure tracking and recording, environmental cost reporting, and the integration of environmental information into budgeting and management decisions. Sustainability performance was examined in relation to energy and water resource efficiency, waste-management performance, environmental compliance and protection, and institutional accountability. The findings revealed that the overall mean score for environmental accounting practices was approximately 3.37, indicating a moderate level of implementation based on the adopted classification. The correlation analysis established a positive and statistically significant relationship between environmental accounting practices and sustainability performance ($r = 0.402$, $p < 0.001$). Furthermore, the regression model was statistically significant, with an R^2 value of 0.161, indicating that environmental accounting practices explained 16.1% of the variation in sustainability performance. The study concludes that environmental accounting practices are positively associated with sustainability performance at Federal Polytechnic Ekowe, although their implementation remains moderate. It therefore underscores the importance of strengthening environmental cost identification, expenditure monitoring, environmental reporting, and the integration of environmental information into institutional budgeting and management decisions to promote resource efficiency, environmental accountability, and sustainable institutional development.

Keywords: *Environmental accounting, environmental cost reporting, sustainability performance, resource efficiency, tertiary institutions, Federal Polytechnic Ekowe.*

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1. INTRODUCTION

Environmental accounting provides a mechanism for identifying, measuring, monitoring, and reporting the environmental costs associated with institutional operations. Its application in tertiary institutions is particularly relevant to resource efficiency, environmental accountability, and sustainable institutional development. Environmental sustainability has become an important consideration in institutional governance, financial management, and resource allocation. Organisations are increasingly expected to account not only for their financial performance but also for the environmental consequences of their operations. In this context, environmental accounting provides a framework for identifying, measuring, recording, and reporting environmental costs to support informed decision-making and responsible resource management (Burritt et al., 2002; Schaltegger & Burritt, 2017).

Environmental accounting extends conventional accounting practices by incorporating environmental expenditures and impacts into organisational financial and management systems. Relevant cost categories may include waste disposal, water consumption, energy utilisation, pollution prevention, environmental sanitation, and other environmental protection activities. Proper identification and reporting of these costs can improve expenditure transparency, strengthen accountability, and provide information for evaluating resource-use efficiency (Jasch, 2003; Schaltegger & Burritt, 2017).

The importance of environmental accounting is particularly evident in institutions that manage substantial infrastructure, energy consumption, water supply, sanitation, and waste generation. Tertiary institutions have responsibilities extending beyond teaching and research to include responsible campus management, environmental stewardship, and the development of sustainable institutional practices. Integrating environmental considerations into accounting systems can therefore support more informed budgeting, procurement, infrastructure planning, and operational decisions (Alshuwaikhat & Abubakar, 2008; Lozano, 2006).

Environmental accounting is also relevant to the Sustainable Development Goals (SDGs), particularly SDG 12, which promotes responsible consumption and production, SDG 13 on climate action, and SDG 16 on effective, accountable institutions (United Nations, 2015). These goals provide a broad framework for considering environmental responsibility alongside institutional efficiency and accountability (Lozano, 2006).

In Nigeria, the application of environmental accounting in public tertiary institutions warrants investigation. Institutions may undertake sanitation exercises,

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waste disposal, environmental maintenance, tree planting, and energy-saving activities without systematically identifying and reporting the associated expenditures. When environmental costs are incorporated into general administrative expenditure without separate identification, management may find it difficult to determine the resources devoted to environmental protection or assess the efficiency of environmental interventions (Burritt et al., 2002; Jasch, 2003).

These issues are particularly relevant in the Niger Delta, where environmental degradation, flooding, pollution, and other ecological challenges increase the importance of responsible environmental management. Federal Polytechnic Ekowe, situated in Bayelsa State, provides an institutional context for examining how environmental accounting practices relate to sustainability performance. The importance of systematic environmental management in institutional settings is also emphasised by Alshuwaikhat and Abubakar (2008), who identify the need for integrated environmental management strategies in higher education institutions.

