

## Environmental Accounting for Sustainable Development in Nigeria

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### ABSTRACT

*This paper examines the impact of environmental accounting on sustainable development in Nigeria. The study used content analysis research design. The extant literature reviewed that the efforts made by the Nigerian companies to make environmental disclosures deserve appreciation, but in most cases the quality and quantity of disclosures are not satisfactory as observed that environmental accounting has positive impact on sustainable development in Nigeria. The paper concludes that the impact of environmental accounting is that organizations can track their environmental data and other green house gas (GHG) emission against reduction targets, and facilitates environmental reporting to provide sustainability related data that is comprehensive, auditable, and timely to advance and strengthen the interdependent and mutually reinforcing pillars of sustainable development-economic development, social development and environmental protection in Nigeria. The paper recommends that a standard should be developed by regulatory bodies to guide the practices of Environmental Accounting.*

**Keywords:** Environmental Accounting, Sustainable Development, Environmental issues.

### Introduction

The need to consider the natural environment in accounting decision was first introduced in the 1960s and 1970s (Beams & Fertig, 1971). At the time, growing environmental problems led to increased awareness of organizational impacts on the environment, and the idea emerged that these issues could-at least in part-be addressed by identifying, measuring and possibly valuing the interchanges and interactions between organizations and the environment (Linnenlueke, Birt & Griffiths, 2015). The emerging carbon legislation (with emissions trading as a primary policy response) gave rise to new roles for the accounting function, ranging from internal carbon accounting to determine a company's liability to the accounting of tradable rights arising from emissions taxes and emissions trading schemes (West & Brereton, 2013; Ascui, 2014).

The convergence of global capital markets and the emergence of global and regional quality control issues-culminating for the accounting profession in the Asian financial crisis in 1997/1998 as well as the

Enron collapse in 2001-led to a subsequent high-level focus on international and national accounting (ACCA, 2002). According to ACCA (2002) the accounting literature has demonstrated a considerable increase in concern for the issues of sustainable development and accounting, through the exploration of what sustainability accounting may entail, the accounting profession is likely to be involved in re-examining accounting fundamentals in the light of the challenge of sustainable development. Gray (1990) suggested that a paradigm shift would be needed to include environmental and social considerations into accounting literature and practice, considering the aspects such as compliance and ethical audits, waste and energy reporting, environmental impact assessment, environmental and social reporting as well as accounting for environmental assets and liabilities.

Contributions identified different methods for accounting for environmental impacts, including input/output accounting (analyzing the physical flow of impacts such as materials, energy, waste and output such as carbon emissions or waste), sustainable and full-cost accounting (accounting for the amount of money a company would have to spend to return the environment back to the state where it was at the beginning of the accounting period), and natural capital accounting (accounting for natural capital such as habitat or biodiversity costs usually not factored into pricing decisions) (Mathews, 1997) as cited in Linnenluecke et al (2015).

In Nigeria, issue of the environment and its associated component parts have become a front burner from the policy makers, through the academia, the local communities to the general public. One common features of the issues relating to the environment in Nigeria is that it is fast becoming unfriendly, unsustainable and engenders conflicts (Phil-Eze, 2009). These conflicts are social events, and due to the impacts they cause in the public arena they contain not only social and environmental aspects, but also economic, cultural and political dimensions ( Olufemi & Adejobi, 2002).

The international accounting profession, through its standard setting guidelines, is required to engage with this new mechanism for carbon abatement (Zhang-Debreceeny, Kaidonis & Moerman, 2009). While it is the notion of a “carbon pollution cap” that is expected to set the goal of emissions reduction, it is the cost of emission rights that is expected to change business behavior in order to deliver emissions reduction (Andrew, 2008). The need to internalize costs of pollution or trade in emission permits, has the effect of shifting what was traditionally an external and costless concept into a costly activity and, hence, is “at the heart of the challenge to standard setters” (Cook, 2009). Gore (2007) urged a re-examination of accounting systems and measurement protocols to include the environment in the routine, everyday calculations by which our economy is governed, as cited in Zhang-Debreceeny et al (2009).

