**Environmental Accounting And Performance Of Petroleum And Communication Firms In Nigeria (2012-2022)**

***Abstract***
*This study examined the effect of environmental accounting and performance of petroleum and communication firms in Nigeria.* It was necessitated by the fact that petroleum and communication firms in Nigeria needs to implement appropriate environmental costs accounting that will help stakeholders in taking economic decision and by extension, create an improvement in the firms' performance. *The broad objective of this study is to investigate the environmental accounting and performance of petroleum and communication firms in Nigeria. Ex- post facto research design was adopted. The population of the study consists of nineteen (19) petroleum and communication firms in Nigeria. Out of the nineteen (19), ten (10) firms were randomly chosen as a sample based on the meeting of requirements of the Nigeria exchange group (NGX). Four (4) Communication firms and six (6) petroleum firms. Time series data were gathered from the annual reports and financial statements of particular petroleum and communication firms. Multiple regression analysis and SPSS Version 26 were used in the analysis. This implied that the null hypothesis was accepted, implying that Community development Cost does not significantly affect return on assets of petroleum and communication firms in Nigeria. The EHSC has a beta coefficient of 100019 and a p-value of 0.3735 which is greater than the significance level at 5%. It means that happy and healthy workforce will lead to increase in productivity and by extension increase financial performance of firms concerned. Based on these results obtained we accept $H_0$ and reject $H_1$. We found that community development cost does not significantly affects Return on Assets of listed petroleum and communication firms in Nigeria; and that a happy and healthy staff would enhance production and, by extension, increase the financial performance of firm concerned. Based on the findings, we recommend, among others, that Nigerian petroleum and communication sectors should invest in community development initiatives to foster positive connections with local community and minimize unemployed youths.*

**Keywords:** Sustainability reporting, Environmental Disclosure, Oil Spillage, Corporate Social Responsibility

## 1. INTRODUCTION

Environmental accounting has become an essential component of business reporting as stakeholders increasingly demand transparency on environmental performance. Nigeria's petroleum and communication sectors have important environmental impacts. However, the advent of the factory system of production has led to an over use of the environmental natural resources, including energy, water, air, and materials. Waste produced by the utilization of these natural resources needs to be disposed of with the possible ingredients. The final disposal of wastes contributes to degradation of the environment in many parts of the world, where pollution levels have already risen to terrifying levels (Bassey et al., 2013). Environmental accounting is a branch of accounting that involves the identification, measurement, recording, and communication of environmental costs, benefits, and impacts associated with a company's activities. It aims to integrate environmental information into financial reporting and decision-making processes. This study used community development and environmental health and safety as proxies for environmental accounting. Community development, according to Green and Haines (2015), is a deliberate attempt to create resources that enable locals to enhance their standard of living. These

resources could be in the form of human, financial, social, political, environmental, or cultural, among other types of community capital.

Environmental health and safety pertain to safeguarding and advancing the mental and physical health of workers in an organization (Holt, 2002). A workplace disaster has an impact on the company, society, and the injured worker. These comes in form of absent at work hours which comprises sickening pay towards the wounded worker designed for the firm get little value for their labour in return, loss of operational assets (i.e.) consumable materials in view of the events (Rikhardsson, 2014). Costs incurred in protecting the health and safety of employees, particularly those associated with environmental security, are referred to as environmental health and safety costs (EHSC).

Petroleum activities are activities associated with the different stages of the petroleum industry. These activities include the processing of natural gas, the production, and refining of petroleum, marketing, and transportation of petroleum and petroleum products, or both. The worldwide processes of exploration, production, refining, transportation (often via oil tankers and pipelines), and marketing of petroleum products is all involved in the petroleum industry, often known as industry for oil and gas. The Sectors within the Industry are three segments: upstream, midstream, and downstream. While upstream companies focus on investigation and creation, midstream companies manage the transportation and storage of oil and gas, while downstream companies handle the refining and sale of the extracted products.

Electronic communication, according to Alabi (1996), is the process of sending messages across the world via a computer, a phone connection, and a modem. Radio, television, landline and mobile phones, as well as internet communications, are all part of communications. The Nigerian Communications Commission, the country's communication regulator, oversees the network providers in Nigeria (NCC) are 9mobileCourtevill, Globacom, MTN, and Airtel Nigeria. The Nigerian Communications Commission (NCC), which was founded in accordance with the Nigerian Communications Act (NCA) 2003, was tasked with establishing standards for telecommunication services in Nigeria, encouraging competition, and regulating the supply of services and facilities related to communications.

**1.2 Statement of the Problem**

Nigeria is a major oil producer that contributes to the country's Gross Domestic Product (GDP), government revenues, and export earnings. Moreover, it is a major source of environmental challenges that has caused problems like oil spills, gas flaring, and pollution, which have harsh impacts on local ecosystems and communities and very harmful to the environment and people's health, while the communication industry is growing fast, with many people using mobile phones and the internet. However, this growth leads to high energy exploit and lots of electronic waste, which can be harmful if not managed properly. As a result, businesses frequently fail to appropriately analyze environmental expenditures, most likely as a result of the small amount of money set aside for environmental initiatives. Inappropriate allocation of environmental costs and cross-subsidization of costs to one product or process by another result from inadequate accounting and disclosure of these costs, improper accounting for the volumes and amount of lost raw materials, the real lack of relevant and major environmental expenses in the firms' accounting records, and the flow of costs from overhead accounts back to processes and products. The penalties are: poor community development programs, poor environmental health and safety

budgets, lack of cordial relationship between petroleum and communication firms and their host communities, mistrust and agitations by stakeholders. In the light of the above, petroleum and communication firms in Nigeria needs to implement appropriate environmental costs accounting that will help stakeholders in taking economic decision and by extension, create an improvement in the firms' performance. This study is prompted by this development to examine the effect of environmental accounting on how Nigerian communication and petroleum firms are performing.

### 1.3 Objectives of the Study

The broad objective of the study is to investigate Environmental Accounting on Performance of Petroleum and Communication Firms in Nigeria. Specific objectives of the study are:

i To assess the effect of Community development cost on return on assets of Petroleum and Communication Firms in Nigeria.

ii. To determine the extent to which Environmental health and safety costs affect return on assets of Petroleum and Communication Firms in Nigeria.

### 1.4 Statement of Hypotheses

The researcher formulated the following hypotheses in their null form to guide the study:

i. Community development costs does not have a significant effect on the return on assets of petroleum and communication firms in Nigeria.

ii. Environmental health and safety costs do not have a significant effect on the return on assets of petroleum and communication firms in Nigeria.

## 2 REVIEW OF RELATED LITERATURE

### 2.1 Conceptual Review

**Environmental Accounting**

"Environmental Accounting is the provision of environmental performance related information to stakeholders both within and outside an organization" (Johnson, 2004). It generates environmental information for management decision-making on pricing, limiting overhead, and capital planning. It also offers reports for external usage, revealing environmental information of public and commercial importance. According to Bebbington (2006), Environmental Accounting provides details of the economic role of the natural environment. The author stressed that the statistics show the costs associated with pollution and resource deterioration as well as the contribution of natural resources to economic well-being.

