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Environmental Accounting and Sustainable Development: A Study of Niger Delta Area of Nigeria

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Abstract: *This work was borne out of the expectation of the gap that exists between the companies operating in Niger Delta and their host communities; years of neglect, environmental degradation, pollution and massive outcry for redress which resulted to arm struggle with attendant consequences. The objective of this study is to determine how environmental accounting has influenced the sustainable development in Nigeria, particularly Niger Delta area. Two (2) hypotheses were formulated and tested as an off shoot of the research questions. Environmental Accounting as Independent variable was measured by Sustainable development variables such as infrastructural amenities, poverty eradication, health care delivery, natural disaster and pollution. Quasi experimental research design was employed in the research. Data were gathered using questionnaires which were distributed to garner opinion from accountants, auditors, environmentalist, and community leaders in six states in Niger Delta area. Of 400 questionnaires distributed 388 were retrieved out of which 8 were invalid. Chi-square, Spearman's coefficient correlation among others under SPSS Version 23 package was used to analyze the data and test the hypotheses. The result showed that there is relationship between Environmental accounting, Sustainable development and Economic Stability in Nigeria. We conclude that Environmental accounting is imperative for sustainable development and therefore suggests that all companies operating in Niger Delta area should imbibe environmental accounting as part of their operational standard.*

Keywords: *Environmental Accounting, Sustainable Development, Niger Delta Region, Nigeria*

I. INTRODUCTION

The environmental issue has become a global concern in the last decades being the spotlight in different forum both at national and international levels. Environmental challenges are rooted in economic and social policies, they occur at all levels from local to global, and solutions demands action by many players over long period of time. The industrial revolution has brought economic improvement in almost all our sphere of lives, greater prosperity, improved health, better and easy way of doing things, indeed it is synonymous to economic development. The use of natural resources is vital to economic development and it is not without environmental consequences such as environmental and atmospheric pollution, oil spillage, and desertification, destruction of ozone layers, global warming and climate change that is inimical to our existence. Nigeria as a developing country in the quest for economic advancement continues to exploit the natural resources hence there is correlation between the Nigeria's GDP and Natural resources consumption.

Environmental accounting is an issue that has since the early 1970s gradually taken the centre-stage in international discussion. The movement for environmental accounting and conservation of natural resources began in the advanced countries. In 1992, the United Nations Framework Convention on Climate Change was signed by most countries to consider steps to reduce global warming and palliate climate change. In 1997, a treaty known as the Kyoto Protocol was signed, setting binding targets for 37 industrialized countries and the European community to reduce their greenhouse gas (GHG) emissions.

As a further step in the global concern for the environment, the UN *Conference on Environment and Development* (UNCED), was held at Rio de Janeiro from 3 to 14 June, 1992. Popularly known as the "Earth Summit" on Environment and Development, the Rio Conference was slated to coincide with the 20th anniversary of the Stockholm Conference (Cunningham and Saigo, 1997). The Rio Declaration comprises 27 principles for guiding action on environment and development. Many address development concerns, stressing the right to and need for development and poverty alleviation.

It should be noted that environmental accounting and reporting awareness only began to feature prominently in the scheme of things in most developing countries in the decades of the 1980s and 1990s. This is not surprising. Third World countries confront more urgent problems of how to satisfy the immediate basic needs of the populace and are preoccupied with the attempt to generate faster rate of economic growth. The concern for the environment was thus considered premature by some analysts. It was indeed reasoned that Third World countries could ill-afford the luxury of being concerned with the environment at the expense of the

attempt to break off the shackles of poverty and underdevelopment. Interestingly, most developing nations have today experienced serious effects of environmental degradation. This has in turn impacted positively on the level of environmental awareness of these nations, including Nigeria. However, there is yet a yawning gap between the increasing environmental awareness on the one hand and effective positive actions towards environmental accounting on the other hand. The unfortunate situation exists at the levels of government, corporate bodies, communities and individuals.

