

# Environmental Accounting and Corporate Reporting Quality of Nigerian Manufacturing Companies

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**Abstract:** *This study investigated the effect of environmental accounting on corporate reporting quality of manufacturing firms in Nigeria. This is with a view to providing information on the effect of environmental accounting on corporate reporting practices among manufacturing firms in Nigeria. The study made use of descriptive research design. The descriptive study aims to provide an accurate description of a situation or an association between variables from which one can then make some statements about a certain group or population. Therefore, this study employed descriptive quantitative research design, this is selected so as to unravel the essential elements and characteristics of the concepts under investigation and also to analyze the relationships that exist between the variables. The study adopts a purposive sampling technique. The population consists of 120 listed manufacturing firms and 120 financial managers of the firms. Sample size of 40 firms whose data were traded during the sample period on the Nigerian Stock Exchange market and that have complete data were purposively selected. The study made use of primary data. . Data were obtained through the administration of questionnaire on the financial managers from each of the sampled firm totaling 40 respondents. Data gathered were analyzed using appropriate descriptive and inferential statistics. The result showed that waste cost ( $\beta = 0.831$ ,  $z = 2.33$ ,  $p < 0.05$ ) and prevention cost ( $\beta = 0.630$ ,  $z = 1.95$ ,  $p < 0.10$ ) have significant effect on financial reporting quality. The study concluded that environmental accounting affect corporate reporting practices of manufacturing firms in Nigeria. The study recommends that adequate representation of various components of environmental accounting in financial report is required and improving quality of financial reporting would require focus on inclusion of environmental cost measures such as waste and emission cost in financial reports.*

**Keywords:** Environmental Accounting, Financial reporting quality, Environmental Cost Measures, Waste and Emission Cost, Environmental Disclosure

## 1. Introduction

The cardinal function of financial reports is to communicate economic measurements of information about resources and performance of the reporting entity useful to those having reasonable rights to such information (Alexander and Britton, 2000). According to IASB (2008) the provision of high-quality financial reporting information is vital because it will positively affect capital providers and other stakeholders in making investment, credit and similar resource allocation decisions. The preparation process of any firm's financial statement is guided by accounting principles, policies, methods, techniques and systems. Perhaps, there are transactions and events not distinctly covered by an official statement; accountants are expected to exercise due professional judgment in determining the treatment that is most credible and consistent with generally accepted accounting principles. Among transactions and events in this category are environmental actions and cost which require judgmental and voluntary disclosure in the financial statement. Most companies and managers opined that environmental costs are not relevant to the operation of their business activities. However, in essence some production costs have an environmental component. For instance, the purchase price of raw materials; the unused portion that is emitted in a waste is not usually considered an environmentally related cost.

The traditional accounting system is ill-equipped to provide adequate information about the environmental activities of organisation (Deegan, 2002). Traditional accounting practices are centred primarily on profitability as the sole indicator of business performance which means that a business success is judged by the profits it makes and the market value of its shares. The concentration is on capitalistic modes of production, and social and environmental responsibilities are often sacrificed. According to the traditional approach, the measure of corporate performance is profit, however, the need to maximize the social contribution of companies, gains increasing prominence (Ramanathan, 1976). Consequently, there must have been existed quite number of fault lines in the information provided by the traditional accounting system to the users of such information. Hence, the development and emergence of environmental accounting as a management tool to address this perceived inadequacy of traditional accounting system.

The relevance of accounting in the environment therefore emanated from the reality that management needed financial data on environmental spending due to the increasing needs of various key players such as; government, investors, lenders, general public, customers, etc to have financial data on environmental performances of different organizations reported in financial statements (Ali, 2002). Consequently, companies in the manufacturing, energy, extractive and construction industries and the professional

associations of the certified public accountants and the investment managers and researcher have, in varying degrees, affected the quality of confidence in the financial reporting systems given the impact of the activities on environment.

Environmental disclosure by corporations has been increasing steadily in both size and complexity over the last two decade. Research attention over the years has attempted to understand and explain this area of corporate reporting which appears to lie outside the conventional domains of accounting disclosures. The evolving challenge in contemporary business firms is the need to improve their financial reporting quality to incorporate environmental concerns as part of the overall objective of business.