Henri and Journeault (2010) noted that companies in present civilization use energy, water, materials and other resources in the process of production. "However, the materials are ultimately a waste that pollutes the surrounding environment and damages human health and other ecosystems such as plants and animals. Also, the remaining uses of products and packaging that are discarded by consumers also damage the environment. The impact of these industrial activities does not only constitute pollution to the environment, but also damage the earth surface and vegetation, constitutes precipitation on water surface and leads to animal migration and disappearance of animal species. In addition, it also impacts the local communities that depend on the environment to obtain food and clean water. Depletion of natural resources that cannot be renewed or later updated is also a serious problem.

In order to manage and reduce the environmental impact of products and production processes, the companies must have accurate data on the number and objectives of all energy, water and materials used." They should know how much of the resources are used, how they become the final products and how they become waste. The type of accounting records used to achieve these objectives is the environmental accounting. According to Fasua (2011), "Environmental accounting identifies, assesses and measures the important aspects of the company's socio-economic activities in order to maintain the quality of environment in accordance with the objectives so that the company cannot process resources

without paying attention to its impact on society. The scope of environmental accounting is very wide and classified in many ways depending on the use".
According to the United Nation Environmental Agency (1995), "an important function of environmental accounting is to bring environmental costs to the attention of corporate stakeholders who may be able and motivated to identify ways of reducing or avoiding those costs while at the same time improving environmental quality".

**Environmental Cost**
Seetharaman et al. (2007) asserted that Environmental concerns have created market opportunities for businesses, while external factors like law and public concern have forced them to include environmental issues into their strategic planning process. As a result, among the many various costs that businesses face when delivering goods and services to their clientele are environmental costs. These are costs associated with the provision of products, process, system or facility. However, it may not always be clear whether a cost is "environmental" or not since some cost, fall into a gray zone or may be classified as partly environmental and partly not. The classification a firm gives to its cost depends on how the firm intends to use the information to ensure that relevant costs receive appropriate attention.

Chron (2020) "when business operations cause significant environmental damage, the costs of recovery may be great enough to cause the firm to fail because it may bring about lawsuits that may take years to close. Again, trying to manage environmental costs on the spur of the moment may lead to a serious mistake that will cause significant damage to the environment. In view of this, effective planning is best accomplished through the efforts of well-designed teams that have the resources available to research all of the possible ramifications of every action the firm may take over the next year, and maybe over the next five years. Environmental planning includes making assessments, studies, evaluating safety features and cost evaluations. Once all of the possible environmental ramifications have been considered, an accurate determination of how much environmental impact will cost can be successfully determined".

**Community Development Cost**
According to Green and Haines (2015), "defined community development as a planned effort to build assets that increase the capacity of residents to improve their quality of life. These assets may include several forms of community capital: physical, human, social, financial, environmental, political, and cultural. Thus, community development cost is the costs incurred in community development. Programs are often developed and delivered in partnership with participants and stakeholders such as, organizations, individuals and agencies with a stake in the existence and content of programs and the resources that support these programs. Target audiences for Community Development programs include local government officials, economic development professionals, other public officials, the wide array of other local leaders, small businesses and industries, community-based organizations and the general public. Educational programs addressing community needs and opportunities may include local leadership training, economic development, public policy issues education, community planning, the concepts of shared decision-making and consensus building, and process design. Community & Economic Development Programs help community leaders understand social decision-making processes and make informed decisions based on research".

Onyekwelu and Ekwe (2014) argued that Corporate Social Responsibility tends helps to ease the tensions and antagonism that firms typically face in their communities while also helping them to survive and preserve their profitability. Thus, organizations as corporate citizens are needed to provide contributions to society, particularly the areas in which they operate. Thus, community development aligns with the philanthropic expectation placed on organizations at any given time.

Oti *et al.* (2017) "opined that community development is anchored on firm's initiative at cushioning the effect of their externalities on the host communities. Disclosure on community developments costs depict a firm in good light and convince stakeholders that an organization performs its operations ethically."

Chiamogu and Okoye (2020) said that businesses are encouraged by social duty to strike a balance between profits and environmental stewardship. According to Etale et al. (2021), the concept of community development arose from the idea of social duty, and these expenses represent sacrifices made on behalf of society. Both inside and outside of the host communities are responsible for community development costs (CDC). Examples of these expenses, as stated by Nwambeke et al. (2019), are building or renovation of schools, building of hospitals, construction of roads, and so on.

**Employee Health and Safety Cost**

Holt (2002) described employees' health and safety as the Ensuring and advancing the physical and mental well-being of employees inside an organization is crucial. It is one of the fundamental problems being dealt with in relation to the sustainability performance of businesses. This entails creating and implementing health and safety plans, monitoring and reporting performance concerns to internal and external stakeholders, and doing most other management functions as well. Disregarding safety and health can have high costs. Consequences like workplace accidents result in financial losses for the companies involved as well as for the personnel concerned and to the society (e.g. health care and loss of man-hours of work). For any environmental protection plan to be effective, it must be understood and accepted by those who must implement it. Best results are normally obtained by establishing a formal training program for employees who make decisions that can impact the environment.

Dorman (2000) explained that it seems logical that health and safety costs might be avoided if these accidents could be prevented. Preventing occupational accidents should therefore make good economic sense for society as well as being good business practice to companies. Occupational accidents are generally defined as unforeseen sudden events that result in a physical injury to an employee.

Rikhardsson (2014) emphasized that "health and safety costs include a number of diverse issues but can be classified into two overall categories: First, it is the costs of running health and safety management system and the initiatives associated with promoting and securing health and safety in an organization. These costs are usually relatively stable as they do not vary with the occurrence of negative events such as occupational accidents and work-related illness. The second is the costs of the consequences of occupational accidents or work-related illnesses. However, these costs can be in the form of direct expenditures, rise in existing costs, and potential reduction in income as well as opportunity costs. These costs vary with the type and number of occurrences of negative health events in the organization. The often-stated reason for measuring health and safety costs is that if these costs are made explicit, then this will motivate managers to take health and safety issues into account in their decision making. That is to say health and safety issues will become more business related and affect management decision making to a larger extent."

Amahalu *et al.* (2017) opined that "employee health and safety cost is a getaway for employees to learn additional skills and knowledge and to reinforce quality work practices which will result in a change in workplace behavior Effective staff training can prevent and replace workplace mishaps while also boosting productivity, knowledge, and confidence. The function of health and safety is to safeguard and promote the physical and mental well-being of those who work for the organization."

The expenses incurred to ensure the health and safety of employees, particularly those related to environmental security, are referred to as environmental health and safety costs (EHSC) (Chinedu et al., 2019; Chiamago & Okoye, 2020). Oshiole et al. (2020) asserted that health and safety include establishing and carrying out health and safety plans, monitoring and reporting performance concerns to internal and external stakeholders. Workers in the petroleum and communication industries are subjected to environmental contamination and other health risks associated with the environment while conducting business. As such, companies are required to make provision for health and safety of their employees. Provision for employee safety affects the net income of companies hence; employee safety costs as component of total costs is expected to have negative impact on the profitability of oil and gas/communication companies. Ignoring health and safety can be expensive as the consequences of occupational accidents costs a lot of money to the companies, the employee and the society.

**Corporate Performance**

Sohail *et al.* (2011) stated that the performance of a firm is determined by the capacity of a business to generate profits from investments made in assets with positive net present value. It should be emphasized, nonetheless, that a financial decision with a positive net present value is preferable because it will boost shareholder value. Financial decisions that put shareholders' money at risk should be abandoned if they have a negative net present value.