The use of natural resources including, energy is indispensable to economic development (Akinbami & Adegbulugbe, 1998) and not devoid of environmental consequences as traceable to the environmental degradation and atmospheric pollution experienced in Nigeria. Hence, Nigeria as a developing country must continue to advance economically and this requires increased exploitation of natural resources.

Accounting technology which is expected to keep up with societal demands and proffer solution to socio-economic and environmental challenges is advocating environmental accounting: a panacea for sustainable development, as this paper would underscore.

To this end, environmental accounting can be used to answer questions such as: which industry is emitting most green house gases? How do patterns of consumption and production affect the environment? What is the effect of economic policy measures, such as an environmental tax on the generation of waste or air emission? How fast is the environmental economy growing and how does it compare with the rest of the economy? (<http://ec.europa.eu/eurostat/statistics-explained> ). How will environmental accounting accentuate sustainable development in Nigeria?

## **Sustainable Development**

The concept of sustainability accounting has emerged from development in accounting, with roots in a broader sense over a period of the last forty years and in the narrow sense over the last ten years (Adams, 2006). According to Adams, the development reveals two lines of thought. The first line is the philosophical debate about accountability, if and how it contributes to sustainable development and which are the necessary steps towards sustainability. This approach is based on an entirely new system of accounting designed to promote a strategy of sustainability. Second line is the management perspective associated with varied terms and tools towards sustainability. This could be seen as an extension of or modification to conventional financial cost or management accounting. The former may be more appealing with regards to this study.

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED, 1987). According to WCED (1987), sustainable development contains within it, two key concepts. The first is the concept of needs, in particular the essential needs of the world's poor, to which overriding priority should be given; and secondly, the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs. Korowitz (2012) point out that sustainable development may involve improvements in the quality of life for many but may necessitate a decrease in resource consumption.

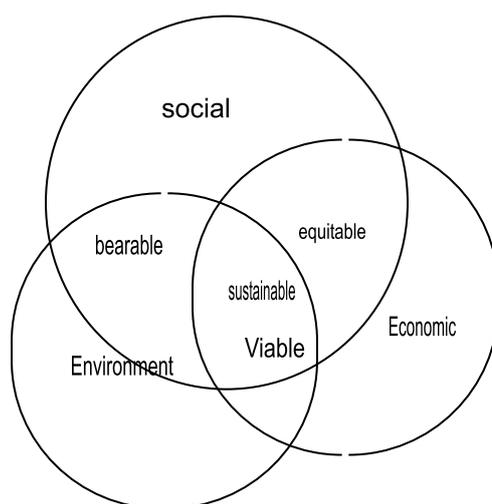
Several proposals and significant statistical work as well as a growing body of measurement on accounting for sustainable development are being carried out in many international and national settings (Kee & De Haan, 2012). The United Nations (UN) and the Organization for Economic Co-operation and Development (OECD) have sponsored work addressing accounting for sustainability (Kee & Dehaan, 2012; Bebbington, 2002). The environmental accounting is the most evolved form of sustainability accounting and increasingly processed in the academic circle beginning with the work of Robert Hugh Gray in the early 1990s, and through the release of the Sustainability Accounting Guidelines at the World Summit on Sustainable Development in 2002 (Lamberton, 2005). 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 business, wind, solar energy, thereby reducing the ecological and environmental hazards and risk emanating from the use of fossil fuel and nuclear energy in Nigeria.

Adams (2006) points out that many companies are adopting new methods and techniques in their financial disclosure and information about the core activities and the impact that these have on the environment. As a result of this, stakeholders, suppliers and governmental institutions want a better understanding of how companies manage their resources to achieve their goals to accomplish sustainable development.

