ISSN: 2420-4882
Volume 12, Number 2, 2025
Journal of Accounting, Marketing and Management Research

GREEN ACCOUNTING IN NIGERIA AND AFRICA: BOOSTING SUSTAINABILITY WITH POLICIES AND INCENTIVES

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Abstract
Green accounting has emerged in response to growing concerns about sustainability and the need for environmentally responsible business practices. This approach introduces a methodology for measuring, monitoring, and reporting the environmental impacts of business operations, enabling organizations to assess their contribution to global sustainability. This study analyzes the concept of green accounting, its applications across different industries, and its alignment with the United Nations' Sustainable Development Goals (SDGs and green accounting's role in Nigeria, South Africa, Kenya, and Egypt, analyzing regulatory frameworks, financial incentives, and implementation challenges. An empirical approach is presented, incorporating qualitative and quantitative methodologies to evaluate its implementation and outcomes in various organizations. The research is based on data collected from companies that have adopted sustainability practices, analyzing their financial and non-financial reports to identify trends and challenges. The results indicate a growing adoption of green accounting but also highlight barriers, such as the lack of standardization in environmental reporting and organizational resistance to change. The study concludes with a reflection on the implications of green accounting for the future of corporate sustainability, emphasizing the need for policies and regulations to promote its global implementation. It also suggest that embracing green accounting, African businesses can achieve operational efficiency, reduce long-term costs, and contribute to sustainable development, supported by regional initiatives like the Africa Green Finance Coalition. The transition to a greener economy will depend on companies' ability to integrate sustainability into their business models, with green accounting playing a fundamental role in this process.

Keywords: Green Accounting; Sustainability; Green Accounting Tools and Techniques; Environmental Management Systems; Sustainability Reporting.

INTRODUCTION
In today's world, the concept of sustainability has gained prominence across various domains, including the business sector. Organizations face the challenge of aligning their economic activities with social and environmental responsibility. In this context, green accounting emerges as a crucial tool for monitoring and reporting companies' environmental performance. Green accounting, also known as environmental accounting, refers to the integration of environmental factors into organizations' financial reports. This involves not only measuring environmental costs and benefits but also assessing the impacts of business operations on the environment. The Sustainable Development Goals (SDGs), established by the United Nations, have emphasized the need for companies to adopt more sustainable practices. In particular, SDG 12, which focuses on responsible production and consumption, and SDG 13, which addresses climate action, highlight the importance of integrating sustainability into business operations. The adoption of green accounting not only enhances companies' reputations but also enables them to identify opportunities for long-term cost reduction through more efficient management of natural resources. This includes reducing carbon emissions, proper waste management, and the sustainable use of water.
However, implementing green accounting presents several challenges, one of the main ones being the lack of standardized regulations for environmental reporting. Globally, there are various frameworks and standards that differ in scope and applicability, making it difficult to compare

organizations. Despite these barriers, many companies are recognizing the benefits of green accounting, not only in terms of sustainability but also as a strategy to enhance their competitiveness. Transparency in environmental reporting can strengthen relationships with investors and other stakeholders.

Development of Green Accounting and Sustainability

The current information society has heightened awareness of environmental issues and the need for sustainable development, leading to a new business approach: corporate social responsibility based on the information provided by accounting. It can be said that, following a pro-environmentalist phase, an eco-environmentalist phase is now being consolidated, where organizations are incorporating environmental techniques into their management to respond to both external pressures from stakeholders and internal pressures related to opportunities for reducing internal costs (considering the equation: increased profits = increased revenue or reduced costs) and ensuring the company's survival (Doria et al., 2020).

In this new context, non-economic information plays a crucial role, encompassing data complementary to economic-financial information, making environmental information particularly significant. This information is relevant as long as it can provide sufficient and objective data to raise awareness among various users both economic and non-economic about the importance of making environmentally related decisions.

Key Concepts

A series of future challenges for accounting are presented from the perspective of green accounting, including the need to develop integrated multi-indicator indices that measure sustainability beyond GDP. This new accounting approach must incorporate natural resources into economic assessments, as well as consider hidden markets, the destruction of public services, pollution, crime, and other factors. It advocates for the implementation of periodic global economic assessments of major resources, environmental systems, and specific cultures.

Importance and Benefits

Green accounting continues to play a fundamental role in environmental conservation policies, at least in most developed and emerging countries (Maama & Appiah, 2019). This political push toward business activities for biological environment protection has led to a significant increase in regulations and substantial changes in legislation regarding the use and development of the environment. Much of this is driven by social pressure due to environmental degradation and growing awareness among entrepreneurs, internal employees, and other stakeholders about the importance of ecosystem protection (Haldar, 2019). The response generated meets user expectations across various fronts regarding sustainable information. According to Singh and Singh (2016), Global pressure increases due to issues such as the ozone layer depletion, climate change, acid rain, and environmental deterioration caused by human activity. It is crucial to highlight that the environment is increasingly becoming a sustainable value that influences health and balance, essential for improving human quality of life and as a source of resources. Therefore, environmental responsibility must be integrated into economic development, with an emphasis on resource utilization and chemical and biological quality. (Muñoz-Pico et al., 2021)

