

Environmental Accounting and Social Responsibility Disclosure on the Earning Capacity of Nigerian Manufacturing Firms

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Abstract

This study assessed environmental accounting and social responsibility on the earning capacity of selected Nigerian manufacturing companies. The study highlighted some environmental related costs incurred in preventing, reducing or repairing damages to the environment and social cost incurred to acknowledge organizations' responsiveness to the society at large. Emphasis was also carried out to ascertain the extent of compliance by Nigerian companies on environmental accounting and social responsibility with the International Standard of Accounting and Reporting disclosure (ISAR) requirements. Data were collected from three manufacturing firms in Nigeria through the administration of questionnaires and researchers' checklist. These data were tested using population t-test, ordinary least square and multivariate statistics and was revealed that there is a significant difference between the compliance level of Nigerian companies on environmental accounting and social responsibility disclosures and the ISAR requirements. Environmental cost proxy as: waste management cost, pollution abatement cost, and Fines & Penalty significantly affect companies' earning capacity. It was recommended that firms should be sensitive to their environmental activities, and account for all environmental related cost and they should desist from environmental pollution and degradations.

Keywords: Environmental Accounting, Social Responsibility, Waste management cost, pollution abatement cost, Fines & Penalty

1.1 Introduction

Organisms and their environment constantly interact, and both are changed by this interaction. Like all other living creatures, humans have clearly changed their environment, and they have done so generally on a grandeur scale than have all other species. Some of these human-induced changes such as the destruction of the world's tropical rain forests for economic expansion and pollution have led to altered climate patterns, habitat destruction, species extinction, and environmental degradation (Zimmerman, 2008). Auer (2010) suggested that knowledge about the environment cost and their challenges should be adequately accounted for, in compliance with standards; as a moral commitment to environmental stewardship and the desire to promote good relations with the residents of local communities, while the many ways in which environmental costs, losses or benefits may go unrecorded in traditional accounting systems is becoming obsolete.

Odemerho (2008) added that the unwise use of the natural environment due to ignorance, neglect, poverty, overpopulation and greed amongst others as led to the degradation of environment. The costs (degradation) occur as Nigerians attempt to adjust their seemingly endless wants and desires for food, shelter, recreation, infrastructural facilities, and so on to the land and other resources available to them. These land use activities contribute to the overall development of the country but they equally produce negative impacts on the environment. These negative impacts are referred to as environmental costs (degradation) which implies abuse of the environment due to improper resources management.

Accountants have begun to define the ecological issues as falling within their range of skills. For example, CIMA (1997) argued that the forward thinking management accountant should be taking an active role in environmental management, as he or she has key skills to apply to the process. The basic financial accounting model is an impediment to change because it only records and employs the data which arise from a transaction which generates a price. Prices are only generated when property rights are transferred. The majority of the matters that are of concern in ecology are things over which property rights do not exist. As a result, the basic financial accounting model ignores those (Gray, 2003). Although there is an active and essential role that accountants can play in the development of sound environmental and reporting procedures, much work must be done to develop a more comprehensive reporting system involving both quantitative and qualitative techniques.

The United Nations Environment Programme (UNEP) has directed its attention to issues of environmental disclosures. Recommendations have been made for companies to disclose; key environmental issues facing the company and plans for addressing them; progress in addressing changes required by future legal requirements; actual and projected levels of environmental expenditure; energy use, materials use, emissions and waste disposal routes; financial estimates of savings and benefits flowing from pro-environment efforts; and an independent audit statement (Adams, 2000).

The manufacturing and related industries occupy a key position in the economic life of a nation. These industries supply a vast range of products which find their ways into a wide spectrum of human activity. Many of these

products, when present in the environment are potentially hazardous, some being explosive, flammable, toxic and other corrosives etc.

Another significant problem is the complete absence of environmental reporting standards, malfunctioning of the environmental management system and failure of our real sector to provide full accounting for environment costs incurred. It is disheartening to note that environmental management system is unduly complex, skewed, poorly administered, largely inequitable and loaded with unduly large number of overlapping penalties for non-compliance. The system is further exacerbated by poor policies, inconsistencies in legal application and low impact on the economy. It is in view of this exposure the researcher tested the following hypotheses:

1. Ho: There is no significant difference between the compliance level of Nigerian companies on environmental accounting and social responsibility disclosures and the International Standard of Accounting and Reporting disclosure requirements.
2. Ho: Waste management cost, pollution abatement cost, and Fines & Penalty do not significantly affect companies' performance.
3. Ho: There are no consequences to non-compliance with environmental and social responsibility disclosure requirements of accounting standards.