Hill *et al.* (2012) said that a company's performance is measured by its capacity to create revenue greater than what it costs to do so. “Essentially, the performance is a relatively measure in terms of profit and its relation with other elements that can be directly influence the profit. Moreover, performance can be used to evaluate the effectiveness of management in utilizing organizational resources to increase the company's value”.

Yalcin *et al.* (2012) “opine that finding a measurement for performance of firms facilitates comparison of firm's performances over time and across firms. However, no specific measurement with the ability to measure every performance aspect has been proposed to date. However, traditional accounting based indicators are the most common used financial ratios in the performance evaluation that are usually related to profitability. Financial ratios from statement of financial position and income statement are considered as critical measurement tools in determining firm performance. Financial performance concept is considered under different meanings such as productivity, returns, economic and output growth.”

Ramiz and Junrui (2014) asserted that performance as the measurement of what have been achieved by the company which shows good condition for certain period of time. “Therefore, the purpose of measuring performance is to obtain useful information relating to flow of funds, the use of funds, effectiveness, and efficiency. Besides, the information can also motivate managers to make the best decision. Thou, Firm's success is basically explained by its performance over a period of time. Performance is the achievement of tangible, specific, measurable, worthwhile and personally meaningful goals. It is the ability of an organization to gain and manage the resources in several difference ways to develop a competitive advantage”.

Kiaritha (2015) argued that quantitative standards for evaluating financial performance include profitability measures like earnings for the year, gross margin, net profit margin, and economic value added return on investment of capital utilized, return on equity, and return on sales. Cash flow is one of the additional performance measurements of measures such as free cash flow over sales and growth measures. Ideally, forward-looking measures such as expected profitability, cash flow and growth should be used to measure a financial performance.

**Return on Assets**

Klapper and Love (2002) "defined return on assets as a profitability ratio that indicates management performance in using the firm's total assets to generate returns; indicating how well a firm is performing by comparing the profit it is generating with the capital engrossed on material possessions. Increased earnings indicate a more efficient and successful use of financial assets by organization."

Haniffa and Huduib (2006) investigated that "return on assets as an indicator of how profitable a firm is relative to its total assets. Return on assets gives an idea as to how efficiently management is using its total assets to generate earnings for the firm. On the other hand, it is computed by dividing the yearly profits of a company by its entire assets. Return on assets is usually given as a proportion and a gauge is such that the greater t return on assets, the more effective management uses the firm's total assets to the advantage of the shareholders. Clarkson et al., (2008) state that, the most used accounting measure of financial performance is return of assets. Moreover, return on assets tells you what earnings were generated from invested capital and in public companies it can vary substantially and will be highly dependent on the industry. This is why when using return on assets as a comparative measure, it is best to compare it against a company's previous return on assets numbers or the return on assets of a similar company."

Nixon and Stoeber (2011) "described that profitability measure is the ultimate test of managements operating effectiveness and success of a firm. Return on asset is, therefore, one of the best measurements of efficiency in order to assess the firm's performance. It had been widely used as a measurement of profitability and it reflects the ability of management to generate income on a given amount of total assets. It is one of the popular profitability measures, which is a ratio between earnings after tax and total assets."

Hargrave (2021) also "described return on assets as a profitability ratio that indicates how profitable a company is relative to its total assets. Therefore, return on assets gives a manager, investor, or analyst an idea as to how efficiently a firm's management is at using its assets to generate earnings for the firm. Return on assets is calculated by dividing profit for the year with average total assets of the firm".

$$\text{Return on Assets} = \frac{\text{Profit for the year}}{\text{Firm's Total Assets}}$$

**Petroleum activities**

Nigerian National Petroleum Corporation, (2022) also explained that petroleum industry also known as the global processes of petroleum product exploration, extraction, refining, transportation (often via oil tankers and pipelines), and marketing are together referred to as the oil and gas industry or the oil patch. The effects of petroleum activities on the environment can be seen in water pollution from oil spills and byproducts of refining, air pollution from the emission of volatile organic compounds, greenhouse gas emissions from fossil fuels, and health issues experienced by some company stakeholders.

"Accident prevention and abatement of potential hazards (Health and Safety) at the retail outlets are provided for in the Mineral Oils (Safety) Regulations 1997, Petroleum Regulations 1967, and the Petroleum Refining Regulations 1974. Activities at the retail outlets include tank vehicle discharge of petroleum products, retailing of the products through pumps and dispensers, automobile service, car wash and super markets. The sources of pollution that have been identified with retail outlets include: (i) Spills arising from the sales of petroleum products as a result of overfilling of fuel tanks of automobiles and boats (ii) Used engine oil (automobile drain oil or waste oil) generated from automobile services; (iii) Leaks from underground storage tanks due to corrosion, accident to the

vehicle tanker during product discharge, oil spillage and usage of inferior construction material; (iv) Sanitary wastes; (v) Drainages from car wash and storm water, and (vi) Refuse".

**Communication Activities**

Communication firms, have an environmental footprint related to energy consumption, e-waste management, and resource extraction for electronic devices. Concurrently, the communication sector is a driver of innovation and connectivity, fuels societal progress. Yet, the acceleration of digitalization is paralleled by electronic waste accumulation, energy-intensive data centers, and concerns about the sector's carbon footprint. The inherent contradiction between technological advancement and environmental preservation necessitates a strategic approach to ensure that modernization doesn't come at the expense of environmental well-being. (Website).

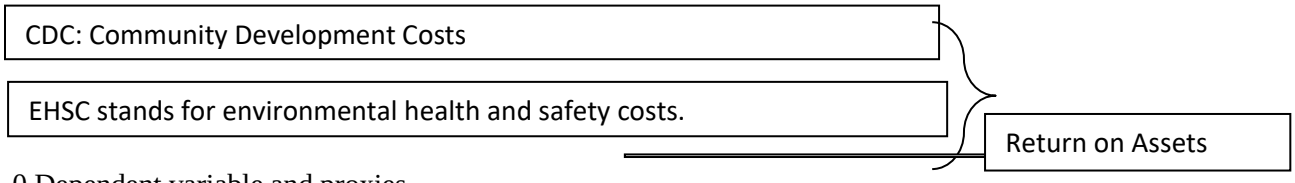
According to Alabi (1996) "electronic communication is the process by which messages are sent across the globe through the use of the computer, telephone line and a modem. Also, it involves any of the several forms of information exchange between two or more computers through any of several methods of interconnection such as telephone line, optical fiber, satellite or radio. Unlike the fax system which allows one page of text to be transmitted at a time, electronic communication facility allows several pages to be processed off-line and through a single dial allows the pages to be transmitted to a gateway for distribution to several destinations. Thus stressing that, modern means of communication is rapidly spreading worldwide in view of its fast, reliable and inexpensive form of communication".

However, the use and operation of mobile phones and base transceiver stations have brought the incidences of electromagnetic radiation closer to human beings. The Proliferation of antennas installed by Global System for Mobile communications (GSM) operators and microwave equipment by their Code Division Multiple Access (CDMA) counterparts and other telecoms services firms have been condemned by environmentalist not only because it distorts environmental esthetics but also raises health concerns for people using mobile phone or living close to base transceiver stations due to the attendant exposure to electromagnetic radiation (Fayemi, 2022).