This study therefore scrutinizes the need for organizations to take cognisance of the effect of their activities within the environment, make necessary disclosure. This is required as such responsibility will help to bring to awareness the need to protect our environments and natural resources. It will also ensure that adequate measures are put in place to ensure a renewal of our environmental resources and restiveness and agitations which had led to arm struggle with attendant loss of lives is eliminated or at least curtailed to the barest minimum.

There are positive indicators of environment accounting practices in companies and business organizations in developing countries, yet the practice of environment accounting is not serious enough, as there are no specialized activities in companies or factories to apply it, nor is there planning or research to specially target and define the consumers, public, or owners' needs. Rather, the practice is carried out in an improvised and random manner.

Accounting technology which is anticipated to keep up with public demands and proffer solution to socio-economic and environmental challenges is promoting environmental accounting and reporting as universal therapy for sustainable development.

Therefore, the researcher shall investigate the extent to which the Nigerian government, polluting industries and Multinational companies practice environmental accounting and reporting. Also, the researcher is interested in knowing impact of environmental accounting and reporting on sustainable development in the Niger Delta and Nigeria as a whole.

1.2 Aim and Objectives of The Study

The main aim of the study is to determine how environmental accounting has influenced the sustainable development in Nigeria particularly in the Niger Delta Area,

Based on the specific objectives, the following Research questions are posed:

1. To what extent does Green accounting influence provision of infrastructural amenities in Niger Delta of Nigeria?
2. To what extent does Green accounting affect poverty eradication?

1.3 Conceptual Framework

The conceptual framework of this study is based on the presumed causal relationship between Environmental accounting (Independent Variable) and Sustainable development indicators (Dependent variables). The constructs of Environmental accounting include Green Accounting, environmental pollution cost, environmental degradation, deforestation, while the Sustainable development has Poverty eradication, life expectancy, infrastructural amenities (pipe borne water, roads, electricity) , Health care delivery and Natural Hazards. It is hypothesized that each proxy of Environmental Accounting will influence each components of sustainable development.

1.4 Hypotheses

Based on the specific objectives and research questions, the following hypotheses are presented in the Null form.

HO_1: There is no significant influence between Green accounting and infrastructural amenities in Niger Delta of Nigeria

HO_2: There is no significant influence between Green accounting and poverty eradication, health care delivery, Natural disaster and environmental degradation in Niger Delta of Nigeria.

The hypotheses above are stated in the Null form (H_0) and not in the alternative/ directional form (H_1). Borg and Gall (1979: 60) cited in Baridam (2001) agrees with the view of stating only the Null hypothesis when he maintained that "statistical hypothesis should be stated in the directional form only where there is little or no possibility that the findings will yield a difference or relationship in the opposite direction".

Baridam, (2005: 45) agrees with this. According to him, the practice of stating both Null and directional hypothesis at the same time is not necessary, since by rejecting a directional hypothesis, we are accepting the null hypothesis, for purpose of statistical testing and interpretation, the researcher decided to use the null hypothesis.

1.5 Scope of Study

The study covers contaminated land (oil spillage), water, forestry, sediment, vegetation, air pollution, public health, industry practices and institutional issues in Niger Delta States, of Nigeria, since it stands out as major areas badly affected by environmental problems or degradation. This study represents one of the best available understandings of what has happened to the environment of the Niger Delta States and the corresponding implications for affected populations.

1.6 Significance of The Study

- It will create greater awareness and understanding of business related environmental issues;
- Be of great importance to both the private and public sectors;
- It will add to stock of existing knowledge and increase the library;
- It will help students and experts in this specialised field;
- It will be helpful to farmers, businessmen, investors and contractors;
- It will be useful to those into professional consultancy services,
- It will be useful to policy makers and law makers in making rules and regulations; and also during reforms and;
- It will further benefit researchers interested in environmental issues and possibly trigger further research in this area of study.

Other major benefits of conducting this study will include:-

i. mitigating company's legal and reputation risks,
ii. reducing operational inefficiencies and
iii. Improving the environmental performance of an organisation and the public sector.