2.0 Literature review

This research builds on several literatures. Nennig (2004) elaborating on the "Environment performance theory", averred that, the theory focuses on the ability of the company to manage environment effects. Environmental effects or impacts are types of actual or potential environmental damage caused to the environment. Consistent with this theory, Adekunle (1998) documented that any company seeking to be efficient in order to compete strongly in their integral part of the community should be considering their position on the environment and report all relevant information and cost incurred on such responsibility to the environment. The interests of stakeholders though vary but, in most cases, a close link with economic, commercial and financial implications is always ensured.

2.1 Environmental legislation in Nigeria

Nigerian Government's Federal Executive Council (FEC) approved the development of a CR policy for the country. The Ministry of National Planning Commission said the Government would establish minimum environmental and social standards for all corporations focused on their core competencies to encourage "sensible" CR investment and guard against being "a financial drain on businesses" (Nigerian Direct, 2008). Basically before this period, there was a near-total lack of public awareness concerning environment protection and development. Issues as biodiversity conservation, effluent limitations, pollution abatement and sustainable development of Nigeria natural resources did not form part of the general public discourse (Rutherford and Thomas, 1999). The absence of such deliberate policy naturally meant the non-existence of an agency entrusted with the responsibility for the protection and the development of the environment. The resultant effect was that environment issues were reduce to matters of periodic litigation between aggrieved individuals and communities on the one hand and the oil producing companies on the other in the event of damage occasioned to fishes and the environment through oil spillages or damming of the water ways. Others include litigation on land pollution and waste mismanagement.

Obi (2003) avers that "real environment legislation in Nigeria was a product of National emergency". Series of additional decreon environmental protection was found necessary. Accordingly, federal environmental protection agency (FEPA) promulgated by the federal government found it necessary to developed instructions in the combating environmental degradation among others to include pollution Abatement in industries facilities generating waste regulations under S.1.9 of 1999 constitution specifying that: restrictions are imposed hereunder on the release of toxic substances and requirement stipulated: Monitoring of pollution to ensure permissible limits are not exceeded; Unusual and accidental discharges; Contingency plan; Generators liabilities; and Strategies of waste reduction and safety of workers.

2.2 International Legislations

In a rapidly globalizing world, interest in corporate responsibility continues to grow among a broad range of enterprises, investors, civil society actors and other stakeholders. The United Nations has undertaken various actions to respond to this interest and to promote positive corporate contributions to sustainable development. This form of reporting provides shareholders and other stakeholders with a more holistic view of an enterprise's activities and performance. This serves the goal of all corporate reporting, which is to increase our understanding of a company's performance, and the quality of its management.

The demand for more information on corporate responsibility issues is becoming increasingly sophisticated, with greater calls for concise and comparable reports. This is an area where UNCTAD's Intergovernmental Working Group of Experts on International Standards of Accounting and Reporting (ISAR) plays a valuable role. They developed a framework on ISAR to promote the harmonization of best practices in corporate reporting, with a view to facilitating and enhancing positive corporate contributions to the economic and social development of

host developing countries. This guidance serves as a practical voluntary tool that assists enterprises in their efforts to communicate with investors and other stakeholders.

This guideline on environmental reporting and disclosure is however not devoid of measurement of environmental cost in the financial statement. If firms undertake measures to reduce environmental damage, the associated cost is expected to be charged to the profit and loss account. Same can be said on pollution abatement cost and fine and penalties paid for non-conformity with relevant environmental standards.

2.3 Environmental costs and consequences

Environmental costs consist of environmental measures and environmental losses. They include clean-up costs, costs of recycling materials or conserving energy, closure costs, capital expenditure and development expenditure. These costs are incurred in preventing, reducing or repairing damage to the environment and conserving resources. However, environmental losses are costs which bring no benefits to the business. Such as, fines, penalties, compensation, and disposal losses relating to assets which have to be scrapped or abandoned because they damage the environment (Wright & Noe, 2006). Harrington (2000) added that, environmental costs is the environmental damage costs to the environment and its users as a result of alternative competing use. There is also the general concern that environmental cost reduces operating flexibility, slow productivity improvements in general (Joshi, 1997).