However, Telecommunications involves radio, television, fixed and mobile telephones and the internet communications. Mobile phone services are growing rapidly, partly as a result of the inadequacies of fixed-lines and the deregulation of the mobile phone market led to the introduction of Global System Mobile Communication (GSM) network providers. In Nigeria, the network providers operating under the Nigeria's telecom regulator are the Nigerian Communications Commission (NCC) are the MTN, Airtel Nigeria, Globacom and 9mobile. The Nigerian Communications Commission (NCC) established under the Nigerian Communications Act (NCA) 2003, were charged with the responsibility of regulating the supply of telecommunications services and facilities, promoting competition and setting standards for telecommunication services in Nigeria. However, the use and operation of mobile phones and base transceiver stations have brought the incidences of electromagnetic radiation closer to human beings.

**2.1Conceptual structure**

The conceptual framework of this study explained the links between the variables for environmental accounting and corporate performance.




0 Dependent variable and proxies

**Source:** Authors' compilation 2024

## 2.2 Theoretical Review

The study was supported by two environmental theories, namely: the Legitimacy Theory developed by Dowling and Pfeffer in 1975, and the Stakeholders' Theory propounded by Edward Freeman in 1984.

### Legitimacy theory

This theory by Dowling and Pfeffer (1975) is based on assumption and perception that companies irrespective of sectorial background or size; whether Small, Medium or Large-scale organizations is an entity of its own substantially involved in sustainability accounting generally, for the reason of improved corporate performance benefit derivable through reputation and cost reduction policies. When communities discover that the entities' values are not matching the society's environmental values, it is deemed as an infringement on societal contract and consequent upon this, the entity's going concern may be threatened (Milne & Pattemn, 2002). Entities that contravene societal contract attempt to restore it by disclosing positive environmental reports. Entities that are not in breaking of societal bond are required to disclose their environmental practice on a constant basis to guarantee good legitimacy. The more lucrative entities are, the more they are expected to be more environmentally responsive. This theory is consistent with the assertion that entities that are lucrative, are in place to provide for environmental disclosure cost.

### Stakeholders' Theory

Stakeholders' Theory view organizations as a system that accommodates not only the interest of the owners but also the interests of other groups within the environment which the organization operates. It emphasized that to maintain fairness, an organization must meet the expectations of stakeholders. In this context, a stakeholder is defined broadly as "any group or individual who can influence or is influenced by the achievement of the organization's objectives" (Freeman, 1984).

Freeman (1984) argued that "since organizations cannot operate and exist in isolation without relating with its immediate environment then the interest of other stakeholders like employees, customers, suppliers and host community might be considered in the process of strategic decision making. Therefore, the main argument of the theory, as pointed by Lawal (2011), is that organizations should not only maximize the returns of shareholders alone, but also the expectations of other stakeholders should be considered.

Finally, the theory argued that for a firm to achieve effective performance in the market, cordial relationship must exist between the firm and the stakeholders and the firm board should be large and diversified enough to accommodate the interest of other stakeholders. The stakeholder's theory proposed an increased level of environmental awareness which creates the need for companies to extend their corporate planning to include the non-traditional stakeholders like the regulatory adversarial groups in order to adapt to changing social demands as in Malarvizhi and Yadav, 2008.The main concern of the stakeholders' theory in environmental accounting is to address the environmental cost elements and valuation and its inclusion in the financial statements. Therefore, this study focused on communication, environmental accounting, and petroleum company performance firms in Nigeria, in view of the direct relevance of Stakeholders' theory to the study variables, the study will be anchored on the Stakeholders' theory."

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## 2.3 Empirical Review

### Community Development Cost and Return on Assets

Uwuigbe et al. (2011) evaluated how much information on corporate social responsibility is released by environmentally conscious companies in Nigeria. Thirty (30) firms that were listed on the Nigerian Exchange Group between 2006 and 2010 were included in the study. In order to measure the quantity of information revealed by businesses in their corporate annual reports throughout that time, the study also created and employed a disclosure index. The revised data that was collected for the study was analyzed using regression analysis. The results of the investigation indicate a strong relationship between the degrees of corporate social responsibility disclosure among Nigerian listed companies. The analysis equally detected that environmentally visible firms disclose more environmental information in their yearly reports to validate their activities and prevent political expenses resulting from public examination.

Uadiale and Fagbemi, (2012) sampled 40 listed firms in Nigeria and determined whether Financial performance and corporate social responsibility were connected. Return on assets and return on equity served as the dependent variables and financial performance metrics. The sampled firms' published annual reports provided secondary data, which was then analyzed using Pearson Product Moment Correlation Analysis. The data analysis's conclusions show that there is a strong and positive correlation between return on equity and return on assets as well as corporate social responsibility. The study's recommendation, based on these results, was that Nigerian corporate organizations engage in CSR initiatives to improve their brand and image and, as a result, boost stakeholder returns.

Bassey *et al.* (2013) examined the impact of environmental accounting and reporting on organizational performance of oil and gas firms operating in Niger Delta region of Nigeria. The study employed correlation analysis to examine the data that was gathered. The analysis's conclusion shows a statistically significant correlation between environmental costs and a company's profitability. The study came to the following conclusions to ensure dynamism and compliance to meet environmental and situational needs, accounting standards should be published both locally and internationally and reviewed on a regular basis. Businesses should also adopt a uniform reporting method and disclose environmental issues in order to control and measure performance.

The Ifurueze et al. (2013) looked at the effect of green costs on business concert. The study examined oil sectors in Nigeria's Niger Delta states and used returns on total assets (ROTA) as a performance measure. In the study, multiple regression analysis was investigated. Waste management costs (WMC), employee health and safety costs (EHSC), and community development costs (CDC) were the three measures of sustainable business practices that were employed. According to the study, EHSC has a positive significant link with corporate performance, WMC is statistically significant but adversely associated to corporate performance, and CDC is statistically significant but negatively related to company concert. The results demonstrated that investing in environmental and social duties, such as paying for employee health and safety, will probably increase the return on total assets of the employee health and safety cost will likely improve return on total assets of the environmentally conscious firms. The study recommended that management of oil companies in the Niger Delta States of Nigeria should develop a well-articulated environmental costing system that will guarantee a conflict free corporate atmosphere needed by managers and workers for maximum productivity and eventually improve corporate performance.

Beredugo, (2014) opined the effect of social responsibility and environmental accounting on the earnings potential of particular manufacturing firms in Nigeria. The study did, however, draw attention to certain environmental costs associated with preventing, mitigating, or restoring environmental harm as well as social costs associated with recognizing an organization's responsiveness to the broader society. Additionally, a focus on determining how well Nigerian businesses adhered to the International Standard of Accounting and Reporting disclosure (ISAR) criteria for environmental accounting and

social responsibility was placed. Through the use of checklists and questionnaires, data were gathered from three Nigerian manufacturing companies. The population t-test, ordinary least square, and multivariate statistics were used to test these data, and the results showed that there is a considerable variation in the compliance level of Nigerian enterprises

Erhinyoja and Marcella (2019) analyze the financial success and corporate social sustainability of the oil and gas industry in Nigeria. Over a ten-year period from 2007 to 2016, data for the study was gathered from the annual reports and accounts of ten sampling enterprises out of 15 listed oil and gas companies in Nigeria. An ex-post facto research design was employed in the study. The data were examined using descriptive measurements and reversion study. Return on equity, return on asset, and return on capital employed were used to gauge financial performance. The findings showed that social sustainability had a detrimental effect on all three performances.