II. Review Of Relevant Literature

2.1 Theoretical Framework

The work of Adam Smith was acknowledged in Elkington (1997) triple bottom line approach which stipulates that capitalism in pursuit of economic performance must meet be done in just manner. However, profit is non achievable if the environment in which the business operates is endangered. A company which hold the triple bottom line approach (social, economical and environmental performance) is promoting sustainable development. Hart (1997) added that the achievement of sustainability would require a blending of product stewardship, green technology and pollution prevention.'

2.2 Environmental Theory

The need for environmentally friendly products, services and clean technology was emphasized in Technocentric theory . (O'Riordan: 1997) A balanced report will includes the impact of business activities on the environment. How a corporation manages its immediate and remote environment is of essence. Pepper (1986); Dobson (1990).

2.3 Review of Empirical Studies

The effect of environmental reporting on investment decisions was studied by Holm and Rikhardson (2008), it was established that environmental information disclosure influences investment decision. According to Bose (2006), since oil and gas resources are natural assets and non-renewable and it is generally accepted that the environmental impact from the sector is significant, so economic valuation, accounting and reporting of these resources and their environmental impacts are very important to ensure sustainable development. With the growing concern for sustainable development, there has come a demand for environmental and resource accounting. Environmental accounting may play an important role to provide the needed data on environment to different users. Environmental reporting will ensure the "Corporate Environmental Stewardship" of organizational activities'.

Bala and Yusuf (2003) declared that present practices reveal that no track for environmental costs was available as it was altered arbitrarily. There is need for proper allocation of environmental cost. The US Environmental Protection Agency – EPA (1995) and Hamid (2002) took the stance that accounting should be responsible for measuring, evaluating and disclosure of environmental performance in financial statements or in its attachments. Measuring environmental performance depends on accounting systems but also needs more data other than the conventional accounting data, such as pollution ratio. Monetizing environmental issues may not be totally accurate, but economists and accountants have to give best estimates according to the current level of knowledge and techniques used.

2.4. Conceptual issues

History and Geography of Niger Delta Region

The Niger Delta region of Nigeria lies between latitudes 4^{O} and 6^{O} north of the Equator and 4^{O} and 8^{O} east of the Greenwich. It comprises the states of Akwa Ibom, Cross River, Edo, Imo, Rivers, Bayelsa, Delta, Abia and Ondo, making it coterminous with all of Nigeria's oil producing states. Stretching over 20,000 km^2 of swamp land in the littoral fringes of the country, it embraces one of the world's largest wetlands, over 60% of Africa's largest mangrove forests, and one of the worlds' most extensive (Eyinla and Ukpo,2006). Comprising mainly of a distinct aquatic environment which embraces marine, salt and fresh water ecosystems, it encompasses the most extensive fresh water swamp forest in West and Central Africa, and manifests an intricate network of creeks, rivers, streams, swamps, braided streams and Oxbow lakes, besides a stretch of flat and fertile land mass. In this picturesque basin lives a kaleidoscope of ethnic nationalities which include among others, the Ijaw, Itsekiri, Urhobo, Ikwere, Andoni Efik, Ibibio, Kalabari, Okrika, together with sections of the Yoruba and Igbo. Among these, the Ijaw seems by far the largest. In this region also lies Nigeria's over 35 billion barrels of proven oil reserves (Eyinla and Ukpo, 2006), besides an even larger deposit of natural gas. The region also accounts for over 80% of Nigeria's Gross Domestic Product and represents the economic jugular of the country.

Environmental Regulation in Nigeria and the Trend

There was no serious attention paid to environmental regulation in Nigeria before 1988. However, the awareness and due importance was attached to environmental regulations as an attempt to dump a toxic waste in Niger Delta region by a foreign company was foiled in 1987. This event stunned the Federal Government of Nigeria and underlined the weak nature of environmental regulation in the country. This gave rise to the promulgation of Decree No. 42 of 1988 by the former Federal Military Government of Nigeria.