2.3.1 Accounting for environmental costs

Though, the issues of environmental and social reporting are not explicitly provided for in the companies and allied matters act but has been catered for by both local and international standards like ISAR, Global reporting Index (GRI). Corporate performance is no longer seen simply as being equivalent to and consequently measurable in terms of profitability alone. Information on the accounting for environmental costs is now required. Each type of cost are to be considered as it arises so as to accord it the appropriate treatment in line with Generally Accepted Accounting Principles (GAAPs). Some examples of environmental costs and the way they should be treated according to ICAN (1999) are:

1. Fines and penalties paid of non-compliance with environmental regulations are charged to the profit and loss account in the period in which they are incurred, regardless of whether the activities that resulted in the penalties had taken place in an earlier accounting period;
2. If the entity has to embark on fundamental reorganizations or restructuring or to discontinuing particular activities in order to protect the environment, the costs (if material) should be treated as exceptional items and shown on the profit and loss account; and
3. If research and development expenditure is incurred in effect of environmentally friendly products, processes or services, the provisions of the standard on accounting for research and development should be applied. This was formerly IAS No.9 but has been superseded by IAS N.38 (International Accounting Standard on Intangible Assets).

2.4 Environmental related cost

2.4.1 Pollution abatement cost

Pollution abatement is a cost borne by many businesses for the removal and/or reduction of an undesirable item that they have created. Abatement costs are generally incurred when corporations are required to reduce possible nuisances or negative byproducts created during production. Examples of abatement costs would be the pollution reduction costs of paper mills and noise reduction costs of manufacturing plants.

2.4.2 Waste management cost

Waste management involves sensing what is there, sorting, separating, transforming, returning to service what can be used and properly disposing what is left (Rose, 2002). According to Ghush, (2009) wastes are inevitable human activity. They are either a by-product of initial production process or they arise when objects or materials are discarded after they have been used.

Novick (2009) enumerated the accounting for waste management in any community, town or city as follows: associate cost on the reduction in the speed of sanitation related diseases, reduction on occurrence of non-communicable diseases and reduction on environmental pollution (degradation of land, water and air) etc. All organizations are expected to make a report on the associated cost incurred in the management of waste. This is because stakeholders required this information to evaluate the organization's responsibility to environmental matters and the activities the organization must have engaged in to circumvent environmental degradation. However the cost incurred by the organization reduces the organizations performance but these are expenses that should be better incurred to further accomplish the aim of satisfying consumer both in the production of goods and services and engaging in environmentally friendly activities.

2.4.3 Fines and penalty

These are cost borne by an organization for the violation of the rule and regulation guiding specific environmental issues. Penalty and associated costs incurred as expense are expected to be fully disclosed in the organizations' financial statements. Fines and penalty has an inverse relationship with companies' performance, as it reduces profit and the return on assets.

2.5 Social responsibility accounting and reporting

Social accounting is an extension of corporate reporting. Social accounting is the call by the public, environmentalists and host communities for reporting evidence of socially desirable policies on the part of business enterprise. It also includes reporting of those costs and benefits which may or may not be quantified in monetary terms arising from economic activities and substantially borne or received by the community at large or particular groups not holding a direct relationship with the reporting entity (Alexander & Britton, 2000). Social accounting may also be defined as the measurement and reporting of internal and external information concerning the impact of an entity and its activities on a society (Dago, 1985).

3.0 Research Methodology

The researcher used the ex-post facto and survey design. This choice of ex-post facto was based on the fact that the independent variables; Waste Disposal Costs (WDC), Fines and Penalties (FP), Pollution Abatement Costs (PAC) in the companies' financial reports used, already exist and the researcher had no control over them. To achieve this, five years financial reports of selected companies were however utilized in order to evaluate the effect of environmental related cost on company's performance. Each annual report was carefully scrutinized and scored as a disclosure index based on a researcher-developed checklist. However as a supplement to the ex-post factor, the survey research design was adopted to help in eliciting respondents' view on the consequences of noncompliance with relevant reporting standard on environmental accounting and social responsibility.

In order to gain the advantages of an in-depth study and effective coverage, samples were drawn from the manufacturing firms operational in Lagos State that show evidences of compliance with environmental accounting and social responsibility disclosure requirements between 2008 to 2012. However, three companies met these requirements and they include: NASCOM Plc., Dangote Cement Plc., and Honeywell Flour Mills; while the sample size for the respondents used from the three companies was 206; and the judgmental sampling technique was also used.

To test Hypotheses one, population t-test was utilized on the "2012" financial reports of the companies to ascertain the extent of company's disclosure level on international standards of accounting and reporting. The researcher developed checklist based on International Standard of Accounting and Reporting. The ISAR checklist is a list of 27 items constructed based on past literature and contemporary issues as outlined in International Standard of Accounting and Reporting (ISAR). The items are labeled 1 to 27, comprising items on disclosures on environmental liabilities and cost, Board level responsibility on pollution abatement, disclosure of cost on pollution abatement, disclosure of cost on waste management, a commitment to environmental reporting, etc. Each reporting item on the checklist is assigned a value of '3' if it is reported with details and related cost, and '2' if the item is reported with details without cost, and 1 if the item is disclosed without detail while relevant items not disclosed are coded 0. The score (index) for each standard is the ratio of actual reporting disclosure divided by applicable reporting.