Theoretical Framework of Green Accounting

Green accounting is grounded in several theoretical concepts, including microeconomic theory, eco-efficiency theory, and sustainable development theory. According to microeconomic theory, state intervention can differentiate similar companies in imperfect or incomplete markets, and the choice of intervention measures depends on the relative importance of market failures (Teulings & Huysmans, 2025). Environmental policies arise from theoretical models that demonstrate the existence of market failures that cannot be addressed by the market alone. On the other hand, eco-

efficiency theory is based on the idea that economic activities should not disrupt ecological balance, or should do so minimally. This concept relies on reducing the ecological intensity of new economic units, developing bioproducts, and phasing out the most ecologically inefficient units. (Prieto and Yzaguirre, 2021)

Green accounting should be applied in the post-industrial phase, referred to as the knowledge and advanced services society. Ignoring green variables leads to suboptimal decision-making processes in both business and public spheres, in a manner disrespectful to current generations (as opportunities to benefit from certain resource flows are lost).

However, the true milestone in theorizing clean growth lies in the works of Nordhaus and Tobin (1972) and, later, the contributions of Hartwick (1977) and Solow (1977), which propose the possibility of deduced growth. Meanwhile, the theory of economic development is not far behind in terms of trends, objectives, and content of ecological policy. Its concept of sustainable development draws heavily from this. Although sustainable development describes ecological challenges with greater detail and precision, its main contribution to the green economy (Ecology) is the introduction of an ecological space within our economic life. This ecological space operates as a closed system and moves irrevocably and holistically toward degradation (mice), reaching a point of non-sustainability (eco mice) that will force the closure of the economic system and necessitate a redesign of society with a "modified," heterogeneous (multi-objective), and sustainable economic system.

Fundamental Principles

For a company to remain competitive in a global market, it is essential to demonstrate signs of economic sustainability, meaning that its management must prioritize social and environmental capital. In this regard, it is important to highlight certain accounting arguments that underscore the need to manage social and environmental capital, which involves the use of non-financial indicators. Firstly, there are significant benefits to being socially responsible, even in financial terms. Awaysheh et al. (2020) found a positive association between financial performance and a social responsibility strategy, despite the high environmental costs involved. This is because consumers' perception of the system's structure, which allows for the accumulation of these costs, goes beyond mere economic considerations. Specifically, they perceive an open-minded approach in favor of customer interests. (Kraus et al., 2020)

In this study, ultimately, the primary factor responsible for cost accumulation will now be the focus. Self-assessment is deemed significant. At the time, this was the driving force transferred to finance. The necessary transformation and centralization of the Onera system, particularly regarding data, constitute one of the most evident elements. Next, and specifically, we will focus on the changes in cost accumulation systems and their impact on the management of traditional business models. (Baalbergen et al., 2022)

International and National Regulations/Standards

International regulations are often harmonized with country-specific frameworks, and this also applies across Nigeria and many African nations. Environmental regulations in Nigeria and across Africa are increasingly aligning with international ethical and sustainability frameworks. These frameworks, such as those reflected in the Global Code of Ethics, draw from established global standards including the Nuremberg Code, the UN's bioethical principles, and principles from major international agreements like the Rio Declaration on Environment and Development. Within the Nigerian context, there is a growing emphasis on integrating these global norms into local policies for sustainable environmental governance (Ogunkan, 2022). This is particularly relevant as African nations strive to address complex environmental challenges through policy reforms, institutional strengthening, and ethical accountability.

A critical aspect of this alignment is the adoption of international standards such as ISO 14001:2015, which has proven to be a robust tool for embedding sustainability within organizational practices

(Da Fonseca, 2015). In Nigeria and other African countries, ISO standards are now being leveraged to implement Environmental Management Systems (EMS) that promotes a balance between economic growth, environmental protection, and social wellbeing. These standards foster organizational responsibility by ensuring that environmental impacts are assessed, managed, and mitigated systematically (Dragomir, 2019). They also support sustainable development goals (SDGs), which have become a central framework guiding policy and business strategies across Africa (Ramutsindela & Mickler, 2020). In sectors such as agriculture, extractive industries, urban development, and education, such regulatory tools are essential for ensuring ethical practices, reducing ecological harm, and enabling long-term socio-economic resilience.

Green Accounting Tools and Techniques

An analysis conducted by Morales and Rodríguez (2020) examines the drivers and outcomes of Green Accounting, as well as evaluates the tools and techniques associated with this accounting practice. The proposed factors for implementing Green Accounting practices include economic sustainability, regulations and laws related to the Circular Economy that, in some cases, require companies to collect waste-related information, and corporate certification systems as environmentally or economically sustainable. To date, social sustainability has not been included in any study.