This decree made it a criminal offence for anyone to carry or dump any harmful waste within the entire land mass and waters of the Federal Republic of Nigeria. The episode gave rise to the need for an agency to oversee environmental protection; hence decree No. 58 of 1988 gave birth to the Federal Environmental Protection Agency (FEPA). The Decree was later amended in 1992 by Decree No. 59 of 1992, granting FEPA the responsibility for protection of the environment, biological diversity, conservation and environmental technology and research. It was this decree that created the first standards of environmental regulation in Nigeria . The standards include: Water quality, effluent limitation, air quality, atmospheric protection, ozone layer protection, noise levels and the control of hazardous substances. These represent the efforts made by successive administrations to ameliorate the environmental problems of the country. However, on May 29 1999 the civilian government under President Olusegun Obasanjo, added an impetus to the struggle against environmental menaces by according the environment a greater priority. To this effect, it created, for the first time in the history of Nigeria, the Ministry of Environment in June 1999. The former regulatory agency, FEPA, was absorbed by the Ministry of Environment which took over all its function. The institutional set-up and legislation relating to environmental management of the oil and gas industry in Nigeria have evolved over the past 50 years and are very complex. The Department of Petroleum Resources (DPR) under the Federal Ministry of Petroleum Resources plays a key role in regulating and enforcing environmental laws in Nigeria. The DPR regulation "Environmental Guidelines and Standards for Petroleum Industry in Nigeria" (EGASPIN) first issued in 1992 and reissued in 2002, forms the basis for most environmental regulation of the oil industry. In 1999, the Federal Ministry of Environment was formed, followed in 2006 by the establishment of the National Oil Spill Detection and Response Agency (NOSDRA). Both of these institutions base their operations on the DPR Environmental Guidelines and Standards.

Green Accounting – The Concept and Objectives

The term "Green accounting" was first used by R. Grey et al. Gray, Bebbington and Walters define Green accounting as a management tool addressing all areas of accounting that may be affected by the response of business organizations to environmental issues, including the new area of eco-accounting . Another definition was suggested by the Public Accounts and Estimates Committee, which defined it as a "process, which provides information on the environment and the impact of human "activity on the environment that is useful in making appropriate decisions at various "levels of management. It is also an expression of the monetary and non-financial "activities of an entity with regard to the environment (PAEC, 2002, March, p. 5). The term "green accounting" is equivocal, and can be used in numerous circumstances (IFAC, 2005, August, pp. 13-14). The wide extent of environmental accounting and its focus on both external and internal users provides a basis to divide it into:

- environmental financial accounting,
- environmental management accounting.

Concept of Sustainability and Environmental Accounting: The most quoted definition of sustainability is that, of the Brundtland commission Report. The definition described sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs Sustainable development has been described as that development that meets the needs and aspirations of the present generations, without compromising the ability to meet the need of future generations. Sustainable development strategy may therefore be seen as facilitator for balancing the conservation of nature's resources with the need for industrial and technological development and advancement put differently, it connotes the capacity to improve the quality of human life while living within the carrying capacity of the supporting ecosystem (Agagu 2008). Sustainable development is a design involving a social, economic and environment that meets the needs of the present without compromising the ability of future generations to meet their own needs. This is not a new concept. The native American Iroquois confederacy has a tenet it mandates its chiefs to follow, one to which people today are now paying attention to; It simply states that a chief must consider how each of his actions will affect his descendants seven generations into the future. At present the goals of this design are being sort after by the United Nations and are implied by governments. To Zimmerman (2008), the UNEP is the tool of the UN in encouraging sustainable development—increasing standards of living without destroying the environment.

Esan (1998) was of the view that sustainable development is concerned with technologies for pollution reduction; monitoring of technologies to optimize energy mix; peoples' participation in environmental degradation; modern technologies of biomass, wind, solar energy, thereby reducing the ecological and environmental hazards and risk. The concept of sustainable development which lays emphasis on the maintenance of natural resources, requiring mandatory inclusion of natural resources values in financial report has increased the responsibility of those involved in accounting for the natural environment. Actually natural resources were not given enough consideration in the early years of economic development despite their unique contribution to development. The fifth European Commission's Action programme on the environment titled 'Towards Sustainability 'calls for enterprises to:

- Disclose in their annual reports details of their environmental policy and activities and the effect thereof;
- Detail in their accounts the expenses on environmental programmes and a clear definition of such expenses and;
- Make provision in their accounts (European Commission 1992)

The programme also recommends that product pricing be based on a full cost approach including the use and consumption of environmental resources. The United Nations Statistical Office published a system of national account which reflects opening and closing stocks and sources of increase and decrease. Only assets that are exchanged in the market place such as forestry, agricultural, land and subsoil minerals are included. There is growing interest in the development of resources and environmental accounting in Nigeria. The development of natural resource accounting has focused on placing monetary value on known physical quantities of the resources in order to obtain a wealth value for natural capital (Oladoye 1998). The natural resources stock account is usually recorded both in physical and monetary terms.

Environmental Accounting: There is no standard definition of natural resources and environmental accounting. The term environmental accounting could, in general sense, be used to indicate, taking an a count of the environment and changes in it, and integrating the results with the system of SNA so as to provide a valuable information base for planning and laying policies for the integrated sustainable development and growth of the nation.

According to FEE (1995): "*Environmental Accounting concerns the treatment of environmental issues within the financial statements and within environmental evaluations. Environmental reporting goes usually beyond financial reporting and might take place in a separate report or in separate sections of the glossy brochure (out-side the financial statements).*"

The term "Environment Accounting" has been defined variously by different authors. Kelly (1981) is of the view that Environmental Accounting involves the provision of financial and Non-financial information relating to the environment and other items.

Corner (2006:7) on his own defines Environmental Accounting "as any form of accounting involving the collection, recording and reporting of internal and external information about the financial and non-financial impact of organizational activities upon individuals, society and the physical environment". Yakhou and Dorweiler (2004:65) however gave an all embracing definition. They defined Environmental Accounting as "an inclusive field of accounting that provides reports for both internal use, generating environmental information to help make management decisions on pricing, controlling overhead and capital budgeting and disclosing environmental information of interest to the public and to the financial community". From the contributions of the above authors, it can be inferred that Environmental Accounting is an extension of the conventional financial accounting. The development of Environmental Accounting was as a result of the

limitation of conventional accounting to measure and account for resources that don't only affect the financial stakeholders but also the non-financial stakeholders such as the society and environment. A good accounting system that indicates economic performance must .reflect sustainable income. Environmental Accounting - the entire domain of accounting for the environment including: financial accounting, reporting and auditing and environmental management accounting.

Thus, Environmental Accounting is a comprise of (i) Accounting Aspect of Environment of concern (ii) Reporting Aspect of Environment of a concern (iii) Auditing Aspect of Environment of a concern and (iv) Environmental Management Accounting. An assumption that environmental accounting information can be provided and is useful is made explicit in recent processes directed towards ecologically sustainable development. For example, the Rio declaration on environment and development, Principle 10 declares:

"Environmental issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision making processes. State shall facilitate and encourage public awareness and participation by making information widely available..."

As noted above, principle 10 deems it appropriate for citizens to gain access to information about environmental issues. To achieve this feat, national authorities need to gather data and make it available to interested parties. Before gathering appropriate data authorities need to know what framework is going to guide their data gathering process. An appropriate environmental accounting guiding framework has to be in place.

Environmental accounting covers information relating to all aspects of the environment. It includes environment-related expenditure, environmental benefits of products and details regarding sustainable operations (Irish times, 2000).

According to the world conservative union (n. d) consumption of natural capital the depletion of natural capital - forests, in particular - is accounted for as income. Thus the accounts of a country which harvests trees very quickly will show quite high income for a few years, but nothing will show the destruction of a productive asset, the forest. Whereas in accordance with conventional business accounting principles, the gradual depletion of physical capital- machines and other equipment – are treated as depletion rather than income. However, most experts on environmental accounting agree that the depletion of natural capital should be accounted for in the same way as other productive assets Yakhou and Dorweiler (2003) specified that Environmental accounting is an inclusive field of accounting. It provides reports for both internal use, generating environmental information to help make management decisions on pricing, controlling overhead and capital budgeting, and external use, disclosing environmental information of interest to the public and to the financial community.