According to common definitions, there are three key dimensions of sustainability. Every dimension focuses on different subsets. According to Ernest and Young (2011), they are:

<u>Environmental factors</u>	<u>Social</u>	<u>Economic</u>
❖ energy	❖ Community investment	❖ accountability/transparenc y
❖ water	❖ working conditions	❖ corporate governance
❖ greenhouse gases	❖ human rights and fair trade	❖ stakeholder value
❖ emissions	❖ public policy	❖ economic performance
❖ hazardous and non hardous waste	❖ diversity	❖ financial performance
❖ recycling	❖ safety	
❖ packaging	❖ anticorruption	

As a result of the triple bottom level (TBL) reporting (as coined by Elkington, 1997), and in order to render and guarantee consistency in social and environmental information, the Global Reporting Initiative (GRI) was established with the goal to provide guidelines to organizations reporting on sustainability. In some countries, guidelines were developed to complement the GRI. The GRI states that “reporting on economic, environmental and social performance by all organizations is as routine and comparable as financial reporting (GRI, 2013). The diagram below is the scheme of sustainable development, at the confluence of three constituent parts.



**Source:** Adams (2006).

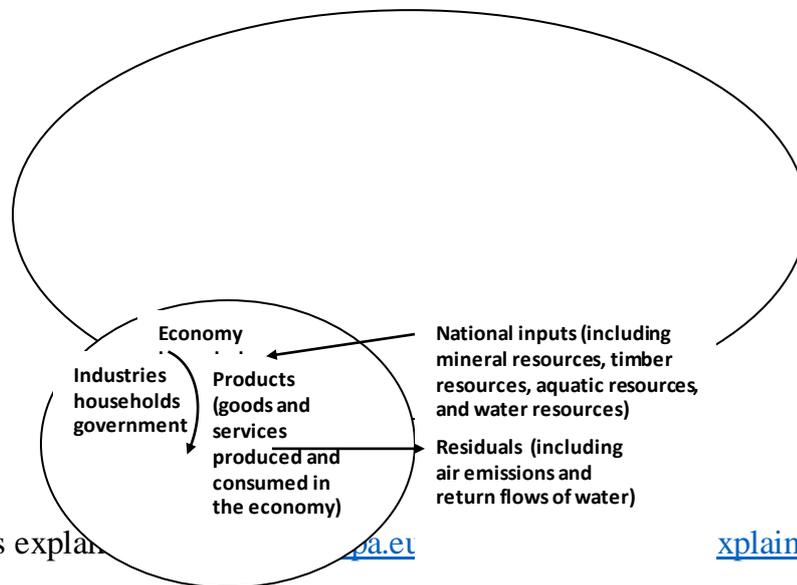
### **Environmental Accounting**

Environmental accounting continued to grow along the live of financial accounting and dealt with the institutionalizing environmental concerns (Christmann, 2000; Fussel & George, 2000), disclosure practices (Llena, Moneva & Hernandez, 2007; Robkob & Ussahawanitchakit, 2009; Singh & Joshi, 2009), financial performance (Gadenne, Kennedy & Mc Keiver, 2009; Moneva & Ortas, 2010), assurance procedures (Dixon, Mousa & Woodhead, 2004; Ozbirecikli, 2007) etc, as cited in (Afzal, 2012). One of the early literatures, according to Afzal (2012), on the subject was the primer issued by USEPA (1995), wherein environmental accounting was used as a common term to advance the cause of environmental responsibility through accounting.

Environmental accounting, according to Irish-times (2000), covers information relating to all aspects of the environment. It includes environment-related expenditure, environmental benefits of products and details regarding sustainable operations. 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. According to Yakhou and Dorweiler (2004), as cited in (Beredugo & Mefor, 2012), companies are expected to engage in environmental accounting to: reassure consumers that they take their responsibilities seriously, comply with national guidelines, comply with financial reporting requirements, and express the company’s environmental concerns and communicate them to a range of stakeholders.