However, environmental reporting has developed rather voluntarily and this implies that companies can choose what to disclose and may even decide not to. Research attention in this regard has been focused largely on why and what factors could influence a company to engage in environmental disclosures voluntarily. However, the research evidence in this regards has been inconclusive and the role of the firm's specific factors have been vacillating, indicating that the issues are still quite unresolved in the literature and this defines some of the contribution and relevance of the study. Furthermore, there is also a knowledge gap about how corporate characteristics will determine quality financial reporting for developing economies as the magnitude, level of awareness and implications of environmental cost differs considerably from those of developed nations.

By reporting environmental information, a company addresses the information needs of stakeholders and provides a basis for dialogue between the company and its stakeholders. As a critical avenue of stakeholder management, environmental reporting modifies external perceptions of the company, helps relevant stakeholders assess whether the company is a good corporate citizen, and ultimately justifies the firm's continued existence to its stakeholders. However, attempts by firms to put environmental accounting reporting in good perspective are fraught with unresolved challenges. Study by Ahmad (2012) suggested that problems facing environmental reporting span legal, organisational and individual challenges. But, what constitute these various categories of challenges have not been adequately analysed in the literature. This study seeks to fill this gap.

Most companies do not fully comply with the disclosure requirements stipulated by the regulatory agencies because of the environmental reporting challenges. If environmental issues and activities that are vital are not disclosed, financial statement cannot be said to reveal state of a true and fair view of affairs. According to Bassey, Effiok and Okon (2013), environmental accounting helps the firm to record all environmental costs incurred by the business thereby finding a way of reducing the environmental expenses so that the business can increase profit. The absence of environmental accounting compliance of firms is expected to influence the quality of disclosure. Consequently, private and institutional investors are hesitant in investing in such

emerging economies due to lack of transparency. As a result of this, financial statements fail to provide useful information, on a timely basis. Since current requirement for reporting on environmental issues is voluntary, it is observed from most financial statements of corporate organisations that it has engendered disclosures of information which totally exclude environmental issues. In addressing this problem, Mohamed and Faouzi (2014) examined the effect of corporate environmental disclosure on the cost of equity capital. Yusoff et al.(2013), investigated the state of environmental reporting by Malaysian and Australian companies on 'other' reports, Makori and Jagongo (2013) studied the relationship between environmental accounting and Return on Capital Employed (ROCE), However, the studies failed to investigate the effect of environmental accounting and how it affects the quality of accounting disclosure. This is the research gap that this study wishes to bridge.

## 2. Literature Review

### 2.1 Empirical Review

Over the past three decades, academic researchers have been paying substantial attention to the environmental accounting and reporting topics (Rajapakse, 2003; Surman& Kaya, 2003; Thompson & Zakarai, 2004; O'Donovan & Gibson 2000). These studies have been extensively conducted in both developed and developing economies and they cut across industries. Among the studies are briefly presented below:

Lawal (2016) conducted a study which examined the effect of environmental accounting on the quality of accounting disclosure of shipping lines in Nigeria. The study employed the use of multiple regressions in order to establish the relationship between the variables. Under the study, elements were selected by means of purposive sampling technique while the study adopted the random and stratified sampling technique. The findings of this study show that environmental accounting influences quality of disclosure on shipping lines in Nigeria.

Arong, Ezugwu, and Egbere, (2014) carried out a study on "Environmental Cost Management and Profitability of Oil Sector in Nigeria". The aim of the study was to determine the impact of environmental cost management on the profitability of oil sector in Nigeria from 2004 to 2013. Data were obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin. The secondary data obtained was analysed with multiple regression technique. The result showed that there exist a significant relationship between environmental cost management and profitability of Oil Sector in Nigeria. It was also discovered that there are established standards in Nigeria guiding environmental cost management in the Oil & Gas Sector in Nigeria. However, there is a gap in external reporting of environmental cost data in Nigeria.