III. Research Methodology

However, this study adopted the quasi-experimental survey design, that is, the non-experimental. The empirical study was performed on the stakeholders which are Companies, Communities, Environmentalists, Scholars, Community Leaders, within six states in Niger Delta areas of Nigeria. A sample size of 400 respondents was used after applying the Taro Yamane sampling determination techniques on a population size of three million people within these States. Data collected were analyzed with Statistical Package for Social Sciences (SPSS) IBM- SPSS Version 23.0 using Spearman's correlation coefficient, student t-test and Chi-square at 95% level of confidence.

IV. Empirical Results And Analysis

Four hundred (400) questionnaires were distributed among the stakeholders which are Companies, Communities, Environmentalists, Scholars, Community Leaders, within the Six States in Niger Delta. Three Hundred and Eighty-eight (388) Questionnaires were returned which represents 97% response rate.; The questions for analysis are derived from research questions. The tables 4.0. 1 and 4.0.2 in the appendix are prepared to analyse the responses of the respondents to the topic on study.

4.1. Test of Hypotheses

Hypothesis one:

$H1_0$ There is no significant influence between Green accounting and infrastructural amenities, poverty eradication, health care delivery and Natural disaster in Niger Delta of Nigeria.

$H1_1$: There is significant influence between Green accounting and infrastructural amenities in Niger Delta of Nigeria.

Decision: *In line with the decision rules stated earlier. The Null hypothesis (Ho) should be rejected as the calculated X^2 value is greater than the critical value. From the Table 4.3.1, the calculated value 465.467 is greater than critical value 9.488 at 5% level of significance with 4 degree of freedom. Thus, the Alternative Hypothesis,* **"**There is significant influence between Green accounting and infrastructural amenities, poverty eradication, health care delivery and Natural disaster in Niger Delta of Nigeria ***"is accepted.***

Hypothesis II (two)

HO_2: There is no significant influence between Green accounting and poverty eradication in Niger Delta of Nigeria.

$H1_2$: There is significant influence between Green accounting and poverty eradication in Niger Delta of Nigeria.

In line with, the decision rules stated in section 3.5. The Null hypothesis (Ho) should be rejected because, from the above Table 4.4.2, the calculated x^2 value 499.063 is greater than the critical value 9.488 at 5% level of significance with 4 degree of freedom (DF).Thus, the alternative hypothesis "There is significant influence between Environmental pollution and health care delivery, poverty eradication and Natural disaster in Niger Delta areas" *is accepted.*

V.Findings, Discussions, Conclusion And Recommendations

This study has empirically examined environmental accounting and sustainable development. It is imperative to note that while sustainable development is now preached and emphasized globally, much is yet to be done to realize sustainable development goals (SDGs) in Niger Delta area and in Nigeria as a whole.

The stakeholders in Niger Delta area of Nigeria; the companies, the Environmentalist, Community leaders and Accountants all agreed that Environmental Accounting such as Green accounting, Environmental Auditing and Green Reporting has direct influence on sustainable development measurement parameters such as the implication is that while many companies welcome environmental friendly policy only handful imbibes environmental Accounting services. This could be attributable to voluntary nature of environmental accounting disclosures and poor or non-existent of environmental legislation and defective enforcement mechanism where they exist. . When firms employ Environmental Accounting practices, disclose sufficient environmental related information, they enjoy competitive advantage, high liquidity and reduced environmental cost in the long run and ultimately it reflects in Sustainable Development.

There is need to reinforce implementation of the existing environmental regulations and policy guidelines that oversee the operations of the environmental impacting companies in Niger Delta area and Nigeria as a whole. Law enforcement agents and other related statutory bodies saddled with such tasks should be well equipped to discharge their responsibilities.