The effectiveness of environmental accounting depends not merely on the existence of environmental expenditure but also on whether such expenditure is properly identified, recorded, reported, and incorporated into management decisions. Consequently, evaluating environmental accounting practices and examining their relationship with sustainability performance can provide evidence to support institutional policy and management improvements (Burritt et al., 2002; Shriberg, 2002).

1.2 Statement of the Problem

Institutional sustainability requires the effective management of financial resources alongside the environmental consequences of institutional activities. However, conventional accounting systems may not separately identify expenditures associated with waste management, energy consumption, water use, pollution prevention, sanitation, and environmental protection. Where these costs are absorbed into general administrative expenditure, the institution may lack sufficiently detailed information for assessing environmental spending and determining opportunities for operational improvement.

A related concern is the limited integration of environmental information into financial reporting and management decisions. Without systematic environmental cost identification and reporting, institutional managers may find it difficult to compare environmental expenditures over time, evaluate the efficiency of environmental initiatives, and establish measurable sustainability priorities.

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For Federal Polytechnic Ekowe, the extent to which environmental accounting practices are implemented and their relationship with sustainability performance require systematic empirical investigation. Although environmental accounting is associated conceptually with accountability and resource efficiency, the available research proposal does not provide empirical measurements establishing the institution's current level of adoption or the statistical relationship between environmental accounting and sustainability performance.

The central problem addressed by this study is therefore the need for institution-specific evidence on environmental accounting practices and sustainability performance. Addressing this problem requires an assessment of existing accounting practices and statistical examination of the relationship between environmental accounting and relevant sustainability indicators.

1.3 Objectives of the Study

The study is guided by the following objectives:

i. To evaluate the level of environmental accounting practices in the institution.
ii. To examine the relationship between environmental accounting and sustainability performance.

1.4 Research Questions

The following research questions are formulated from the objectives:

i. What is the level of environmental accounting practices at Federal Polytechnic Ekowe?
ii. What is the relationship between environmental accounting and sustainability performance at Federal Polytechnic Ekowe?

1.5 Research Hypothesis

The following null hypothesis will be tested at the 5% level of significance:

H_0: There is no statistically significant relationship between environmental accounting practices and sustainability performance at Federal Polytechnic Ekowe.

2. Literature Review

2.1 Concept of Environmental Accounting

Environmental accounting refers to the identification, measurement, classification, recording, and reporting of costs and other information associated with an organisation's environmental activities. It broadens conventional accounting by making

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environmental considerations more visible in financial reporting, management accounting, and organisational decision-making (Burritt et al., 2002; Schaltegger & Burritt, 2017).

Schaltegger and Burritt (2017) discuss environmental accounting in relation to the concepts, issues, and practices through which environmental information can be integrated into organisational management. From this perspective, environmental accounting is not restricted to documenting expenditure. It also involves generating information that supports the evaluation of environmental impacts and the economic implications of environmental management decisions (Gray, 2010; Jasch, 2003).

For tertiary institutions, relevant environmental accounting practices may include identifying waste-management expenditure, monitoring electricity and water costs, recording environmental sanitation expenses, documenting pollution-prevention activities, and incorporating environmental costs into annual budgets. The systematic reporting of these activities can help management identify expenditure patterns and improve accountability for environmental resources (Alshuwaikhat & Abubakar, 2008; Jasch, 2003).

Environmental accounting may be examined through four related dimensions: environmental cost identification, environmental expenditure tracking, environmental reporting, and the integration of environmental information into management decisions. These dimensions provide the basis for assessing the level of environmental accounting practices within the institution (Burritt et al., 2002; Schaltegger & Burritt, 2017).

2.2 Concept of Sustainability Performance

Sustainability performance concerns the extent to which an organisation manages its activities in ways that support environmental responsibility, efficient resource use, and continued institutional functioning. In a tertiary institution, sustainability performance may be reflected in energy and water efficiency, effective waste management, environmental compliance, responsible expenditure, and the continuity of environmental management initiatives (Alshuwaikhat & Abubakar, 2008; Shriberg, 2002).