Jerry, Teru, and Musa (2014) conducted a study on "Environmental Accounting Disclosure Practice of Nigerian Quoted Firms: A Case Study of Some Selected Quoted Consumer Goods Companies". The study analysed the

environmental accounting disclosures practices of quoted companies in Nigeria to see how it varies from one company to another since there are no mandatory disclosure guidelines. A sample of 8 quoted companies was selected from the consumer goods companies listed on the Nigerian Stock Exchange. The study used content analysis to obtain data from 2013 published annual reports of the selected firms. And the data obtained were analysed using one way analysis of variance to test the hypothesis. It was discovered that the non-existence of standard was responsible for lack of uniformity in disclosure and variations among companies.

Adediran and Alade (2013) used multiple regression analysis of 14 randomly selected companies quoted on the Nigerian Stock Exchange 2010. Their findings show that environmental accounting has a positive relationship with net profit margin, dividend per share and a negative relationship with return on capital employed and earnings per share.

The study by Onyali, Okafor and Egolum (2014) titled “An Assessment of Environmental Information Disclosure Practices of Selected Nigerian Manufacturing Companies” was designed to assess the extent, nature and quality of environmental information disclosure practices by manufacturing firms in Nigeria. Content analysis was adopted in analysing the annual report of the selected firms with regards to their environmental disclosure practices. In addition, the study carried out a survey to ascertain whether the environmental disclosure practice of firms in Nigeria has improved. The findings of the study showed that the environmental disclosure practices of firms in Nigeria remains ad-hoc and contains little or no quantifiable data.

Bassey, Effiok and Eton (2013) carried out a study on “The Impact of Environmental Accounting and Reporting on Organisational Performance of Selected Oil and Gas Companies in Niger Delta Region of Nigeria”. The study was conducted using the Pearson’s product moment correlation coefficient. Data were gathered from both primary and secondary sources. It was found from the study that environmental costs have a satisfied relationship with firm’s profitability. It was concluded that environmentally friendly firms will significantly disclose environmental related information in financial statements and reports.

Makori and Jagongo (2013) conducted a study on “Environmental Accounting and Firm Profitability: An Empirical Analysis of Selected Firms Listed in Bombay Stock Exchange, India”. The data for the study were collected from annual reports and accounts of 14 randomly selected quoted companies in Bombay Stock Exchange in India. The data were analysed using multiple regression models. The key findings of the study shows that there is significant negative relationship between Environmental Accounting and Return on Capital Employed (ROCE) and Earnings per Share (EPS) and a significant positive relationship between Environmental Accounting and Net Profit Margin and Dividend per Share.

Okafor, Okaro and Egbunike (2013), conducted a study on “Environmental Cost Accounting and

Cost Allocation (a Study of Selected Manufacturing Companies in Nigeria)”. The study aimed to determine the extent to which Nigerian firms have embraced Environmental cost accounting in cost allocation. The study relied on a survey of 105 Accountants from twenty-five (25) quoted manufacturing companies. The study revealed that majority of the firms have not embraced environmental cost accounting, they still lump all indirect costs under overhead. It also revealed that significant differences exist among firms on the method of allocating environmental costs to products and processes.

Beredugo and Mefor (2012) carried out a study on “The Impact of Environmental Accounting and Reporting on Sustainable Development in Nigeria”. The study employed the survey research design and data were drawn from both primary and secondary sources. The primary data were extracted from respondents drawn from Rivers State and Lagos State, while the secondary data were from previous researchers’ contributions. Hypothesis were developed which related Environmental Accounting and Reporting to sustainable development in Nigeria. The results showed that Environmental Accounting and Reporting is positively related to sustainable development and there are consequences to non-compliance.

Asuquo (2012) carried out a study on “Environmental Friendly Policies and Their Financial Effects on Corporate Performance of Selected Oil & Gas Companies in Niger Delta Region of Nigeria”. Data were collected from both primary and secondary sources. Thereafter, the data were analysed using simple ordinary least square regression method and the study hypothesis was also validated. The study revealed that the cost of ensuring environmental friendly policies as well as firm competitiveness have significant relationship with the firms’ profitability (Corporate performance). Thus it was concluded that the related cost of environmental protection and management positively influences a firm’s profitability; and environmental friendly organization enjoy high level of corporate competitiveness resulting in high performance.