Furthermore, specifically the following were deductions were made from the results of the empirical analysis of the data and hypothesis testing; Green accounting has significant effect on infrastructural amenities provision in Niger Delta of Nigeria; Green accounting enhances poverty eradication in Niger Delta of Nigeria. Green accounting promotes health care delivery in Niger Delta of Nigeria; Green accounting reduces natural disaster and its effects in Niger Delta of Nigeria; The cost of environmental pollution has a significant effect on infrastructural amenities, poverty eradication, health care delivery and natural disaster in Niger Delta of Nigeria; Deforestation has effect on infrastructural amenities, poverty eradication, health care delivery and natural disaster in Niger Delta of Nigeria; Environmental degradation has significant effect on infrastructural amenities, poverty eradication, health care delivery and natural disaster in Niger Delta of Nigeria.

5.2. Conclusion

It is essential to emphasise that no sustainable development can take place in an environment devoid of peace and harmony. As man exists within the confines of the environment, and his survival is anchored on the steadiness of that environment, there must be a conscious effort to manage the environment. All stake holders, companies, community and Government should be made to account for their activities within the environment and measures taken to enhance sustainability.

- This study examined the of Environmental Accounting and sustainable development in Niger Delta area of Nigeria;
- The data gathered and the analysis depicts that Environmental Accounting is essential for a sustainable development;
- Thus, it equally explains the relationship between Green Accounting and Infrastructural development, Health care delivery, poverty eradication and Occurrence of Natural disaster;
- More so, The effect of Deforestation, degradation and Environmental Pollution on Sustainable Development parameters such as Infrastructural amenities, Health care delivery, Poverty eradication and natural disaster were critically examined, with conclusion that they have bearing on one another;
- It is established that the arm-struggle in the Niger Delta area of Nigeria could have been averted if Environmental Accounting Practices are employed by the operators in the region;
- The remedial cost of failure to imbibe environmental Accounting practices far outweigh the cost of implementing the practice, for instance Multi-billion Dollars cost of Ogoni land clean up which will also last for over 20 years, notwithstanding lives, livestock, vegetation and other value that has been lost/ destroyed in the spillage;

- Everyone is a stakeholder and should be an agent of Environmental protection as man lives within the confinement of the environment and his activities either promotes or destroys the Environment;
- The danger of environmental neglect is imminent and already here with us such as depletion of ozone layer, natural disaster in diverse places, hunger and starvation, hence conscious attention must be paid to Environmental Accounting;

  Finally, companies should imbibe good Environmental Accounting Policies as it will not only enhance the management of the environment but also help in the proper management of their organizations.

5.3. Recommendations

From the findings and conclusion of this study, the researchers recommended that:

- ✓ Companies operating in Niger Delta area should adopt Environmental Accounting policies to enhance their competitiveness which would subsequently lead to Sustainable development;
- ✓ Companies should adopt universal reporting and disclosure standard on environmental issues for the purpose of control, performance measurement and comparativeness;
- ✓ Companies should formulate a robust and all-encompassing environmental accounting policies and practices that focus on sustainability, engender environment friendliness and fair, equitable to all the stakeholders;
- ✓ Management of organisation should have positive outlook towards environmental cost friendly practices in order to guarantee steady and sustainable operations in the Niger Delta area of Nigeria.
- ✓ Management of organisations should cultivate a well pronounced environmental accounting system in order to ensure a rancour free corporate atmosphere needed by managers and workers for maximum productivity in Niger Delta area of Nigeria.
- ✓ Government should endow its regulating agencies to ensure adequate monitoring of the activities of corporate organizations within the country.
- ✓ Accountants should be trained on environmental accounting and reporting.
- ✓ Environmental accounting standards should be published locally and internationally and reviewed continually to ensure dynamism compliance and meets environmental situational needs.
- ✓ Finally, it was recommended that environmental Accounting and related matters should not be left to large firms only as even small entrepreneurs, community and all other stakeholders should be encourage to imbibe environmental accounting practices as well disclosure of Environmental impact/related activities in their annual reports and accounts.

  It is believed that the above recommendations if effected will return the assurance of the ordinary citizen in the government and the companies. It will also bring about a lasting peace in some troubled regions of Niger Delta area of Nigeria.