Some negative outcomes of Green Accounting practices, which can potentially turn positive, include: the redistribution of the negative impact of a company's resource use to other geographies and domains; the influx of waste to the company through reverse logistics; and the process of other positive outcomes of Green Accounting practices include the environmental improvement of products and services based on assessing the impact of each phase of the resource's life cycle, which customers are increasingly demanding: sustainable design. With this information, companies make decisions, often related to the production of sustainable products or services. Green processes, green products, green markets, and green information lead to more responsible business models. (Ayón-Ponce et al., 2020)

Life Cycle Assessment

To understand the influence of green accounting on sustainability, it is necessary to briefly explain the concept of life cycle. According to ISO 14040, Life Cycle Assessment (LCA) is a technique that evaluates the environmental impact of a product throughout its life cycle, serving as a decision-making tool. This analysis covers everything from the extraction of raw materials to the end of the product's life cycle, including manufacturing, use, and transportation. It is important to note that this approach is neutral and provides objective information for decision-making without ethically evaluating the selected environmental impacts. (Bedoya et al., 2024)

The life cycle analysis, which examines a product's environmental behavior in a planned scenario, does not have a standardized methodology that is clearly sustainable. However, it is true that influencing our environment implies being influenced by it first. This gives rise to the principle of deontological environmental ethics. John Paul II attributed illegitimacy to the human right to intervene in creation in any manner. However, stating that "man comes first over the Earth and over the water" implies the right to act upon the water. Therefore, when it is said that the trees "are not yours," it means that human manipulation and control are illegitimate without their consent. Yet, acting on them without consent indicates malicious actions that pose risks to both people and the rest of creation.

Environmental Cost Accounting

Environmental cost accounting focuses on calculating costs related to environmental issues. Increasingly, companies are implementing specific cost systems to calculate the costs associated with their polluting activities, aiming to assess the economic impact on the environment.

The lack of data and criteria for calculating environmental costs has been a challenge, primarily due to the absence of a strategic approach to costs and benefits for those responsible for pollution. Therefore, environmental accounting, within the broader framework of a company's general information and beyond the strictly financial realm, must guide managers in selecting the most appropriate actions. (Figueroa et al., 2023)

Incorporation of Green Accounting into Business Management

Through this study, we contribute to the ideas of Pope and Bhimani (1994) by distinguishing two dimensions in the incorporation of environmental information into the general information system: a) the reliability of the information (or the focus on accurately calculating environmental costs), and b) the way accounting information is used by management. Therefore, we adjust our second hypothesis and divide the incorporation into two dimensions: one related to the methods used to obtain environmental accounting information and the other concerning the role of the accounting system in implementing environmental management systems, business strategies, and the characterization of different economic-ecological systems used (traditional, extended responsibility, and short- or long-term perspectives). The incorporation is evaluated through three elements: the reliability of environmental information, its connections at the process, product, and plant levels, and, finally, the perception of the impact of this information on decision-making. The term Green Accounting according to Velasco et al (2024) is practically synonymous with the mechanisms used to accurately calculate environmental costs.

Environmental Management Systems

Environmental Management Systems (EMS) have become essential tools in promoting corporate sustainability by integrating environmental considerations into business decision-making processes. Their evolution has been influenced by several key factors: growing social pressure for environmental accountability, increased professional and business awareness driven by environmental performance indicators, and the influence of financial mechanisms such as green loans, investment conditions, and tax incentives that favour environmentally responsible organisations (Pechancová et al., 2019). These systems not only enhance environmental performance but also support strategic sustainability goals by streamlining operations and improving stakeholder trust.

Empirical evidence from developing economies further supports the effectiveness of EMS in fostering sustainable development. For example, studies on manufacturing companies have shown that implementing EMS significantly improves corporate environmental practices and long-term competitiveness, particularly where regulatory enforcement and public pressure are increasing (Ikram et al., 2019). Unlike some countries that require individual certification for sector-specific compliance, models such as those used in France favour a unified methodological framework for businesses. This approach promotes the integration of environmental principles across all business units rather than in isolated compliance silos. However, a sectoral approach while valuable for targeted regulation can also present challenges, such as excessive complexity or lack of clarity in identifying relevant environmental content, especially when regulatory documents are overly detailed or fragmented.

Sustainability Reporting

Sustainability reporting has emerged as a vital component of corporate governance and strategic management, especially in developing economies such as Nigeria and across Africa. Increasingly, companies' particularly multinationals and large firms are publishing Sustainability Reports (SRs) to demonstrate their commitment to economic, social, and environmental responsibility. In the Nigerian context, sustainability reporting is gaining traction as firms respond to pressures from stakeholders, regulatory bodies, and the global demand for transparency and accountability (Erin,

et al., 2022). These reports play a significant role in enhancing corporate image, building stakeholder trust, and fostering responsible business practices.

Although Africa still faces challenges in terms of reporting standards, data quality, and enforcement mechanisms, there is a growing body of research and practice focusing on the advancement of sustainability reporting frameworks on the continent (Igwe et al., 2023). Scholars have noted that sustainability reporting improves employee engagement and commitment by aligning organizational values with broader social goals, and by embedding social responsibility into daily operations (Aifuwa, 2020). Moreover, comparative studies across African countries such as Nigeria, South Africa, Kenya, and Egypt show that while progress is being made, differences in institutional development, governance structures, and regulatory frameworks continue to influence the quality and scope of reporting (Songi & Dias, 2019).

In essence, sustainability reporting is not merely a compliance tool but a transformative model that verifies and communicates a firm's economic, environmental, and social performance within a financial year. It also contributes to enhancing corporate sustainability culture, while promoting accountability to both internal and external stakeholders.