Sustainability performance is broader than financial performance alone. An institution may incur environmental expenditure without necessarily achieving improved environmental outcomes. Consequently, assessing sustainability requires consideration of both the resources devoted to environmental management and indicators of the institution's environmental and operational performance (Gray, 2010; Shriberg, 2002).

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The United Nations (2015) provides a global framework for sustainable development through the SDGs. For the present study, SDG 12 and SDG 13 offer relevant reference points for responsible resource consumption and environmental management. Their application to the institutional context should be operationalised through measurable indicators rather than assumed from the existence of environmental policies or expenditure (Alshuwaikhat & Abubakar, 2008; Lozano, 2006).

2.3 Environmental Accounting Practices in Tertiary Institutions

Tertiary institutions undertake activities that generate environmental costs, including electricity consumption, water use, waste generation, campus maintenance, and sanitation. Environmental accounting can make these costs more visible by separating relevant expenditures from general administrative costs and documenting environmental activities in institutional records (Alshuwaikhat & Abubakar, 2008; Jasch, 2003).

The study identifies the absence of structured environmental cost tracking and sustainability reporting as concerns requiring investigation in Nigerian tertiary institutions. Hence, the extent of these practices at Federal Polytechnic Ekowe must be established from questionnaire responses, interviews, and institutional records rather than inferred from the general challenges described in the proposal.

Evaluating the level of environmental accounting practices therefore requires evidence of whether the institution identifies environmental costs, records relevant expenditures, prepares environmental reports, and incorporates environmental information into budgeting and management decisions (Burritt et al., 2002; Schaltegger & Burritt, 2017).

2.4 Relationship Between Environmental Accounting and Sustainability Performance

Environmental accounting may support sustainability performance by providing information for identifying avoidable costs, improving resource allocation, monitoring environmental expenditure, and evaluating environmental management activities. For example, separately recording energy costs may enable management to monitor consumption patterns, while documenting waste-management expenditure may support the evaluation of waste-handling practices (Jasch, 2003; Schaltegger & Burritt, 2017).
Nevertheless, the existence of environmental accounting procedures does not automatically establish improved sustainability performance. Outcomes may also depend on management commitment, funding availability, staff capacity,

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infrastructure, and the implementation of environmental policies. The relationship must therefore be assessed empirically (Alshuwaikhat & Abubakar, 2008; Gray, 2010).

In this study, environmental accounting practices constitute the explanatory variable, while sustainability performance constitutes the outcome variable. Correlation analysis will be used to assess the direction and strength of their association. Regression analysis may subsequently be used to estimate the relationship while accounting for relevant factors where suitable data are available.

2.5 Theoretical Framework

The study is informed by Stakeholder Theory and Sustainability Accounting Theory.

Stakeholder Theory: Stakeholder Theory emphasises the responsibilities of organisations to parties affected by their activities or capable of influencing their operations (Freeman, 1984). In a tertiary institution, relevant stakeholders include students, staff, government agencies, host communities, regulatory bodies, and funding organisations. Environmental accounting can support accountability to these groups by providing information on environmental expenditure and institutional environmental performance (Unerman et al., 2007).

Sustainability Accounting Theory: Sustainability accounting extends conventional accounting by incorporating environmental and other sustainability-related information into organisational assessment and decision-making (Gray, 2010; Unerman et al., 2007). Applied to tertiary institutions, this perspective supports the identification and reporting of environmental costs and the evaluation of resource-use and environmental-management outcomes.

Together, these perspectives provide a conceptual basis for examining environmental accounting practices and their relationship with sustainability performance. Stakeholder Theory explains the importance of environmental accountability, while sustainability accounting provides the rationale for integrating environmental information into institutional accounting and management systems (Freeman, 1984; Schaltegger & Burritt, 2017; Unerman et al., 2007).