Chiamogu and Okoye (2020) examined the effects of environmental cost on financial performance of oil and gas companies in Nigeria. The specific objectives were to determine the effect of: community development cost and environmental remediation cost on Tobin's on oil and gas companies in Nigeria. Ex post facto research design was employed and data was obtained from annual reports and accounts for the periods 2011 to 2018. The hypotheses were tested using regression analysis with aid of e-view 9.0. The results of the empirical data analysis revealed that community development cost and environmental remediation cost has positive significant effect on Tobin’s. The study therefore recommended among others that government should give tax credit to organizations that participate and contribute towards community development in order to encourage community development and which would go a long way in enhancing firm performance.

Akinleye and Olaoye, (2021) examined community development and the financial results of Nigerian oil and gas companies. Six (6) oil and gas firms were sampled for the research and information were gathered from these companies' published annual reports throughout a ten-year period, from 2010 to 2019.Using panel-based estimating approaches, data were evaluated, and the Hausman test and limited F-test were used to determine which result was the best trustworthy and effective. Result showed that a unit increase in community development cost by 1 billion naira led to insignificant increase in return on asset by 0.7%. By implication this result showed the performance of oil and gas companies in Nigeria was greatly impacted by the rise in the expense of community development as measured in terms of return on asset. The study concluded first that engagement in community development in Nigeria by oil and gas firms has the potential to culminate into improved corporate performance; however, such potential is yet to be fully harnessed by the majority of Nigerian oil and gas companies. Gas and oil follow. Firms in the country, should be more objective in their engagement in community development in the country, so as to further boost their performance potential.

Idamoyibo, (2021) stated that Nigerian oil and gas companies' accounts payable, ecological accounting, and performance during the period from 2009 to 2019. The examined the connection between environmental accounting and reporting standard index and Profit on Asset; the link among Borrowing and Tobin's Q; and the selected Nigerian oil and gas companies' Liquidity and Tobin's Q from 2009 to 2019.The target demographic for this research consists of the twelve (12) oil and gas businesses that are listed on the Nigeria Stock Exchange. The data was taken from the listed oil and gas companies' annual financial reports, and a six-person sampling group (6) of the companies was chosen at random. The study investigates the use of multiple regressions, ordinary least squares, and panel and pool data (cross-sectional data) for data analysis. The findings indicate that there isn't a meaningful connection between ERA and ROA. The findings also indicate a strong correlation among LQT and TOQ. It was also discovered that LVG and TOQ do not significantly correlate. The study's conclusion was that there

is little correlation between the financial statements, environmental accounting, and performance of Nigeria's oil and gas companies.

Hassan and Ogunwole (2022) examined the implications of accounting procedures for grease and air firms' corporate social responsibility. The research used the ex-post factor method also raised two hypotheses. It also used The researchers used the Geometric Platform for Community Scientists (SPSS 23.0) to examine the yearly reports of seven chosen oil and gas companies listed on the Nigerian Stock Exchange over a ten-year period (2010-2019) using content analysis, the Pearson Product Moment Correlation Coefficient, and Simple Linear Regression analysis. According to the research, there is a notable relationship between accounting standards and the CSR disclosure made by oil and gas companies in Nigeria. Additionally, the financial performance of these companies is greatly impacted by the CSR disclosure made by these companies. Therefore, this research recommended that grease and air firms in Nigeria should adopt the best accounting practices recommended by both the local and global financial reports regulatory bodies, so as to ensure the satisfaction of all stakeholders, which in turns would enhance their performance.

**Environmental Health/Safety Cost and Return on Assets**

Schneider et al. (2013) evaluated the level of development of the environmental, health, and safety (EHS) fields in the oil and gas sector, as well as progress toward sustainability. Ten major oil firms were investigated using publicly available data, including their annual reports. When reporting their performance, companies mention voluntary initiatives, but the assessment reveals that the sector as a whole is as the industry matured and made strides toward sustainability, numerous flaws in its management system were found, putting businesses in this sector far from leading the way in EHS management and sustainable production. It is clear from the activities they take that most organizations still employ trailing indications. Although the industry is considered to have a high middle/medium level of EHS management maturity, there are still significant performance discrepancies. This shows that the sector has moved past merely acknowledging sustainability to actively addressing sustainability issues, although there is still work to be done, particularly with regard to process management, spill response, and Clean Air Act compliance.

Magara *et al.* (2015) used survey research design to analyze how environmental accounting affects corporate organizations' financial performance in Kenya's Kisii County. The study's primary variables were the dependent variable, perceived financial performance, and the independent variable, EA application. The 144 accountants and auditors from sixteen (16) corporate entities made up the target population. A stratified sampling strategy was employed, and a basic random sampling technique was utilized to select 49 employees as the sample size from among the 16 firms. A questionnaire was used to gather data that was both quantitative and qualitative. A descriptive statistical analysis was performed on the responses. The findings were presented in tables, charts and graphs. Findings suggest that the perceived financial performance of the corporate organization in general was in good status as perceived by the employees. Analysis of individual perceived financial performance parameters shows that revenue generation has been improving, cash flows were seen to be in a good state and profitability has been on the increase.

Agbo et al. (2017) investigated how Nigerian Brewery Plc's organizational performance was impacted by environmental costs. Return on asset (ROA) is the dependent variable and a gauge of organizational performance, whilst donations, medical costs, training costs, hiring costs, and canteen charges were utilized as the independent variables and measures of environmental cost. Secondary information was gathered from the yearly report and financial statements of the Nigeria Brewery In the years between 2011 and 2015, Multiple Regression Analysis was used to examine the data. The results indicate that

while medical costs and donations are negatively correlated with return on assets, expenses connected to training, hiring, and cafeteria costs have a positive correlation with return on assets.

Nyirenda *et al.* (2018) "examined the impact of environmental management practices on the financial performance of a South African mining firm. The major aim of the study was to investigate whether such practices have a close relationship with the mining firms' financial performance surrogated with return on equity. The approach was a case study of" a South African mining firm listed under the socially responsible index (SRI) of the Johannesburg Stock Exchange. It uses Green-Steel (pseudonym used in place of the real name) as a case study. Using multiple regression analysis, the return on equity of Green Steel regressed on three environmental management practices of Green-Steel (carbon reduction, energy efficiency, and water usage).The result showed that there is no significant relationship between the variables and this lends credence to information gathered from Green-Steel environmental reports that Green Steel's environmental management practices are driven mostly by a desire to abide by regulations and also by a moral obligation to use environmental management practices to mitigate climate change impact".

Oti and Mbu-Ogar (2018) examined the impact of environmental and social disclosure on the financial performance of quoted oil and gas companies in Nigeria. Five years' worth of time-series information were analyzed using the standard lowest-squares analysis approach, from 2012 to 2016. The stakeholder and legitimacy theories, which explain the relationship between organizations and the social/societal strata's need for financial performance and disclosure, served as the theoretical framework's foundation. The statistical analysis's findings showed that financial performance is not much impacted by disclosures about community development and worker health and safety. According to the study, in order to increase firm value, oil and gas businesses should include improvements to employee health and safety in their mission and vision statements. Businesses should also make sure that their host communities continue to grow in order to prevent animosity from stakeholder groups, which could negatively impact operations and ultimately performance.