Successful Case Studies in Green Accounting Implementation

Below are examples of successful applications of Green Accounting in large corporations across various industrial sectors:

1) **Abengoa** is one of Spain's leading global companies in technology, integrated, and sustainable solutions. It has adopted the GreenSCORE model to calculate and monitor the impact of its operations and events, as well as manage risks. This is done through a focus on processes, products, services, and related themes.

2) **Ecoembes** includes among its lines of action the performance of internal environmental audits related to economic aspects, legal compliance, and handling complaints and claims. Ecoembalajes is primarily funded through the "Green Dot" concept, which essentially involves creating a green accounting system for packaging placed on the market. This allows for assessing the economic contributions of each remanufacturer relative to their competitors, as well as calculating the prices to be passed on to each. They also utilize a Network of Professionals to implement and certify an environmental management system in companies committed to the recycling economy.

3) **El Corte Inglés** has a System of Indicators for Control, Monitoring, and Review of Objectives and Methodology. Its integrated report highlights the company's efforts in measuring objectives, achieving a 23.7% savings in 2019 compared to 2011. Additionally, through its Innovation and Sustainability Sponsorship program, it gives a voice to its employees and showcases implemented initiatives, including green initiatives.

Leading Companies in Sustainability

Web.getResultados, a U.S.-based company, currently produces 35 megawatts of wind energy and promotes energy-saving measures among its staff. It has received numerous awards, including the Costa Rican Sustainability Index (Pacífico), as well as other national and international recognitions.

Schneider Electric (France)

As the top-ranked company on TIME's 2025 list of the world's most sustainable companies, Schneider Electric leads the way in energy management and digital infrastructure. It surpassed its sustainability targets in 2024, supported clients like Sanofi and Novartis with renewable energy procurement programs like *Energize*, and is targeting net-zero operations by 2030 and full value chain neutrality by 2050. Notably, it has already reduced emissions across its value chain by about 20 % and incentivizes sustainability via employee compensation**.**

Delta Electronics (Taiwan/USA)
Delta Electronics consistently features in the top tier of global sustainability rankings, earning "double A-list" ratings from CDP and appearing in the Dow Jones Sustainability Index for over a decade. Its U.S. headquarters in Fremont, California destroyed green boasts a LEED Zero Energy certification (upgraded from LEED Platinum) and showcases geothermal systems, rooftop solar, EV charging stations, and smart LED lighting.

D. light (Global, Operating in Africa & Asia)
D.light, led by CEO Nedjip Tozun, has brought clean solar power to 30 million homes across 72 countries using pay-as-you-go models, significantly reducing carbon emissions approximately 38 million metric tons since 2007. Winner of a 2024 Earthshot Prize, it recently raised $176 million to scale its off-grid solar projects across Africa in partnership with the Kenyan government.

Envision Energy (China)
Envision Energy, the world's largest wind turbine manufacturer, has realized a "Green Utopia" through its net-zero industrial park in Ordos, Inner Mongolia integrating wind, solar, and hydrogen systems to cut approximately 3 million tons of carbon emissions annually. By 2025, its goal is to reduce emissions by an additional 100 million tons and generate 100,000 green-tech jobs nationwide.

Innovations and Best Practices
In recent years, significant progress has been made in companies' assimilation of accounting information, particularly regarding the inclusion of financial and non-financial measures. For instance, initiatives such as the Integrated Reporting Initiative have been driven by renowned academic and business institutions to provide integrated reports that facilitate user understanding and decision-making.
These reports focus on the connection between different corporate strategies and risks, identifying potential synergies and providing information on sustainability and the company's ability to create long-term value. The Integrated Reporting Initiative emerged from proposals by Corporate Social Responsibility Europe and the Accounting for Sustainability Project, both part of the PRME (Principles for Responsible Management Education) network of business schools. (Trucios Kleiman, 2023)

Challenges and Future of Green Accounting
It is evident that the integration of cost calculation systems and the disaggregation of traditional accounting information are fundamental to the future of green accounting. Progress in environmental cost accounting is clearly linked to the incorporation of environmental criteria into the company's overall management systems. (Lasso & Aguirre, 2021)
In recent years, numerous tools have emerged in the market to establish environmental management systems, commonly known as EMAS. These tools primarily aim to assist companies in managing systems focused on the amortization of natural resources and pollution processes through the analysis of product or service life cycles (Life Cycle Assessment, LCA).
Regarding the tools used for economic quantification, as with those used to integrate financial and cost accounting, none can be considered universal, as they need to be tailored to the specific needs and characteristics of each company. (Soto, 2022)