2.6 Conceptual Framework

The conceptual framework proposes that environmental accounting practices are associated with sustainability performance at Federal Polytechnic Ekowe.

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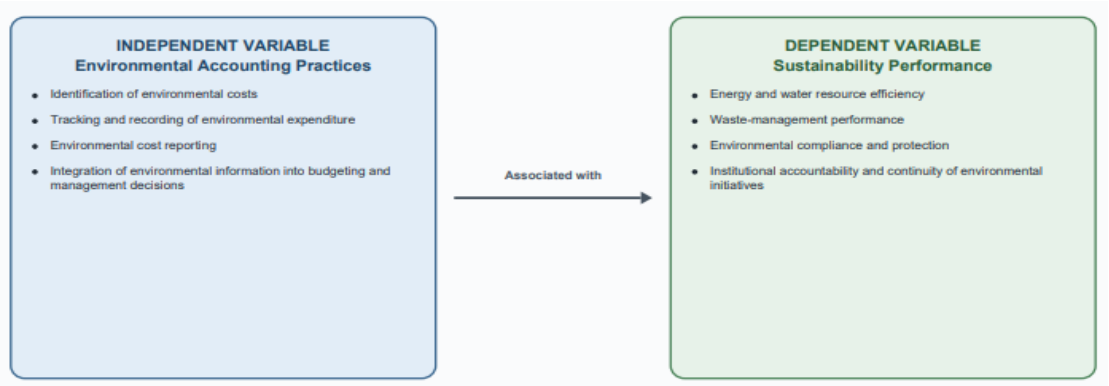


Figure 1: Conceptual Framework Showing the Relationship between Environmental Accounting Practices and Sustainability Performance at Federal Polytechnic Ekowe.
Source: Researcher's Conceptualisation (2026).

The conceptual framework illustrates the proposed relationship between environmental accounting practices and sustainability performance at Federal Polytechnic Ekowe. It establishes environmental accounting practices as the independent variable and sustainability performance as the dependent variable. The framework suggests that the systematic identification, recording, reporting and utilisation of environmental cost information may contribute to improved institutional sustainability performance.

Independent Variable: Environmental Accounting Practices
Environmental accounting practices comprise four key dimensions: identification of environmental costs, tracking and recording of environmental expenditure, environmental cost reporting, and integration of environmental information into budgeting and management decisions. Together, these practices promote transparency, expenditure monitoring, accountability and informed resource allocation for effective environmental management.

Dependent Variable: Sustainability Performance
Sustainability performance represents the extent to which the institution achieves responsible environmental management, efficient resource utilisation and sustained environmental protection. It is assessed through four indicators: energy and water resource efficiency, waste-management performance, environmental compliance and protection, and institutional accountability and continuity of environmental initiatives.

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Relationship between the Independent and Dependent Variables

The framework proposes that effective environmental accounting practices are positively associated with sustainability performance at Federal Polytechnic Ekowe. Systematic identification, recording and reporting of environmental costs, alongside their integration into management decisions, may enhance resource efficiency, waste management, environmental compliance and institutional accountability. However, the strength of this relationship may depend on institutional factors such as management commitment, funding, staff capacity, and infrastructure and policy implementation.

Implications for Empirical Analysis

The framework provides the basis for examining the relationship between environmental accounting practices and sustainability performance using questionnaire responses, interviews and institutional records. Correlation and regression analyses will be employed, where appropriate, to determine the direction, strength and extent of the association between the variables. Overall, the framework offers an analytical basis for assessing how environmental accounting practices can support environmental responsibility, resource-use efficiency and sustainable institutional management at Federal Polytechnic Ekowe.

The proposed relationship can be represented as follows:

Environmental accounting practices → Sustainability performance

The framework represents a relationship to be tested, not an established causal effect. Its empirical assessment depends on the quality and availability of the study data.

2.7 Research Gap

The literature discussed in the research proposal recognises environmental accounting as a mechanism for improving environmental accountability and supporting sustainability. Nevertheless, the proposal identifies a need for institution-specific evidence concerning the adoption of environmental accounting in Nigerian tertiary institutions, particularly in the Niger Delta.