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Appendix

4.1 ANALYSIS OF DATA

Table 4.1.1. Summary of Questionnaires Distributed.

STATES	QUESTIONNAIRES DISTRIBUTED TO VARIOUS COMPANIES		
STATES	QUEST.ADMIN.	QUEST. RETUNED	PERCEN. RATE
			OF QUEST. RETUNED
Akwa Ibom	66	64	97%
Bayelsa	66	65	98%
Cross Rivers	66	62	94%
Delta	66	63	95%
Edo	66	64	97%
Rivers	70	70	100%
TOTAL	400	388	97%

Qualifications of Respondent

TABLE 4.1.2	RESPONDENTS'QUALIFICATIONS	
Qualifications	Respondents	Percentage
Post graduate Degree (Ph.D./M.Sc.)	78	20
High Diploma/1st Degree (HND,B.Sc.)	202	52
National Diplomal (ND)	40	10
Others	68	18
Total	388	100

Nonparametric Correlations Matrix: Software Package for Social Sciences (SPSS) Output for Spearman Rank on the Variables.

	Spearman's rho	RG	FRA	MPE	MKS	CPR
RG	Correlation Coefficient	1.000				
	Sig. (2-tailed)	.				
	N	40				
FRA	Correlation Coefficient	.691	1.000			
	Sig. (2-tailed)	.000	.			
	N	40	40			
MPE	Correlation Coefficient	.699	.711	1.000		
	Sig. (2-tailed)	.000	.000	.		
	N	40	40	40		
MKS	Correlation Coefficient	.771	.713	.721	1.000	
	Sig. (2-tailed)	.000	.000	.000	.	
	N	40	40	40	40	
CPR	Correlation Coefficient	.701	.707	.719	.700	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.
	N	40	40	40	40	40

Source: SPSS Output, 2016

Table 4.01: Environmental accounting and reporting can heighten reductions in emissions, material usage, energy usage, tree felling, e.t.c.

	Frequency	Percent
SD	37	9.8
D	126	33.2

Occupation		Mean	Std. Deviation	N
Noncompliance with environmental accounting and reporting will increase risk and legal liabilities.	Preparers	3.4330	.81531	33
	Auditors	3.0105	.53584	26
	Accounting information users	2.2256	.79972	19
	Total	2.7209	.91030	78
Non-reporting of relevant accounting information impedes stakeholders' patronage.	Preparers environmental Auditors	3.1753	.93553	33
		3.5053	.52336	26
	Accounting information users	2.4667	.69806	19
	Total	2.8992	.85635	78

Table 4.02: Organizations can key into governments' sustainable development programmes

Table 4.03: Pearson correlation coefficient result on Environmental Accounting and Sustainable Development

Table 4.04: Descriptive Statistics on the Consequences of Noncompliance with environmental accounting and reporting (Hypothesis 2)

	Frequency	Percent
SD	66	17.4
D	132	34.8
A	100	26.4

Variable	Cal	$\sum X$ $\sum Y$	$\sum X^2$ $\sum Y^2$	$\sum XY$	r – cal.
ENV_ ACC		1041	3213	2894	0 .74
SUS_DEV		954	2790		

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Wilks' Lambda	.049	3723.787[a]	2.000	383.000	.000
OCCU	Wilks' Lambda	.574	61.177[a]	4.000	766.000	.000

Chi-Square Test

Frequencies

TABLE 4.3.2.

	Observed (O)	Expected (N)	Residual
1	25	160.0	-135.0
2	47	160.0	-113.0
3	106	160.0	-54.0
4	324	160.0	164.0
5	298	160.0	138.0
Total	800		

Test Statistics

	Q2
Chi-Square(a)	499.063
df	4

a 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 160.0.

TABLE 4.3.1

	Observed (O)	Expected (N)	Residual
1	14	120.0	-106.0
2	43	120.0	-77.0
3	83	120.0	-37.0
4	311	120.0	191.0
5	149	120.0	29.0
Total	600		

Test Statistics

	Q1
Chi-Square(a)	465.467
df	4
Asymp. Sig	.050

a 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 120.0.