Uwuigbe and Jimoh (2012) conducted a research on “Corporate Environmental Disclosures in the Nigerian Manufacturing Industry: A study of selected Firms”. The study was based on the stakeholders’ theory and the selected firms were manufacturing firms listed on the Nigerian stock Exchange. The study in its findings observed that the level of environmental disclosure practices in the industry is still very low and is still and yet to find its proper root in Nigeria.

Ahmad (2012) carried out a study on “Environmental Accounting and Reporting practices: Significance and issues-A Case from Bangladeshi Companies”. The study was based on both primary and secondary data. The primary data were collected from the total number of 40 chief accountants and senior accountants, taking one from each company while the secondary data collected from the Annual reports – 2010 of the companies. The findings of the study showed that Environmental Accounting and Reporting practices in the selected companies have been far from satisfactory and hence poor in real sense of the term.

Uwuigbe and Uadiale (2011) carried out a study on "Corporate Social and Environmental Disclosure in Nigeria: A Comparative Study of Building Material and Brewery Industry". This study investigates the level of corporate social environmental disclosure among listed companies in the brewery and building material industry in Nigeria. The corporate annual reports for the periods 2004-2008 were utilized as the main source of secondary data. While the content analysis technique was used as a basis of eliciting data from the annual report, the student t-test statistics was used in the process of analyzing if there was a significant difference in the level of corporate social environmental disclosure between the sampled industries. The paper as part of its findings revealed that there is a significant difference in the level of corporate social environmental disclosures between the selected industries.

Enahoro (2009) conducted a study on the 'Design and Bases of Environmental Accounting in Oil & Gas/Manufacturing Sectors in Nigeria'. The data for this study were from both primary and secondary sources. For this purpose, both cross-sectional content analyses (within and across sector companies) and longitudinal (ten year annual reports and financial statements) content analyses of 132 companies in their sub-sectors as in Nigeria Stock Exchange were employed. The study observed that environmental accounting disclosure does not take same pattern among quoted companies in Nigeria.

### 3. Theoretical Framework

#### 3.1 Stakeholders theory

This theory focuses more on meeting stakeholders' expectations and demands so as to achieve strategic firm objectives. It considers how best the different stakeholder groups within the society can be managed. It considers essential, the relationship between organisations and their internal and external environment. It also takes into cognizance how these relationships affect the corporate existence and outlook of the organizations. This theory according to Watts & Zimmerman (1978) assumes that disclosure on social and environmental information by an organisation is as a result of the pressure from stakeholders such as communities, customers, employees, environment, shareholders and suppliers. The basic proposition of this stakeholder theory is that a firm's success is dependent upon the successful management of all the relationships that a firm has with its stakeholders. The stakeholder theory asserts that corporation's continued existence requires the support of the stakeholders and their approval must be sought and the activities of the corporation adjusted to gain that approval (Chan, 1996). The more powerful the stakeholders, the more the company must adapt. This theory concludes that corporate social responsibility is a way to show a good image to these stakeholders to boost long-term profits because it would help to retain existing customers and attract new ones.

#### 3.2 Positive Accounting Theory

This theory proposes and explains why firms make voluntary social disclosures. Based on the original work of

Watts and Zimmerman (1978), the positive accounting theory has directly attempted to provide evidence for the political cost hypothesis as an explanation for company's social disclosures. Along with several others, Gray et al (1995) debunks the positive accounting arguments on the basis of the underlying assumptions of the theoretical framework. As they opine, positive theories are not about what (social) reporting should be, but rather about what it is on the face of it, and on the premise for explaining why firms are making social disclosures, positive accounting explanations are less easily dismissed. Casual observations, for example has shown that positive accounting explanation rely on empirical evidence largely similar to that used in support of other explanation (most notably, legitimacy theory) of social disclosure, explanations which, incidentally Gray et al (1995) seem to find more acceptable. As Gray et al (1995) note, a number of empirical studies has shown strong associations between disclosure and firm size, and between disclosure and type of industry. In fact, the size disclosure relationship appears empirically the most robust. Such results are claimed in support of legitimacy theory (Patten, 1991; Deegan and Godon, 1996), as well as in favour of positive accounting theory.