MATERIALS AND METHODS

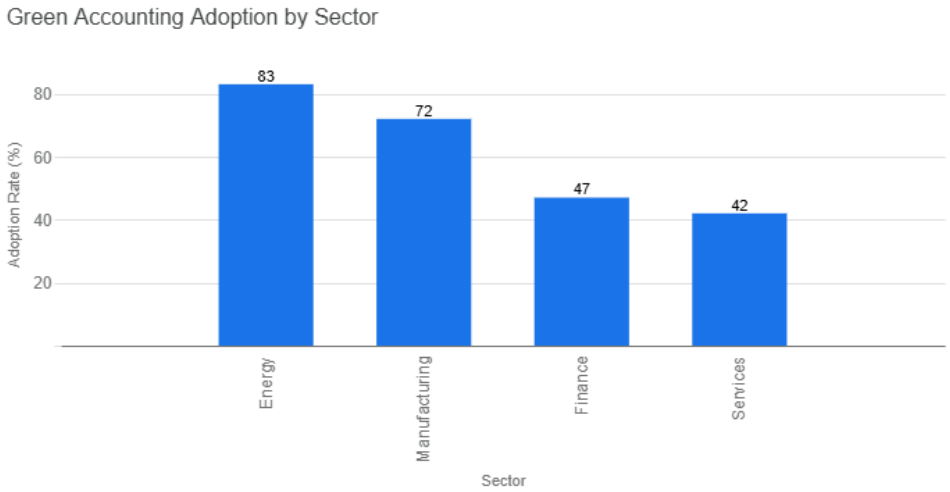
The methodology used in this study combines qualitative and quantitative approaches to gain a holistic view of the implementation of sustainability practices. For the quantitative analysis, data were collected from the sustainability and financial reports of 50 randomly selected companies from various industries. These reports were evaluated based on their compliance with international standards such as the Global Reporting Initiative (GRI) and the Carbon Disclosure Project (CDP).

The qualitative analysis included semi-structured interviews with executives and sustainability managers from the selected companies. The interviews focused on the barriers and motivations for adopting green accounting, as well as the perceived benefits of these practices.

Results

Chart 1

Percentage of Companies per Sector that Have Adopted Green Accounting

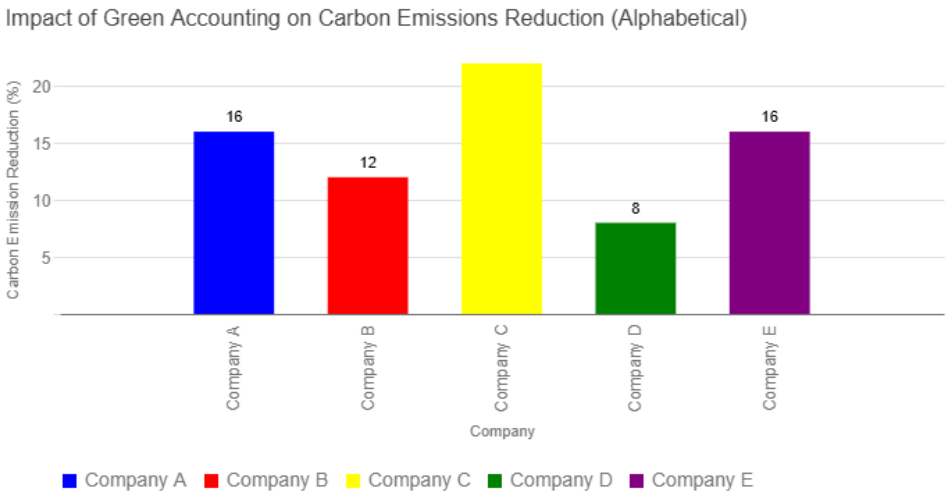


Source: Authors

Chart 1 shows the percentage of companies per sector that have adopted green accounting. As you can see, the energy sector leads with an 85% adoption rate, followed by the manufacturing sector with 70%. The finance and services sectors have lower percentages, at 45% and 40%, respectively.

Chart 2

Impact of Accounting on the Reduction of Carbon Emissions



Source: Authors

Chart 2 shows the impact of green accounting on the reduction of carbon emissions in various companies. The evaluated companies achieved significant reductions, varying between 8% and 16%, with Company C leading with a 20% reduction in its emissions.

Table 1

Comparison of the Adoption of Green Accounting by Company Size

Company Size	Adoption Percentage (%)

Large	80%
Medium	50%
Small	30%

Source: Authors

Large companies have been the most active in adopting green accounting practices, with an 80% adoption rate, followed by medium-sized companies at 50% and small companies at 30%.

Table 2

Table 2 shows the green accounting regulations adopted in different regions, such as Europe, North America, Asia, Latin America and Africa.

Comparison of Sustainability Standards by Region

Region	Regulation Adopted	Years of Implementation	Compliance Percentage (%)
Europe	Corporate Sustainability Reporting Directive (CSRD)	5 years	77%
North America	Carbon Emissions Laws	3 years	62%
Asia	Corporate Sustainability Framework	4 years	53%
Latin America	Regional Environmental Regulation	2 years	41%
Africa	National Environmental Regulations	Varies by country	Highly variable, with significant implementation gaps

Source: Authors

Comparison of Environmental Regulations by Region

Table 2 reflects a comparison of environmental regulations adopted in different regions of the world, highlighting the years of implementation and the compliance percentage.