Hypothesis two was tested using multiple linear regression: $Y = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + e_i$. The full specification of the regression equations are as follows: β_0 =regression intercept; β_i =parameters to be estimated; $j=1, \dots, 3$ (number of samples) and e_j = the error term.

The 'a priori' expectations are:

$\beta_1 > 0$; implying that the higher the Waste Disposal Costs (WDC), the lower the profitability,

$\beta_2 > 0$; implying that the higher the Fines and Penalties (FP), the lower the profitability,

$\beta_3 > 0$; implying that the higher the Pollution Abatement Costs (PAC), the lower the profitability.

Hypothesis three on the other hand was tested using MANOVA. The Levene's test of equality of error variances was employed to check the assumption of equality of variance for MANOVA. Wilks' Lambda was also employed to check for statistically significant differences.

4.1 Data presentation

Data extracted from the companies' financial statements (insert table 1) include accounting information on profit after tax (PAT) and environmental related cost (Waste Disposal Cost, Fine and penalty, pollution abatement cost).

4.2 Test of hypotheses

Hypothesis one:

H_0 : There is no significant difference between the compliance level of Nigerian companies on environmental accounting and social responsibility disclosures and the International Standard of Accounting and Reporting disclosure requirements.

Using the population t-test (see table 3), the t-tabulated was 1.83 while the calculated t-value: 11.605. Given that the calculated t-statistic is greater than the table value, that is, $11.605 > 1.83$ with the degree of freedom, $n-1$ (i.e. $27-1 = 26$) at 5% level of significance, H_0 is rejected and H_1 is accepted. It is therefore concluded that there is a significant difference between the compliance level of Nigerian companies on environmental accounting and social responsibility disclosures and the International Standard of Accounting and Reporting disclosure

requirements.

Hypothesis two:

H₀: Waste management cost, pollution abatement cost, and Fines & Penalty do not significantly affect companies' performance.

Using the t-statistic to test for the significance of the estimated coefficients (insert table 2); WDC was positive and significantly affect companies' performance with a t-statistic of 6.301 and p-value of .001 [$t_{cal} = 6.301 > t_{0.05} = 1.697$]. This however contradicts our 'a priori expectation which specifies that the higher the Waste Disposal Costs (WDC), the lower the profitability. The data on fine and penalty was in consonant with our 'a priori expectation, as it has a t-statistics of -3.303 that is negatively significant [$t_{cal} = -3.303 > t_{0.05} = 1.697$]. Same can be said for pollution abatement costs with a t-value of -3.943 and a p-value of .029 [$t_{cal} = -3.943 > t_{0.05} = 1.697$]. By these results, it can be concluded that waste management cost, pollution abatement cost, and fines & penalty significantly affect companies' performance. H₀ is therefore rejected and H₁ is accepted.

Hypothesis three:

H₀: There are no consequences to non-compliance with environmental and social responsibility accounting with the disclosure requirements of the accounting standards.

The multivariate test of significance is conducted using Wilks' Lamda (see table 5). The result shows that the F-value is 18.893^a, partial eta squared = .222, showing large effect, while the Wilks' Lamda value is 0.606 with a significant value of .000; which is lower than 0.05. Therefore, there is a statistically significant difference in the perception of NASCOM Plc., Dangote Cement Plc. and Honeywell Flour Mills Plc. on the consequences of non-compliance with environmental and social responsibility accounting disclosure requirements of the accounting standards. H₀ is therefore rejected and H₁ accepted.

5.1 Summary

Data were collected from three manufacturing companies in Lagos State; while three hypotheses were raised and tested using, population t-test, ordinary least square regression techniques and multivariate statistics. The study showed that there is a significant difference between the compliance level of Nigerian companies on environmental accounting and social responsibility disclosures and the International Standard of Accounting and Reporting disclosure requirements by Nigerian companies. This is because Nigeria is yet to fully inculcate these environmental accounting and social responsibility related standards.

The study also revealed that there is a relationship between environmental costs and corporate performance. It was however discovered that there is a positive relationship between waste disposal cost and the performance, though this result was in contradiction to the a priori expectation, it does not portend amazement. This is because in Nigeria, nothing is realistically true, as most financial information presented by companies, must have been doctored to suit their purpose of meticulously circumventing vital information for obvious reasons. It was also found out that, fines and penalties paid, pollution abatement costs have a great influence on the reported profits of a company, and that non-compliance with environmental regulation by firms could cause serious damage or setback, to the organizations.