#### 3.3 Social Contract Theory

Social contract theory, which was proposed, based on the premise that there exists contract between business and wider society, whereby businesses agree to perform various society desired actions in return for a sanction of its objectives, other rewards and its ultimate survival (Guthrie & Parker, 1989). However, while legitimacy theory has become the most widely used theory to explain corporate social environmental disclosure practices (Campbell et al, 2003; Deegan, 2002) as there is increasing evidence that managers adopt legitimizing strategies such as those outlined above, the same cannot be said of the stakeholder theory especially in developing countries like Nigeria where environmental crisis and civil unrest in the Niger-Delta has paralyzed industrial activities in the area. To this end therefore, this study adopts the stakeholder's theory as a basis in explaining corporate environmental disclosures.

#### 3.4 Methodology

The study made use of descriptive research design. The descriptive study aims to provide an accurate description of a situation or an association between variables from which one can then make some statements about a certain group or population. Therefore, this study employed descriptive quantitative research design, this is selected so as to unravel the essential elements and characteristics of the concepts under investigation and also to analyse the relationships that exist between the variables. The study adopts a purposive sampling technique. The population consists of 120 listed manufacturing firms and 120 financial managers of the firms. Sample size of 40 firms whose data were traded during the sample period on the Nigerian Stock Exchange market and that have complete data were purposively selected. The study made use of primary data. Data were obtained through the administration of questionnaire on the financial managers from each of the sampled firm totaling 40 respondents.

**Table 1:** Descriptions and measurement of variables

S/N	Variables	Definition	Type	Measurement
1.	DISC	environmental disclosure	Dependent	Binary (1 if a firm discloses, 0 otherwise)
2	SIZ	Firm size	independent	log of company's total asset
3	LEV	Leverage	"	total debt equity
4	PROF	Profit	"	Profit after tax
5	LIQ	Liquidity	"	Company ability to pay short term debt
6	CHA	Challenges	"	Likert form
7.	ENV	Environmental accounting	"	Waste costs, emission cost and other managerial cost
8	RPQ	Reporting quality	Dependent	Relevance, representation, comparability, understandability and timeliness

The table above shows descriptions and measurement of variables used in this study. Measures of corporate environmental disclosure are intervals in nature. Environmental accounting and quality of financial reporting are captured in 5 point Likert scale. Financial reporting quality of manufacturing firms was also captured in Likert form. Consequentially, firms environmental accounting practices were assessed and measured based on direct information from financial managers of the sampled manufacturing firms.

**4. Data Analysis, Interpretation and Discussion**

**Table 2:** Descriptive statistics on environmental accounting and quality of financial reporting

	Statement	%				
		SD	D	N	A	SA
1	Waste cost, emission control costs and research development cost management enhances relevance of financial report	0.0	2	8.2	61.2	28.6
2	Waste cost, emission control costs and research development cost management enhances faithful representation of financial report	55.1	6.1	16.3	22.4	0.0
3	Waste cost, emission control costs and research development cost management enhances comparability of financial report	8.2	2.0	40.8	26.5	22.4
4	Clarity of costs of wastes, emissions and research development costs management enhances understandability of financial report	0.0	18.4	32.7	32.7	16.3
5	Waste cost, emission control costs and research development cost management ensures timeliness representation of financial report	2.0	4.1	34.7	36.7	22.4

1= Strongly Disagree (SD), 2= Disagree (D), 3= Neutral (N), 4 = Agree (A), 5= SA (Strongly Agree)