- **Europe:** Has implemented the Corporate Sustainability Reporting Directive (CSRD), with 5 years of implementation. It shows a 75% compliance, suggesting a high level of adoption and commitment to sustainability regulations.
- **North America:** Has adopted laws on carbon emissions, with 3 years of implementation. It presents a 62% compliance, indicating moderate progress in the adoption of green regulations.
- **Asia:** Has a Corporate Sustainability Framework that has been in force for 4 years. The 53% compliance shows that there is still room for improvement in the implementation of sustainable practices.
- **Latin America:** Has implemented a Regional Environmental Regulation for 2 years. The 41% compliance indicates that the regulations are more recent and that adoption is relatively low compared to other regions.
- **Africa:** In Africa, compliance with environmental regulations is generally extremely low due to a reliance on a fragmented system of national environmental regulations rather than a unified continental framework. The years of implementation vary significantly by country, and the continent faces substantial challenges with enforcement. Consequently, compliance is characterized by significant implementation gaps, resulting in some of the lowest percentages among the regions

Table 3
Main Financial Incentives for Green Accounting

Type of Incentive	Description	Countries that Adopt It
Tax Credits	Tax discounts for emission reductions	Germany, Canada, Brazil
Subsidies for Renewable Energy	Funds for companies that invest in clean energy	Norway, Spain, Chile
Green Bond Investments	Financing facilities for sustainable projects	Japan, USA, France
Tax Incentives & Subsidies	Tax holidays, exemptions, and financial grants for investments in renewable energy and clean technologies	Kenya, Nigeria, South Africa

Source: Authors

It's worth noting that Germany, Canada, and Brazil are using fiscal incentives to motivate emission reduction, which has a direct impact on companies' green accounting practices. Norway, Spain, and Chile are focusing their efforts on renewable energy, supporting the transition to cleaner energy sources with subsidies. Africa, similar to other continents, is also adopting green incentives such as tax holidays, exemptions, and financial grants to encourage investment in renewable energy and clean technologies in countries like Kenya, Nigeria, and South Africa. Meanwhile, Japan, the United States, and France are promoting the financing of sustainable projects through green bonds, facilitating access to capital for companies that adopt sustainable practices. This type of incentive varies between countries, depending on their economic and environmental priorities. Countries with more mature sustainability policies tend to offer a combination of tax incentives, subsidies, and financing facilities to encourage the adoption of green accounting.

Comparison of Sustainability Standards in Nigeria and Other African Countries

This report provides a detailed comparison of sustainability standards in Nigeria, South Africa, Kenya, and Egypt. It includes a table summarizing key regulations, years of implementation, and compliance percentages, followed by an in-depth analysis of each country's environmental governance framework and financial incentives for green accounting.

Comparison of Sustainability Standards

Region	Regulation Adopted	Years of Implementation	Compliance Percentage (%)
Nigeria	- National Environmental Standards and Regulations Enforcement Agency (NESREA) Act 2007 - Climate Change Act 2021 - Environmental Impact Assessment Act 2004 - Harmful Waste (Special Criminal Provisions) Act	- NESREA Act: 2007 - Climate Change Act: 2021 - EIA Act: 2004	Not specified (challenges enforcement noted) (ELRI, n.d MedCrave, 2021)
South Africa	- National Environmental Management Act (NEMA) 107 of 1998 - National Environmental Management: Air Quality Act 39 of 2004 - Climate Change Act 2024 - National Forests Act of 1998	- NEMA: 1998 - Air Quality Act: 2004 - Climate Change Act: 2024 - Forests Act: 1998	Not specified (comprehensiv framework exists) (Wikipedi 2013)
Kenya	- Environmental Management and Coordination Act (EMCA) (CAP 87) - Sustainable Waste Management Act, No. 31 of 2022	- EMCA: 1999 - Waste Management Act: 2022	Not specified (stron constitutional and leg framework) (ICLG, 202 Lexology, n.d.)

	- Climate Change Act No. 11 of 2016 - National Environmental Policy 2013	- Climate Change Act: 2016 - Policy: 2013	
Egypt	- Environmental Protection Law (Law No. 4 of 1994, amended by Law No. 9 of 2009) - Law No. 102 of 1983 for Natural Protectorates - Central Bank of Egypt (CBE) Mandatory Regulations (November 2022) - National Climate Change Strategy 2050	- Environmental Protection Law: 1994 (amended 2009) - Natural Protectorates Law: 1983 - CBE Regulations: 2022 - Strategy: 2022	Not specified (recent focus o sustainable finance and clima strategy) (Central Bank of Egyp 2022)

Source: Authors

Analysis of Environmental Regulations in Africa

Nigeria

Regulatory Framework: Nigeria has established a robust set of environmental laws, with the National Environmental Standards and Regulations Enforcement Agency (NESREA) Act of 2007 as the cornerstone, replacing the Federal Environmental Protection Agency (FEPA) Act. This act focuses on environmental protection and sustainable development. The Climate Change Act of 2021 targets greenhouse gas emission reductions through inclusive green growth, while the Environmental Impact Assessment Act of 2004 mandates assessments for projects with significant environmental impacts. The Harmful Waste (Special Criminal Provisions) Act addresses hazardous waste management (MedCrave, 2021). Nigeria's commitment to sustainability is further evidenced by its participation in international agreements like the Paris Agreement, pledging a 20% reduction in greenhouse gas emissions by 2030 (Andersen, 2023).

Implementation: The NESREA Act has been in place for 18 years (since 2007), the Climate Change Act for 4 years (since 2021), and the EIA Act for 21 years (since 2004), reflecting a mix of established and newer regulations.