5.2 Conclusion and recommendations

Based on the findings of this study, it was concluded that there is a significant relationship between the environmental costs and the earning capacity a firm. It is also discovered that, there is a complete absence of accounting standard on environmental reporting. It is therefore recommended that the use of International Standard of Accounting and Reporting should be fully adopted in Nigeria, as a legal framework to be followed by companies on environmental accounting and social responsibility, and non-compliance should attract sanctions from relevant authorities. The Financial Reporting Council (FRC) of Nigerian should collaborate with other professional bodies, the academia and other relevant stakeholders on relevant sanction that would ensure there is compliance and transparency in the process.

Manufacturing firms in Nigeria should be sensitive to their activities and strive as much as possible to desist from those environmental activities that would consequently result in environmental degradation. Companies should also maintain a good legal compliance record in order to avoid risking criminal actions thereby resulting in financial liabilities or costs; and wastes should be treated and well-handled, and should not be left to pollute the environment thereby incurring liabilities or disposal cost, settlement of which will reduce the corporate profit. Firms should also develop clear views of society's performances and priorities in order to plan activities that will make social impacts and meaningful reports on their environmental performances.

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APPENDIX

TABLE 1: Profitability and Environmental costs of NASCOM Nig. Plc., Dangote cement and Honeywell (2008-2012)

Year	PAT #'000			waste disposal cost #'000			Fines and penalties paid #'000			Pollution abatement cost #'000		
	NASCOM	Dangote Cement	Honey well	NASCOM	Dangote Cement	Honey well	NASCOM	Dangote Cement	Honey well	NASCOM	Dangote Cement	Honey well
2008	1,298,293	17,960,110	816,452	3586	9823	3300	5976	5500	3476	1060	9800	4500
2009	1,842,346	47,251,326	217,115	4290	6670	2300		-	1834	-	5128	5012
2010	1,648,321	106,605,409	1,175,922	2150	6300	1400	5520	3850	3210	-	2600	-
2011	2,203,695	125,478,962	2,492,397	4300	11902	2720		1450	1300	8978	8340	5510
2012	2,766,308	146,786,239	2,702,431	6250	10586	3456	8260	-	-	-	8890	-

Source: Fieldwork, 2014

TABLE2: Modeling PAC, FPP, WDC and PAT using least square regression method

Model	Unstandardized Coefficients		T	Sig.	R	R Square	F	DW	
	B	Std. Error							
1	(Constant)	5.911E7	2.438E	2.425	.094	.967 ^a	1.611	14.290	1.611
	WDC	19426.8	3083.3	6.301	.008				
	FPP	-15348.5	4647.5	-3.303	.046				
	PAC	-15634.5	3965.6	-3.943	.029				

a. Predictors: (Constant), PAC, FPP, WDC

b. Dependent Variable: PAT

Source: SPSS Result

Table 3: One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean	t	μ	Df	Sig. (2-tailed)	Mean Difference
VAR0001	27	4.074	.82862	.15947	25.548	54	26	.000	4.07407

SPSS Result, 2014

TABLE 4: Descriptive Statistics on Consequences of Noncompliance with International standard of Accounting Reporting (Hypothesis 3)

Questions	Companies	Std.		
		Mean	Deviation	N
1.How do you see that the failure to account for relevant environmental and social responsibility activities could result in the imposition of sanctions on the organization by regulators or legal proceedings against the organization by third parties?	NASCOM	3.1600	.79179	50
	Dangote	2.6701	1.01778	97
	Honeywell	1.6842	.71108	57
	Total	2.5147	1.04329	204
		2.6800	1.05830	50
2.Non-disclosure of relevant environmental accounting related information limits organisations professional reputation.	NASCOM			
	Dangote	3.4124	.59077	97
	Honeywell	3.4211	.49812	57
	Total	3.2353	.77747	204
		2.2400	1.17038	50
3.Partial or non-disclosure of social responsibility accounting could lead to failure to keep market share/ product boycott	NASCOM			
	Dangote	3.0825	1.07694	97
	Honeywell	3.5088	.50437	57
	Total	2.9951	1.08049	204

Fieldwork, 2014

TABLE 5: Multivariate Tests^c

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Wilks' Lambda	.024	2652.025 ^a	3.000	199.000	.000	.976
Companies	Wilks' Lambda	.606	18.893 ^a	6.000	398.000	.000	.222

a. Exact statistic

SPSS result, 2014

Population t- test calculation

$$t = \frac{\mu - x}{D / \sqrt{n}} = \frac{54 - 4.07}{0.828 / \sqrt{27}} = 11.605$$

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