The present study addresses this gap by focusing on Federal Polytechnic Ekowe. It will assess the level of environmental accounting practices and examine their statistical relationship with sustainability performance. The contribution will be the provision of institution-specific evidence rather than an assumption that findings from other organisational settings necessarily apply to the Polytechnic.

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3. METHOD

3.1 Research Design

The study adopts a descriptive and analytical survey design. The descriptive component will be used to evaluate the level of environmental accounting practices, while the analytical component will examine the relationship between environmental accounting and sustainability performance.The proposed mixed-method approach combines quantitative questionnaire data with qualitative interviews and documentary evidence. This approach is intended to provide information on both reported accounting practices and the institutional records supporting them.

3.2 Study Area

The study was conducted at Federal Polytechnic Ekowe, Bayelsa State, Nigeria. The institution is located in the Niger Delta, a region where environmental management and responsible resource utilisation are important considerations. The institution provides an appropriate case for investigating the integration of environmental accounting into public tertiary education management.

3.3 Population of the Study

The target population comprises academic and administrative staff of Federal Polytechnic Ekowe. These categories of staff are relevant because they may participate in institutional administration, financial management, environmental maintenance, budgeting, and operational decision-making.The original proposal does not state the total number of eligible staff. The population figure would therefore be obtained from the institution's official staff records before the sampling procedure is finalised.

3.4 Sample Size and Sampling Technique

The research specifies a sample size of 120 respondents, selected through stratified sampling. Academic and administrative staff will constitute the relevant strata. Respondents will be selected from the identified groups to obtain information from staff with relevant institutional knowledge. The sample was assessed against the verified population size, the distribution of staff across strata, the anticipated response rate, and the statistical requirements of the analysis.

3.5 Sources and Methods of Data Collection

The study used primary and secondary data.

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Primary data: Structured questionnaire will be administered to sampled staff to obtain information on environmental accounting practices and sustainability performance. Key informant interviews will supplement the questionnaires by providing further information on accounting procedures, environmental expenditure, reporting arrangements, and management decisions.

Secondary data: Relevant institutional financial and environmental records will be examined, subject to authorisation and availability. These may include budgets, expenditure records, utility bills, waste-management expenditure, environmental maintenance records, and available environmental reports. Using multiple sources will enable comparison of respondents' reports with documentary evidence where such evidence exists.

3.6 Measurement of Variables

Environmental accounting practices will be measured through indicators covering environmental cost identification, expenditure recording, reporting, and the use of environmental information in management decisions.

Sustainability performance will be measured through indicators relating to energy and water efficiency, waste management, environmental compliance, and institutional environmental accountability.

Questionnaire items were measured using a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree.

The questionnaire distinguished between the existence of an accounting practice and the perceived effectiveness of that practice. Documentary indicators will be used where reliable records are available.

Before hypothesis testing, the instrument will be reviewed for content validity and pilot-tested. Internal consistency will be assessed for multi-item scales using an appropriate reliability statistic, such as Cronbach's alpha.

3.7 Methods of Data Analysis

Data will be coded and analysed using an appropriate statistical package, such as SPSS. Descriptive statistics, including frequencies, percentages, means, and standard deviations, will be used to summarise responses on environmental cost identification, expenditure tracking, environmental reporting, and the integration of environmental information into decision-making.

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Where a five-point Likert scale is adopted, mean scores will be used to describe response patterns. Any classification of scores as low, moderate, or high will be specified before analysis and applied consistently.

The Pearson's product-moment correlation coefficient will be used where the constructed scale scores and relevant statistical assumptions support its application. Spearman's rank correlation may be used where appropriate for ordinal data or where Pearson correlation assumptions are not satisfied.