Compliance: Specific compliance percentages are not available. Research suggests Nigeria faces significant enforcement challenges, including weak governance, limited resources, and insufficient public participation. Despite having laws of international standard, high levels of pollution, particularly in the Niger Delta due to oil-related activities, indicate low practical compliance (MedCrave, 2021). The Niger Delta's environmental degradation highlights the gap between policy and enforcement (Environmental Law Institute, n.d.).

South Africa

Regulatory Framework: South Africa's environmental governance is anchored by the National Environmental Management Act (NEMA) of 1998, which provides a framework for environmental governance, impact assessments, and sustainable development. The National Environmental Management: Air Quality Act of 2004 addresses air pollution, while the Climate Change Act of 2024 aims for a low-carbon, climate-resilient economy. The National Forests Act of 1998 promotes sustainable forest management, and the Conservation of Agricultural Resources Act (CARA) of 1983 focuses on sustainable land use (Wikipedia, 2013). The South African Constitution's environmental right (Section 24) underpins these laws, mandating protection against environmental harm (Pulp, n.d.).

Implementation: NEMA has been in place for 27 years (since 1998), the Air Quality Act for 21 years (since 2004), and the Climate Change Act is newly implemented (2024), indicating a mature regulatory framework with recent updates.

Compliance: Compliance data is not specified, but South Africa's framework is comprehensive, supported by enforcement mechanisms like the Environmental Management Inspectorate ("Green Scorpions"). Challenges persist in balancing economic development with environmental protection, particularly in mining and other resource-intensive industries (Wikipedia, 2013). The carbon tax policy, implemented in 2019, covers about 90% of greenhouse gas emissions, reflecting a strong commitment to sustainability (Legal500, n.d.).

Kenya

Regulatory Framework: Kenya's environmental governance is supported by its 2010 Constitution, which guarantees the right to a clean and healthy environment. The Environmental Management and Coordination Act (EMCA) of 1999 establishes the National Environmental Management Authority (NEMA) to oversee environmental matters. The Sustainable Waste Management Act of 2022 promotes a circular economy, and the Climate Change Act of 2016 sets targets for greenhouse gas regulation. The National Environmental Policy of 2013 provides a broader sustainability framework (ICLG, 2024; Lexology, n.d.). Kenya's Vision 2030 development blueprint integrates sustainability goals (Lexology, n.d.).

Implementation: EMCA has been in place for 26 years (since 1999), the Climate Change Act for 9 years (since 2016), and the Waste Management Act for 3 years (since 2022). Kenya's progressive legal framework emphasizes public participation and environmental rights.

Compliance: Compliance percentages are not specified, but Kenya's strong constitutional and legal framework suggests a relatively high commitment to environmental governance. Enforcement challenges, such as resource constraints, persist, but judicial support, as seen in cases like *KM & 9 Others v. Attorney General & 7 Others* (2020), strengthens environmental protection efforts (ICLG, 2024). The ban on plastic containers effective June 2020 highlights proactive measures (Lexology, n.d.).

Egypt

Regulatory Framework: Egypt's Environmental Protection Law (Law No. 4 of 1994, amended 2009) is the cornerstone of its environmental policy, establishing the Egyptian Environmental Affairs Agency (EEAA). The Law No. 102 of 1983 protects natural protectorates, while the Central Bank of Egypt's (CBE) 2022 regulations mandate sustainable finance practices. The National Climate Change Strategy 2050 outlines long-term sustainability goals, and the Investment Law of 2017 requires environmentally conscious investments (Central Bank of Egypt, 2022).

Implementation: The Environmental Protection Law has been in place for 31 years (since 1994, amended 2009), the Natural Protectorates Law for 42 years (since 1983), and the CBE regulations for 3 years (since 2022). The National Climate Change Strategy is a recent initiative (2022).

Compliance: Specific compliance data is unavailable, but Egypt's focus on sustainable finance and climate strategies indicates progress. Challenges include bureaucratic hurdles and prioritizing rapid development over environmental protection, particularly in water-scarce regions (Central Bank of Egypt, 2022). The CBE's requirement for banks to submit quarterly and yearly sustainability reports by 2024 underscores a move toward accountability (Central Bank of Egypt, 2022).

Financial Incentives for Green Accounting in Africa

Type of Incentive	Description	Countries that Adopt It
Tax Exemptions	Tax reductions for businesses adopting sustainable practices	Nigeria, Kenya, Egypt
Green Financing Programs	Funds for environmental projects, such as renewable energy and waste management	Nigeria, South Africa, Kenya, Egypt

Carbon Credits/Markets	Credits for reducing CO2 emissions, tradable in carbon markets	Kenya, Egypt

Source: Authors

Analysis of Financial Incentives

Tax Exemptions: Nigeria, Kenya, and Egypt offer tax reductions to encourage sustainable practices. In Kenya, a 15% corporate tax incentive for the first 5 years is available for corporates investing in recycling, along with VAT exemptions for machinery and equipment used in constructing plastic recycling plants (Lexology, n.d.). In Nigeria, recommendations exist for tax reductions for environmentally friendly practices (MedCrave, 2021). In Egypt, while specific tax incentives are not detailed in the provided sources, the Central Bank of Egypt's sustainable finance regulations suggest potential financial mechanisms (Central Bank of Egypt, 2022).