**Table 3:** Estimated effect of environmental accounting on financial reporting quality

	Coef.	Std. Err.	z	P value
Emission cost	0.0983	0.41366	0.24	0.812
Waste cost	0.8310	0.35090	2.33	0.020**
Prevention cost	0.63035	0.32326	1.95	0.051*
MGT cost	0.2209	0.3668	0.60	0.547
N = 37				
LR chi2 (4) = 21.42				
Prob > chi2 = 0.0003				
Pseudo R2 = 0.2099				
Log likelihood = -40.3153				

Source: Data Analysis, (2020)

\*\* , \* , significant at 5% and 10% respectively

**5. Discussion of Findings**

The table 2 above showed the respondents view on environmental accounting and financial reporting quality. Financial reporting quality was captured using the IASB (2008) standard which defines financial reporting quality in terms of the fundamental and enhancing qualitative characteristics. Characteristics of financial reporting quality captured in the analysis include relevance, representation, comparability, understandability and timeliness. Most (89.8%) of the respondents agree that environmental accounting covering waste cost, emission control cost enhances relevance of financial report. On the contrary, high percentage (61.2%) of respondents does not agree that waste, emission and research development cost accounting have effect on faithful representation of financial report.

Results further show that measurement of environmental cost such as waste cost and emission cost enhance quality of financial reporting measured by comparability. About 48.9% of respondents agree that environmental cost enhances comparability of financial report while 10.2% disagree. Another quality of financial report is 'understandability'. Forty-nine per cent (49%) of respondents agree that environmental accounting enhances understandability of financial report while 18.4% disagreed. Fifty-nine per cent (59.1%) of respondents also agree that waste cost, emission control and research development cost management accounting ensures timeliness representation of financial report.

Table 3 showed the estimated effect of environmental accounting on financial reporting quality of Nigerian Manufacturing Companies. The diagnostics of ordinal regression model is significant (p < 0.005), indicating the fit of the model. The results of the analysis show that environmental accounting such as identification and inclusion of waste costs (β = 0.831, z = 2.33, p < 0.05) and prevention costs (β = 0.630 z = 1.95, p < 0.10) have significant effect on financial reporting quality of sampled firms. However, effect of environmental accounting measures such as emission cost has no significant effect on quality of financial reporting.

The significance (P < 0.05) of waste cost indicates that accounting for costs of waste in manufacturing processes and inclusion of such in reporting can enhance quality of financial report and will enable manufacturing firms to

faithfully represent economic phenomena which the accounting information purports to represent. The significance of the parameter of waste cost also highlights that annual reports must be complete, neutral, and free from material error and omission (Cohen *et al.*, 2008). To be free from bias, financial reports should clearly explain various components and estimates in production processes. A financial report is assumed to be neutral if it highlights both the positive and negative events such as environmental issues in a balanced way (IASB, 2008)

## 6. Conclusion and Recommendation

### 6.1 Conclusion

Analysis of the effect of environmental accounting on financial reporting quality of manufacturing firms in Nigeria reveals that environmental accounting measures such as identification and inclusion of waste costs, emissions control costs, prevention and other environmental management costs have significant effect on financial reporting quality characteristics such as representation ( $F = 5.06$ ,  $p < 0.05$ ), and timeliness ( $F = 3.61$ ,  $p < 0.05$ ) of financial reporting quality. Results also lead to conclusion that environmental accounting has significant effect on financial reporting quality. Reporting quality measures such as representation, relevance and timeliness are significantly affected by good environmental cost accounting.

### 6.2 Recommendation

Based on the findings and conclusion to this study, the following are recommended:

- 1) Relevant stakeholders in the manufacturing sector should see to the provision of accounting guidelines regarding environmental accounting and reporting.
- 2) Adequate representation of various components of environmental accounting in financial report is required.
- 3) Improving quality of financial reporting would require focus on inclusion of environmental cost measures such as waste and emission cost in financial reports.

### 6.3 Suggestion for further study

This study focused on the impact of environmental accounting on corporate reporting quality of Nigerian manufacturing firms using data obtained through a questionnaire from financial managers in the sampled firms. It is suggested that future studies should extend the research to include quoted firms in other sectors of the economy whose operations also have significant impact on the environment.

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