Umoren *et al.* (2018) "examined the nature of relationship existing between environmental accounting reporting and Oil companies' performance in Nigeria, using eleven (11) quoted oil companies randomly selected from the Nigerian Stock Exchange. The secondary data used were from the audited financial statements (2014-2016) of the Oil companies. Environmental accounting reporting was measured by the costs of air pollution, water pollution, land degradation, staff welfare, community welfare, and litigations. The performance of the Oil companies was measured using return on capital employed (ROCE); net profit margin (NPM), dividend per share (DPS) and earnings per share (EPS). The statistics used in testing the hypothesis was multiple linear regressions. The results of the analysis showed insignificant relationships between environmental accounting reporting and performance variables, that is, return on (P=0.95), earnings per share (P=0.423), and dividend per share (P=0.542)".

Using purposive sampling method, Onuora and Christian (2019) selected seven (7) Nigerian listed oil and gas businesses were examined for the impact of environmental costs on their financial performance. From the sampled firm, secondary data were gathered for the years 2017 and 2018. The data gathered from the firms was analyzed using regression analysis using ordinary least squares. The study's conclusions show that the gross profit margin is not significantly impacted by environmental expenditures. The results also indicate that environmental costs have a major impact on the return on capital used. Given that environmental expenses had no bearing on financial success, the study advised oil and gas company managers to keep racking up environmental-related expenses.

Budiono and Dura (2020) investigated the effect of Green Accounting Implementation on Profitability in Companies Compass Index. The study was conducted to determine the application of green accounting and its impact on company profitability. In this study, the application of green accounting as measured by the Company Performance Rating Program in Environmental Management (PROPER)

on the level of profitability with the ROA (Return on Assets) indicator. Quantitative research methodologies were employed as the research methodology. Using the purposive sampling approach, a sample of 24 companies that match the requirements was selected from the population of 100 Kompas Index companies for the study, which was conducted across two years in 2018 and 2019. Basic regression analysis was done on the data. The study's findings show that the Kompas100 Index Company's profitability is significantly impacted by the use of green accounting.

Xie *et al.* (2022) investigated how Global food sector financial performance is impacted by environmental performance. The study examines the effects of environmental performance on the financial performance of food companies. The sample comprises 6064 food enterprises from 51 different nations. Sales and internal finances were used to gauge financial performance, and the adoption of environmental management standards by the enterprises was the basis for measuring environmental performance. The empirical findings demonstrate that, for the entire sample, sales of food companies had a positive correlation with environmental performance, although environmental performance does not impact internal funds. In subsample analyses, this study found that environmental performance of firms in lower-middle-income and upper-middle-income countries has a more significant impact on sales than firms in high-income countries. Moreover, desirable environmental performance significantly increases the internal funds of food firms in most country groups except for high-income countries. Grouping countries by region, it was found that environmental performance significantly influences sales in all regions except for Africa. However, for internal funds, it is only substantial in Africa. The results also imply the significance of expanding firm size and adopting foreign technology for food companies to achieve better financial performance.

## 3. Methodology

An *ex- post facto* research design was adopted in the study. In order to do the analysis, time series data were gathered from the annual reports and financial statements of particular petroleum and communication firms. This approach enables researchers to investigate phenomena that are difficult or impossible to control, such as historical events, developmental phases, or naturally occurring traits. The findings of this study are as follows: Return on asset, community development costs and environmental health. The study's population comprised of nineteen (19) petroleum and communication companies listed on the Nigeria Exchange group between 2012 and 2022. It was comprised of nine (9) communication firms and ten (10) petroleum firms. Out of the nineteen (19) ten (10) firms were randomly chosen as a sample based on the meeting of requirements, Top Energies Plc, Conoil Nigeria Plc, MRS Oil Nigeria Plc, Eterna Oil, Ardova Oil Plc and Japaul Oil Plc are the petroleum and communication firms are: MTN Nigeria Plc, Airtel Network Nigeria, E-Tranzact Nigeria Plc, and Courtevill Plc.

### Model Details

The model below was developed by the researcher based on the variables of the study and measures of environmental accounting while return on asset is the dependent variable and proxies of performance. Multiple regression model, as shown in the following equations (Ubesie, 2017; Agbo 2017), which defined financial performance as a function of environmental cost. Y is equal to f ($\beta o+1X_i+\beta_2X2+\varepsilon$). By defining return on asset as a function of the dependent variable measured by community development cost (CDC) and environmental health and safety cost as independent variables, Where:

ROA = Return on Assets
CDC = Community Development Cost (Represented by Donations and Charitable gifts)
EHSC = Environmental Health and Safety Cost (Represented by Staff welfare and training costs)
B = Beta
$\varepsilon$ = error terms

## 4. Data Analysis and Result

### 4.1 Data Analysis

The data collected from the nine randomly selected petroleum and communication firms in Nigeria were analyzed using various statistical analyses including, Descriptive statistics, Pearson and multiply regression. In order to achieve the main objective, specific objectives were formulated and secondary data collected from the annual reports and financial statement of randomly selected petroleum and communication firms. The variables are community development costs, environmental health and safety costs, other variable include return on assets. The variables of the study were calculated from the annual report and financial statement.

**Table 1 : Descriptive Statistics of sampled Petroleum and communication Firms**

Descriptive Statistics

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| **CDC_PC** | 11 | 203.57 | 3801.49 | 2137.0800 | 1023.16659 |
| **EHSC_PC** | 11 | 2833.58 | 14296.58 | 6848.4518 | 3166.7769 |
| **ROA_PC** | 11 | -.5620 | 2.3050 | .327818 | .7431058 |
| **Valid N (listwise)** | 11 | | | | |

Source: SPSS 21 output, 2023

The descriptive statistics presents the statistical characteristics of all the observations from petroleum and communication firms examined in the study. These include measures of central tendency, the mean, Dispersion in the series is also indicated using the standard deviation. The results showed that the figures for the individual variable are highly dispersed as indicated by the mean of the variables which were: CDC-PC= 2137.0800; EHSC-PC = 6848.4518; and ROA-PC= .327818.

**Table.2 Pearson's Correlation Matrix of Petroleum and communication firms**

| | | **ROA_PC** | **CDC_PC** | **EHSC_PC** |
|---|---|---|---|---|
| **Pearson Correlation** | ROA_PC | 1.000 | .-569 | -.670 |
| | EHSC_PC | .477 | .394 | . |
| | CDC_PC | 11 | 11 | 11 |
| | EHSC_PC | 11 | 11 | 11 |

Source: SPSS 21 output, 2023

Presented in table 3 is the Pearson's Correlation Matrix, which is one of the preliminary tools for data analysis of the study. One important observation from the Correlation Matrix is that all the independent variables and dependent variable, comprising of Community Development Cost (CDC), Environmental Health Safety Cost (EHSC) The specific results indicate that the relationship between CDC and ROA is negative and statistically strong, the CDC correlation coefficient as observed is -0.569. It was also found that EHSC have a very strong negative relationship with ROA of the firms during the period as indicated with the correlation coefficient of -0.670.