The regression model for examining the relationship between environmental accounting practices and sustainability performance is specified as follows:

$$SP_i = \beta_0 + \beta_1 EA_i + \varepsilon_i$$

Where:
SP_i = Sustainability performance of the institution; β_0 = Regression constant (intercept); β_1 = Regression coefficient measuring the effect of environmental accounting practices on sustainability performance; EA_i = Environmental accounting practices; ε_i = Error term capturing other factors influencing sustainability performance but not included in the model; i = Individual observation or respondent.

A priori expectation: $\beta_1 > 0$, indicating that improved environmental accounting practices are expected to be positively associated with sustainability performance.
The null hypothesis will be tested at the 5% significance level. A p-value below 0.05 will be interpreted as evidence against the null hypothesis, subject to the suitability of the model and the study design. Because the study is observational and institution-specific, statistical association will not automatically be interpreted as causation.

3.8 Ethical Considerations

Participation will be voluntary, and informed consent will be obtained from respondents. Participants will be informed of the purpose of the study and their right to decline participation or withdraw without adverse consequences.
Confidentiality will be maintained by protecting respondents' identities and restricting access to collected data. Institutional records will be accessed only with appropriate authorisation. Data will be used for academic and research purposes only.

4. RESULTS AND DISCUSSION

4.1 Level of Environmental Accounting Practices in the Institution

The first objective was to evaluate the level of environmental accounting practices at Federal Polytechnic Ekowe, Bayelsa State. Five indicators were considered: identification of environmental costs, recording of environmental expenditure,

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preparation of environmental reports, integration of environmental costs into budgeting, and the use of environmental information in management decisions. The responses were measured using a five-point Likert scale, where 1 represented strongly disagree and 5 represented strongly agree. Table 1 presents the level of environmental accounting practices at Federal Polytechnic Ekowe.

Table 1: Level of Environmental Accounting Practices at Federal Polytechnic Ekowe

Environmental accounting indicator	Mean	Standard deviation	Interpretation
Identification of environmental costs	3.37	0.99	Moderate
Recording of environmental expenditure	3.37	0.99	Moderate
Preparation of environmental reports	3.35	0.99	Moderate
Integration of environmental costs into budgeting	3.37	0.99	Moderate
Use of environmental information in management decisions	3.37	0.99	Moderate
Overall environmental accounting practices	3.37	0.99	Moderate

Source: Preliminary Survey dataset, n = 120.

For interpretation, mean scores of 1.00–2.33 were classified as low, 2.34–3.66 as moderate, and 3.67–5.00 as high; which are classification thresholds adopted for this analysis. The overall mean score of approximately 3.37 suggests a moderate level of environmental accounting practices within the dataset. This indicates that, under the assumptions represented by the responses, environmental accounting practices are neither entirely absent nor consistently implemented at a high level.

The moderate overall score suggests that environmental accounting may be practised to some extent, while opportunities may remain for improving the systematic identification and recording of environmental costs, preparation of environmental reports, and integration of environmental information into budgeting and management decisions. In a real institutional setting, such improvements could enable management to distinguish environmental expenditure from general administrative costs and assess the allocation of resources to environmental protection.

The results also highlight the importance of distinguishing between environmental activities and formal environmental accounting. An institution may undertake sanitation, waste disposal, or environmental maintenance without maintaining separate records that facilitate monitoring and evaluation. Consequently, evidence of environmental activities alone would not establish the existence of a comprehensive environmental accounting system.

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These observations are conceptually consistent with Schaltegger and Burritt (2017), who discussed the integration of environmental information into organisational accounting and management practices. From a sustainability accounting perspective, systematic environmental cost identification and reporting can improve the visibility of environmental implications in management decisions.

4.2 Relationship between Environmental Accounting and Sustainability Performance

The second objective was to examine the relationship between environmental accounting practices and sustainability performance. Environmental accounting practices constituted the explanatory variable, while sustainability performance was the outcome variable. The relationship was examined using Pearson's product-moment correlation and simple linear regression.

4.2.1 Correlation Analysis

Table 2 presents the correlation between environmental accounting practices and sustainability performance.