Environmental accounts are a multipurpose data system encompassing a conceptual framework and tables which describe the interrelations between the economy and the environment in a way that is consistent with the national accounts (<http://ec.europa.eu/eurostat/statistics-explained>). For instance, according to eurostat, they shed light on the amount of pollution produced by industries and households and allow a comparison with the employment and value of output produced by these sectors, or with the

expenditure and value of output produced by these sectors, or with the expenditure made by these sectors to avoid pollution. Policy makers therefore, can use this information to decide where it is most efficient to act.



Sources: statistics explained (2016) [www.unctad.org](http://www.unctad.org) (2016) explained).

Beredugo and Mefor (2012) point out that the following are generic environmental issues identified by the UNCTAD as impediments to sustainable development:

- i. global warming contribution
- ii. energy use
- iii. water use
- iv. ozone depleting substances
- v. materials usage

**Global Warming Contribution:** The amount of greenhouse gases (GHG) emissions to air from fuel combustion, process reactions and treatment processes, including carbon (iv) oxide (CO<sub>2</sub>), Dinitrogen (1) oxide (N<sub>2</sub>O), Methane (CH<sub>4</sub>), Hydro compounds and Phosfluoro carbons (HFCs and PFCs) and Sulfur Hexafluoride (SF<sub>6</sub>) are to be reported in metric tons of CO<sub>2</sub> equivalents in connection with the value added to get the net value added per unit of metric ton contributed to global warming. GHG emissions include CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCS and SF<sub>6</sub> emissions from fuel combustion, process reactions and treatment processes.

**Energy Use:** Energy consumption is a global issue and relevant to all businesses across sectors (Muller and Sturn, 2001) as cited in Beredugo and Mefor (2012). According to them, the total energy consumed equals energy purchased or obtained (e.g coal, natural gas) minus energy sold to others for their use (e.g electricity, steam). The definition agreed for general applicability relates solely to energy consumed and transformed on site, which means that electricity companies would report the purchased energy amount and subtract energy sold, keeping generation and transfer losses as part of their consumption (Beredugo & Mefor, 2012).

**Water Use:** Water consumption is the sum of all fresh water purchased from a water supplier or obtained from surface or ground water sources. Fresh water includes water used for cooling purposes even if there is no physical contact to process materials (UNCTAD, 2003). The sum of all fresh water purchased from public supply, or obtained from surface or ground water sources (including water for cooling purposes) are expected to be reported in cubic meters (Beredugo & Mefor, 2012). According to

them, the net value added per cubic meter got through the ratio of total cubic meter of water consumed over value added as the case may be.

**Ozone Depleting Substances:** Ozone depleting substance (ODS) emissions are a global concern defined in the Montreal Protocol which lists the groups of gases that are contributing to the effect and describes their impact potential (Beredugo & Mefor, 2012). This issue has relevance across business, even though the markets of the most dangerous gases have been strongly reduced and less harmful alternatives introduced. Even though the effect will be visible in the stratospheric ozone layer over many decades or even centuries, the indicator might lose its relevance in the near future, when policies to eliminate ODS from applications continue to be implemented successfully on a global scale (Muller and Sturn, 2011) as cited in Beredugo & Mefor (2012).

**Materials Usage:** According to Beredugo and Mefor (2012), resources such as the sum of weight of all materials (such as catalysts, solvents), pre- or semi-manufactured goods and parts are expected to be reported in metric tons. And the unit of metric ton per net value added disclosed.