Table 3: **Pearson's Correlation Matrix**

Model Summary

| **Model** | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| **1** | .680[a] | .462 | .103 | .2845833 |

Table.4

| | | B | Std. Error | Beta | | |
|---|---|---|---|---|---|---|
| **1** | (Constant) | .144 | .551 | | .321 | .632 |
| | CDC-PC | 6.280E-5 | .000 | .234 | .210 | .720 |
| | EHSC-PC | -5.561E-5 | .000 | -.473 | -.436 | .821 |

Table 5

ANOVA[a]

| **Model** | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| **1** | Regression | .407 | 4 | .104 | 1.200 | .271[b] |
| | Residual | .586 | 6 | .081 | | |
| | Total | .903 | 10 | | | |

**a. Dependent Variable: ROA-PC**

**Multiple Regression Analysis (Petroleum And Communication Firms) Of The Nigerian Economy**

Table.6

Model Summary

| **Model** | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| **1** | .780[a] | .608 | .347 | .6005541 |

**a. Predictors: (Constant) CDC_PC, EHSC_PC,**

Table 7

ANOVA[a]

| | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| **Model** | | | | | | |
| **1** | Regression | 3.358 | 4 | .840 | 2.328 | .170[b] |
| | Residual | 2.164 | 6 | .361 | | |
| | Total | 5.522 | 10 | | | |

**a. Dependent Variable: ROA_PC**

**b. Predictors: (Constant)CDC_PC, EHSC_PC,**

Hypothesis one

$H_o$: Community development cost does not significantly affect return on assets of petroleum and communication firms in Nigeria?

$H_i$: Community development cost significantly affects return on assets of petroleum and communication firms in Nigeria?

**Decision Rule/Criteria:** Reject $H_o$ if probability value is less than 0.05, otherwise accepts.

Thus: Model 1: $ROA=\beta_o+\beta_1 CDC + \beta_2 CDC2 +\varepsilon$..... (1)

| **Model** | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| **1** | .379[a] | .144 | -.071 | .7688860 |

**a. Predictors: (Constant), CDC_1, CDC**

Coefficients[a]

| **Model** | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| **1** | (Constant) | .013 | .677 | | .019 | .985 |
| | CDC | .002 | .002 | .370 | 1.118 | .296 |
| | CDC_1 | -.002 | .004 | -.156 | -.472 | .650 |

**a. Dependent Variable: ROA_PC**

The above tables show the multiple regression analysis result of the randomly selected community development costs for both communication and petroleum firms under study. The result revealed that CDC for communication has a coefficient of 0.002, t-statistic 1.118 and p-value of 0.296 that Community Development Costs (CDC), for the petroleum has a coefficient of -0.002, t-statistic -0.472 and p-value of 0.650, the independent variables CDC, for communication and CDC_1 for petroleum causes any statistically significant change in the dependent variable (ROA) shows the result indicate that CDC of communication and petroleum has a relationship with the dependent variable ROA. The implication of these is that a positive control of community development costs will indirectly boast return on assets petroleum firms under study. The ANOVA table indicates a significant relationship between CDC and CDC_1 with the ROA with f-cal (0.670) and p-value (0.538). Therefore, we accept the null hypotheses and conclude that Community development cost does not significantly affect return on assets of petroleum and communication firms in Nigeria.

Test of Hypothesis Two

$H_o$: Environmental health and safety cost does not significantly affect return on assets of petroleum and communication firms in Nigeria?

$H_i$ : Environmental health and safety cost significantly affects return on assets of petroleum and communication firms in Nigeria?

**Decision Rule/Criteria:** Reject Ho if probability value is less than 0.05, otherwise accept.

**Table 8**

Model Summary

| **Model** | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| **1** | .859[a] | .738 | .673 | .4252300 |

**a. Predictors: (Constant), EHSC_3, EHSC**

### 4.4 Discussion of Findings

**4.4.1** Community Development Cost does not significantly affect return on assets of petroleum and communication firms in Nigeria. In the test of hypothesis one, the null hypothesis was accepted, implying that Community development Cost does not significantly affect return on assets of petroleum and communication firms in Nigeria. Empirical test of the hypothesis formulated for the study disclosed that the CDC of listed petroleum firms has a beta coefficient of -0.002; T- ratio of --0.472 which is less than 2, rule of the thumb at 5% significance level and a p-value of 0.650 > 0.05. Based on these results, we accept the null hypothesis which states that Community development cost does not significantly affect return on assets of petroleum firms in Nigeria. This implies that a naira increase in cost of community development non-significantly decreases return on assets. The result is very well situated with Stakeholders' theory developed by Edward Freeman in 1984.

lfurueze et al. (2013) investigated the influence of environmental costs on corporate performance of oil and gas enterprises in the Niger Delta, Nigeria, and discovered a substantial effect of CDC on performance. Amahalu et al. (2021) studied the relationship between environmental costs (proxied by community development cost as one of the variables) on performance and observed that CDC has no significant effect on return on assets.

**4.4.2 Environmental Health and Safety Costs do not significantly affect return on assets petroleum and communication firms in Nigeria.**

The second hypothesis test for petroleum enterprises found that the EHSC had a beta coefficient of 100019 and a p-value of 0.3735, which above the 5% significance threshold. The T-Ratio r EHSC test of significance reveals that EHSC is statistically insignificant at the 5% level due to its observed T-values of 0.8917, which are less than two. Based on our empirical data, we accept the alternative hypothesis. We thus conclude that environmental health and safety costs have a priori expectations and the stakeholder theory. It means that a happy and healthy staff will enhance production and, by extension increase financial performance of firms concerned.

Chinedu et al. (2019) who utilized EHSC as one of the indicators to assess the influence of environmental costs on the performances of 64 industrial enterprises in sub-Saharan Africa, including South Africa and Nigeria, and discovered that there is no meaningful relationship between environmental health and safety expenditures and financial results. It also contradicts the findings of Ilelaboye and Alade (2022), whose study on environmental accounting and financial performance of listed family firms in Nigeria discovered that health and safety costs had a favourable but minor influence on financial performance.

## 5. Conclusions

This study concludes that, while environmental accounting has a statistically insignificant effect on the performance of firms in Nigeria's petroleum and communication sectors, it has the potential to provide improved information to stakeholders and, as a result, increase the firms' financial performance.

The findings of this study also support the views and expectations of many people, including the researchers, that environmental policies enacted by relevant authorities are not being implemented sufficiently by petroleum and communication firms to provide stakeholders with the information they need to make informed decisions, as evidenced by near zero coefficients of the variables. Therefore, we conclude that environmental accounting and performance has a significant positive effect on petroleum and communication firms in Nigeria.

## Recommendations

Base on the findings of the study, we suggest the following recommendations to the managers of petroleum and communication firms in Nigeria:

1. Nigerian petroleum and communication sectors should invest in community development initiatives such as hostels, classrooms, roads, and skill centers to foster positive connections with local communities and minimize the number of impatient youths. For the sake of fairness and accountability, representatives from the host communities should be involved in the CSR (corporate social responsibility) and fund trustees of the companies.
2. Firms in both sectors should comply with existing health and safety laws. In-house training may be a very effective alternative to outsourcing. This will allow the companies to achieve a balance in the supply of environmental health and safety expenses to the point of significant performance impact.



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## REFERENCES

Agbo, B. O., Ohaegbu, O. K., & Akubuilo, F. (2017). Effect of environmental cost on financial performance of Nigerian brewery. *European Journal of Business and Management*, 9(17), 59-64.

Akinleye, M. J. & Olaoye, C. O. (2021). Community development cost and financial performance of oil and gas firms in Nigeria. *KIU Interdisciplinary Journal of Humanities and Social Sciences*, 2(3), 43-56

Alabi, G. A. (1996). Telecommunication in Nigeria. African Studies Center: University of Pennsylvania. www.africa.upenn.edu>ECA>aisi_inftl.

Amahalu, N. N., Agbionu, U. C., & Obi, C. J. (2017). Effect of human resource accounting on profitability of selected quoted telecommunication firms in Nigeria. Contemporary Issues in Business Management. *A Multidisciplinary Approach*, 1(1), 410-443.