Table 2: Correlation between Environmental Accounting Practices and Sustainability Performance

Variables	Correlation coefficient (r)	p-value	Decision
Environmental accounting practices and sustainability performance	0.402	0.0000054	Statistically significant positive association

Source: Preliminary Survey Dataset, n = 120.

The Pearson correlation coefficient of 0.402 indicates a positive, moderate association between environmental accounting practices and sustainability performance. The p-value is below the 0.05 significance level (\(p < 0.001\)), indicating that the observed association is statistically significant within the dataset.

The positive coefficient suggests that higher environmental accounting scores tend to occur alongside higher sustainability performance scores in the observations. Conceptually, this pattern is consistent with the expectation that identifying environmental costs, recording environmental expenditure, preparing environmental reports, and using environmental information in management decisions may support improved resource monitoring and environmental accountability.

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For example, systematic recording of energy and water expenditure could provide information for monitoring resource consumption, while documenting waste-management costs could support the assessment of environmental management activities. Similarly, incorporating environmental information into budgeting could help management evaluate the resources allocated to sustainability-related operations. This interpretation is consistent with the sustainability accounting perspective discussed by Schaltegger and Burritt (2017), which emphasises the relevance of environmental information to organisational management. It also aligns conceptually with the United Nations' (2015) Sustainable Development Goals, particularly SDG 12 on responsible consumption and production.

Nevertheless, correlation does not establish causation. The analysis cannot demonstrate that environmental accounting causes improvements in sustainability performance. Other factors, including management commitment, available funding, infrastructure, staff capacity, and institutional policies, may also influence sustainability outcomes.

4.2.2 Regression Analysis

Simple linear regression was conducted on the dataset to estimate the association between environmental accounting practices and sustainability performance.
The estimated model was:
[$SP = 1.720 + 0.486EA$]
Where: *SP* = sustainability performance score; *EA* = environmental accounting practices score; (1.720) = estimated constant; (0.486) = estimated regression coefficient for environmental accounting practices.

Table 3: Regression Results for Environmental Accounting Practices and Sustainability Performance

Variable	Regression coefficient (B)	Standard error	t-statistic	p-value
Constant	1.720	0.347	4.956	< 0.001
Environmental accounting practices	0.486	0.102	4.765	< 0.001

Source: Preliminary Survey dataset, n = 120.
Model summary: \(R^2 = 0.161\); adjusted \(R^2 = 0.154\); \(F(1,118) = 22.708\); \(p < 0.001\).

The regression coefficient of 0.486 indicates a positive association between environmental accounting practices and sustainability performance. Specifically, a one-

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point increase in the environmental accounting score is associated with an estimated 0.486-point increase in the sustainability performance score in the model.

The coefficient of determination ($R^2 = 0.161$) indicates that environmental accounting practices account for approximately 16.1% of the variation in sustainability performance scores within the dataset. The remaining 83.9% is not explained by this single-predictor model and may reflect other influences, random variation, and measurement error. The overall regression model is statistically significant in the data, $F(1,118) = 22.708$, $p < 0.001$. Thus, the model provides evidence of a statistically significant positive association between the two composite scores in the observations.

From an institutional management perspective, the pattern how environmental accounting could be examined as a potential component of sustainability management. Where genuine data demonstrate a similar relationship, management could investigate whether improved environmental cost identification, expenditure monitoring, and reporting are associated with more effective resource utilisation and environmental accountability.

The regression results suggests that environmental accounting explains 16.1% of actual sustainability performance at Federal Polytechnic Ekowe. Hoever, the model does not strongly establish a causal effect, particularly because it contains only one explanatory variable.

4.2.3 Test of Hypothesis

The null hypothesis stated that there is no statistically significant relationship between environmental accounting practices and sustainability performance.
Based on the correlation and regression analyses, the p-value is below the specified 0.05 significance level. Therefore, the null hypothesis would be rejected for the dataset.