### Responses to Environmental Issues

There have been some consensus on environmental issue internationally, some of which are:

- ❖ the 1997 Kyoto Protocol
- ❖ World Bank Global Gas flaring Reduction (GGFR) public- private partnership, 2002
- ❖ 2007 Bali climate Declaration by scientists

In Nigeria, the following initiatives, according to Ayoola (2011), are some of the responses made by Nigeria to safeguard the environment against degradation:

- ❖ Associated Gas Re-injection Act cap 26, LFN 1990 and its attendant
- ❖ The oil in Navigable Waters Act Cap 331, LFN 1990 and its attendant regulations.
- ❖ The oil terminal Dues Act Cap 339, LFN 1990
- ❖ The Federal Environment Protection Agency Act cap, 131 LFN 1990
- ❖ Statement of Accounting Standards (SAS) 14 and 17 which regulate both the upstream and downstream sectors of the petroleum industry
- ❖ Companies and Allied Matters Act (CAMA) 1990
- ❖ Security and Exchange Commission (SEC) code for Corporate Governance, 2008
- ❖ Nigerian Gas master plan, 2008 which is a guide for the commercial exploitations and management of Nigeria's gas sector aimed at growing the economy with gas.
- ❖ Gas flaring Act, 2012.

### Impact of Environmental Accounting on Sustainable Development in Nigeria

The accounting professions focus has largely been confined more to the short-term accounting for environmental impacts of a company on its environment, and even these effects have not been without criticism (Gray, 2010). Little attention has been given to the broader question as to how the accounting function and profession can assist with evaluating the larger threats long term from environmental damages such as damage to terrain, air water, noise, visual and aesthetic and other forms of pollution, and solid-waste production.

Environmental accounting linking the environment and financial performance can be used to forecast the impact of environment issues on future financial performance, thereby creating room for making informed investment decisions (Beredugo and Mefor, 2012). The environmental accounts allow the bringing together, in a single accounting framework, of information on a range of natural resources (for example water, minerals, energy, timber, fish, oil, land and ecosystems) and human activities (e.g. pollution and waste, production, consumption and accumulation). UNCTAD (2003), posit that

environmental accounting enable organizations to track their environmental data and other greenhouse gas (GHG) emission against reduction targets, and facilitates environmental reporting to provide sustainability related data that is comprehensive, auditable, and timely to advance and strengthen the interdependent and mutually reinforcing pillars of sustainable development- economic development, social development and environmental protection in Nigeria.

Environmental accounting enhances the quality of decision-making, requiring organizations to establish a baseline (standard) of its greenhouse gas emissions, energy usage, resource usage and other key environmental indicators, and set reductions targets and a realization of the importance of changing unsustainable consumption and production patterns alongside protecting and managing Nigerian natural resources. These accounting information are necessary for accountability, comparability and probity; and when not made available, could be tantamount to being bias, non-transparent, fraudulent, and liable to risk; which could dissuade patronages from consumers, suppliers, investors, surrounding communities and possible sanction from government who are becoming conscious of organization's contribution to sustainable development (Beredugo & Mefor 2012). 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 emanating from the use of fossil fuel and nuclear energy in Nigeria (Esan, 1998). Beredugo and Mefor (2012) was of the view that shareholders increasingly require companies to manufacture goods efficiently and at competitive prices without harming the environment. The aim is to enhance sustainable development by reducing the environmental impact while increasing the value of an enterprise, satisfying human needs, contributing to the quality of life and resource intensity through environmental performance reporting occasioned by the ratio between an environmental variable and a financial variable that measures the environmental performance of an enterprise with respect to its financial performance.

## Conclusion

This paper has examined the impact of environmental accounting on sustainable development in Nigeria. Efforts to experiment this new area of corporate reporting in a developing country such as Nigeria is encouraging. In conclusion, it may be said that the efforts made by Nigerian companies to make environmental disclosures deserve appreciation, but in most cases, the quality and quantity of disclosures are not satisfactory as environmental accounting has positive impact on sustainable development in Nigeria.

## Recommendations

The following are the recommendations based on the findings of the study:

- ❖ A standard should be developed by regulatory bodies to guide the practices of Environmental Accounting.
- ❖ There should be encouragement of research and studies in the field of environmental accounting.

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