Bassey, E. B., Sunday, O. E., & Okon, E. E. (2013). The impact of environmental accounting and reporting on organizational performance of selected oil and gas companies in Niger Delta Region of Nigeria. *Research Journal of Finance and Accounting*, 4(3), 125-136.

Bebbington, J. (2006). Accounting for sustainable development performance. *Research Executive Summary*,2(15), CIMA.

Beredugo, S. B. (2014). Environmental accounting and social responsibility disclosure on the Earnings capacity of Nigerian manufacturing firms. *Journal of Economics and Sustainable Development*; 5(14), 66-73.

Chiamogu, A., & Okoye, J. N. (2020). Environmental costs and financial performance of oil and gas companies in Nigeria. *International Journal of Advanced Academic Research*, 6(10), 23-35.

Chinedu, N. G., Udama, U. D., & Ali, O. R. (2019). Impact of environmental accounting disclosure on financial performance in cement companies in Nigeria. *IDOSR Journal of Arts and Humanities*, 4(1), 1-14.

Chron, C. (2020). What is environmental Cost Management? *International Journal on Environmental Management*, 7(5), 102-122.

Clarkson, P., Li, Y., Richardson, G., & Vasvari, F. (2008). Revisiting the relation between environmental performance and environmental disclosure: An Empirical analysis. *Accounting Organizations and Society*, 33(4-5), 303-327.

Dorman,P.(2000).The Economics of Safety, Health and Well-being at Work: An Overview. In Focus Program on Safe. Work, International labor organization. The Evergreen State College. From www.ilo.org

Dowling, P. (1975). Legitimacy theory. Encyclopedia of corporate social responsibility 1579-1584.

Erhinyoja E. F., & Marcella E. F. (2019). Corporate social sustainability reporting and financial performance of oil and gas industry in Nigeria. *International Journal of Accounting, Finance and Risk Management*, 4(2), 44-60.

Etale, L. M., Ochuba, I. S., & Sawyerr, A. E. (2021). Social cost accounting and profitability of GlaxoSmithKline Nigeria Plc. *European Journal of Accounting of Business and Innovation Research*, 9(1), 1-18.

Fasua, K. O. (2011). Environmental accounting: concept and principles. *Journal of Certified National Accountant*, 19(2), 12-22.

Fayemi, K. A. (2022). Telecommunications installations and environmental pollution in Nigeria: Case for taming a growing monster in an emerging economy. Academia.edw/8916836.

Freeman, R. E. (1984). Strategic management stakeholder approach. Pitman.

Green, G. P. & Haines, A. (2015). *Asset building & community development*, 4th edition, Sage Publications, Researchgate.net/publication 978-1-4833

Haniffa, R., & Hubaib, M. (2006). Corporate governance structure and performance of Malaysia listed companies. *Journal of Business Finance and Accounting*, 33(7-8), 1034-1062.

Hassan, T. A. & Ogunwole, G. T. (2022). Oil and gas accounting practices and implications for corporate social responsibility. *KWASU International Journal of Education*, 5(1), 213-221.

Henri, J. F. & Journeault, M. (2010). Eco-control: The influence of management control system on environmental and economic performance, Accounting, Organisations and Society, 3.

Hill, M. D., Kelly, G. W., & Lockhart, G. B. (2012). Shareholder returns from supplying trade credit on financial management, 41(1), 255-280.

Holt, A. J. (2002). Principles of health and safety at Work Wigston, IOSH Services Ltd.

Ifurueze, M. S. K, Lyndon, M. & Bingilar (2013). Impact of environmental cost on corporate performance of oil companies in Niger Delta States of Nigeria. *Journal of Business &Management*, 2(2), 23-30.

Ilelaboye, C. S., & Alade, M. E. (2022). Environmental accounting and financial performance of listed family-owned companies in Nigeria. *International Review of Business and Economics,* 6(1), 71-82.

Johnson, S. (2004). Environmental management accounting. *Accountancy*. Retrieved from http://www.accaglobal.com/sustainabili

Kiaritha, W. (2015). Determinants of the financial performance of savings and credit cooperatives in the banking sector in Kenya, *Unpublished PhD project,* Jomo Kenyatta University of Agriculture and Technology.

Klapper, L., & Love, I. (2002). Corporate governance, investor protection, and performance in emerging markets. World Bank. Mimeographed document.

Lawal, B. (2011). Board dynamics and corporate performance: Review of literature and empirical challenges. *International Journal of Economics and Finance*, 4(1), 108-119.

Malarvizhi, P., & Yadav, S. (2008). Corporate environmental reporting on the internet. An insight into Indian practices, *11th Annual Convention of the Strategic Management Forum*, May 8-10, Indian Institute of Technology, 1.

Milne, M. J., & Patten, D. M. (2002). Securing organizational legitimacy: An experimental decision case examining the impact of environmental disclosures. *Accounting, Auditing and Accountability Journal*, 15(3), 372-405.

Nixon, S. J. D., & Stoeber, P. A. (2011). Benchmarking with data envelopment analysis: A return on asset perspective, Benchmarking: *An International Journal of Accounting*, 8(4), 529-542.

Nwambeke, G. C., Udama, D. U., & Oko, R. A. (2019). Accountancy impact of environment accounting disclosure on financial performance in cement companiesin Nigeria.

Onyekwelu, L. U., & Ekwe, M. C. (2014). Does corporate social responsibility predicate good financial performance? ESUT *Journal of Management Sciences*, 8(1), 1-10.

Oshiole, S., Elamah, A. F., & Ndubuisi, A. N. (2020). Effect of environmental cost disclosure on profitability of listed oil and gas firms in Nigeria. *International Journal of Academic Research in Accounting and Finance*.

Oti, P. A., Effiong, S. A., & Tapang, T. A. (2012). Environmental costs and its implication on the returns on investment: An evaluation of selected manufacturing companies in Nigeria. *Global Journal of Management and Business Research*, 12(7), 17-22

Ramitz, U. R., & Junrui, Z. (2014). Firm performance and emerging economics. *The Journal of Apple Business Research*, 30(3), 701-714.

Rikhardsson, P. (2014). Accounting for health and safety costs: Review and comparison of Paper presented for the business strategy and the environment selected methods. DOI: 10.1007/978-1-4020-4974-3_6.

Seetharaman, A., Mohamed, 1. & Surevanan, A. S. (2007). Environmental accounting as a tool for environmental management system. *Internationa*l *Journal of Applied Sciences and Environmental Management*, 11(2), 137-145. *For Innovative Research in Multidisciplinary Field*, 2(4), 137-142.

Uadiale, O. M., & Fagbemi, T. O. (2012). Corporate social responsibility and financial performance in developing economics: The Nigerian experience. *Journal of Economics and Sustainable Development*, 3(4), 75-83.

Uwuigbe, U., Uwuigbe, O., & Ajayi, A. O. (2011). Corporate social reasonability disclosures by environmentally visible corporation: A study of selected firms in Nigeria. *European Journal of Business and Management*, 3(9), 105-121.

Xie, Y., & Zhang, D. (2022). How environmental performance affects financial performance in the food industry: A global outlook, *Environmental Sustainability Journal*, 14(4), 1-18.

Yalcin, N., Bayrakdaroglu, A., & Kahraman, C. (2012). Application of fuzzy multicriteria decision making methods for financial performance evaluation of Turkish manufacturing industries. *Expert Systems with Applications*; 39(1), 350-364.