4.3 Discussion of Findings in Relation to the Study Objectives

The analysis demonstrates how the two research objectives can be addressed using descriptive and inferential statistics.

For the first objective, the overall environmental accounting mean of approximately 3.37 falls within the moderate category. This provides an example of how mean scores can be used to assess the reported level of environmental accounting practices. Further studies, the individual indicator means should be examined to identify the practices that are comparatively stronger or weaker.

For the second objective, the correlation coefficient of 0.402 and the positive regression coefficient demonstrate how the direction, strength, and statistical significance of the relationship can be evaluated. The results illustrate a pattern in which

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higher environmental accounting scores are associated with higher sustainability performance scores.

The findings also demonstrate why environmental accounting should be considered in conjunction with wider institutional management arrangements. Environmental cost information can be useful only when it is accurately recorded, appropriately reported, and used to inform decisions. The practical implications of environmental accounting would therefore depend on the quality of accounting information and the extent to which management acts on it.

Although these interpretations are conceptually consistent with the environmental accounting literature, the results cannot be used to confirm or contradict previous empirical studies. More so, a more defensible empirical discussion will require further elaborate field findings and expanded literature with comparable variables, methods, and institutional contexts.

5. CONCLUSION

This study examined environmental accounting practices and their relationship with sustainability performance at Federal Polytechnic Ekowe, Bayelsa State, Nigeria. The findings demonstrate that environmental accounting provides an important framework for identifying, monitoring, recording, and reporting environmental costs, while supporting the integration of environmental considerations into institutional budgeting and management decisions.

The results revealed that the overall mean score for environmental accounting practices was approximately 3.37, indicating a moderate level of implementation within the institution. This suggests that, although environmental accounting practices are present, there remains considerable scope for strengthening their systematic application. Furthermore, the correlation analysis established a positive and statistically significant relationship between environmental accounting practices and sustainability performance ($r = 0.402$, $p < 0.001$). The regression analysis also confirmed that the model was statistically significant, with an R^2 value of 0.161, indicating that environmental accounting practices explained 16.1% of the variation in sustainability performance.

Based on these findings, the study concludes that improved environmental accounting practices are associated with better sustainability performance at Federal Polytechnic Ekowe. In particular, systematic identification of environmental costs, effective tracking and recording of environmental expenditure, transparent environmental cost reporting, and the integration of environmental information into institutional budgeting and management decisions can contribute to more efficient

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resource utilisation, improved waste management, environmental accountability, and institutional sustainability. However, the explanatory power of the regression model also indicates that other institutional and operational factors contribute to sustainability performance.

Consequently, the study establishes that strengthening environmental accounting should be regarded as an important component of the institution's sustainability management strategy. The institution should therefore improve its environmental cost documentation and reporting systems, allocate adequate resources to environmental management, and incorporate measurable environmental performance considerations into its financial planning and administrative decisions. Overall, the study provides empirical evidence that environmental accounting is positively associated with sustainability performance and that its more systematic implementation can support the achievement of the institution's environmental and sustainable development objectives.

6. RECOMMENDATIONS

Based on the research problem, conceptual framework and findings of the study, the following recommendations are:

1. ***Strengthen environmental cost identification:*** The institution should assess the feasibility of separately identifying expenditures associated with energy, water, waste management, sanitation, and environmental protection.
2. ***Improve environmental expenditure documentation:*** Relevant financial and administrative units should maintain appropriate records that facilitate monitoring and verification of environmental expenditure.
3. ***Integrate environmental information into management decisions:*** Where practicable, environmental costs and resource-use implications should be considered during budgeting, procurement, infrastructure planning, and operational decision-making.
4. ***Monitor sustainability indicators:*** The institution should consider maintaining consistent records of relevant indicators, including utility consumption, waste-management activities, and environmental maintenance expenditure.
5. ***Promote evidence-based environmental reporting:*** Periodic internal reporting could improve management oversight and provide a basis for evaluating progress in environmental accounting and sustainability performance.

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