Green Financing Programs: All four countries have programs to finance environmental projects. South Africa's Financial Sector Conduct Authority (FSCA) supports ESG considerations, including green financing through initiatives like the Green Fund and Green Climate Fund programs (Green Climate Fund, n.d.). Nigeria's Economic Sustainability Plan includes solar power initiatives, and the Green Climate Fund supports projects like the Inclusive Green Financing Initiative (IGREENFIN I) (Green Climate Fund, n.d.). Kenya has the Green Finance Desk (GFD) and the Kenya Green Bond Programme, which promote investments in sustainable projects (Kenya Treasury, n.d.). Egypt's Green Economy Financing Facility (GEFF) supports businesses in adopting high-performing technologies (GEFF Egypt, n.d.).

Carbon Credits/Markets: Kenya and Egypt participate in carbon markets. Kenya's Climate Change (Carbon Markets) Regulations 2023 facilitate emission reduction credits (ICLG, 2024), while Egypt's initiatives, supported by the Green Climate Fund, promote carbon market participation (Green Climate Fund, n.d.).

Nigeria, South Africa, Kenya, and Egypt have made significant strides in establishing sustainability regulations, with frameworks like Nigeria's NESREA Act, South Africa's NEMA, Kenya's EMCA, and Egypt's Environmental Protection Law. However, specific compliance percentages are not widely documented, and enforcement challenges persist due to resource constraints, governance issues, and competing economic priorities. South Africa and Kenya have more mature and comprehensive frameworks, while Nigeria and Egypt are advancing with recent policies and strategies. Financial incentives, such as tax exemptions, green financing programs, and carbon markets, are being adopted to promote green accounting, with varying degrees of implementation across these countries.

Recent Developments

As of August 2025, Nigeria has announced plans to enforce IFRS sustainability disclosure rules by 2027, requiring companies to disclose their eco-friendly practices and climate change management in financial reporting (Reuters, 2024). This move positions Nigeria as a leader in adopting global sustainability standards in Africa (DLA Piper, 2023). Additionally, Africa continues to prioritize sustainable development, with initiatives like the African Ministerial Conference on the Environment (AMCEN) focusing on coordinated environmental action across the continent (Africa Sustainability Matters, 2025). The Global Reporting Initiative (GRI) also supports sustainability reporting in Egypt, Ethiopia, Ghana, Kenya, Mauritius, Nigeria, and South Africa, fostering a network of organizations committed to sustainable development (GRI, n.d.).

SUMMARY

Green accounting is becoming a vital tool for sustainable development in Nigeria and across Africa, enabling businesses to quantify environmental impacts and align financial goals with ecological

responsibility. By integrating environmental data, companies enhance operational efficiency and achieve long-term cost savings (CloudCFO Global, 2024). Governments in Nigeria, South Africa, Kenya, and Egypt are driving adoption through policies like Nigeria's IFRS sustainability disclosure rules by 2027, South Africa's tax incentives, Kenya's Green Bond Programme, and Egypt's sustainable finance regulations. South Africa leads with robust frameworks, while Nigeria shows progress with recent initiatives. However, challenges such as limited awareness, high implementation costs, and weak enforcement hinder progress, particularly in Nigeria, where compliance is low due to governance issues (MedCrave, 2021). Opportunities abound with green financing, carbon markets, and growing corporate engagement, enhancing global competitiveness (Climate Champions, 2022). Strengthened oversight and support are crucial for African businesses to fully embrace green accounting and contribute to sustainable development.

CONCLUSION

Green accounting is a crucial tool for facing current environmental challenges and creating a balance between economic development and environmental protection. Well-structured policies and incentives can accelerate this process, while strengthening oversight and support frameworks is essential for achieving greater compliance and a positive long-term impact.

REFERENCES

Aifuwa, H. O. (2020). Sustainability reporting and employee engagement: Evidence from Nigeria. *Journal of Accounting and Management, 10*(3), 45–56.

Andersen. (2023). Nigeria's sustainability trends and outlook for 2024. Retrieved from https://ng.andersen.com/nigerias-sustainability-trends-and-outlook-for-2024/

Africa Sustainability Matters. (2025). African Ministers gather in Nairobi for AMCEN session. Retrieved from https://africasustainabilitymatters.com/

Awaysheh, A., Heron, R. A., Perry, T., & Wilson, J. I. (2020). On the relation between corporate social responsibility and financial performance. *Strategic Management Journal, 41*(6), 965–987. https://doi.org/10.1002/smj.3122

Ayón-Ponce, M., Morales, M., & Rodríguez, J. (2020). Drivers and outcomes of green accounting practices: A global perspective. *Journal of Sustainable Business, 12*(4), 78–90.

Baalbergen, J., van der Ven, H., & Akkermans, J. (2022). Cost accumulation systems and their impact on sustainable business models. *Accounting Review, 97*(2), 123–140.

Bedoya, M., Rojas, A., & Sánchez, J. (2024). Life cycle assessment and its role in sustainable decision-making. *Environmental Management Journal, 15*(1), 34–45.

Central Bank of Egypt. (2022). Mandatory regulations. Retrieved from https://climate-laws.org/document/central-bank-of-egypt-mandatory-regulations_422e

Climate Champions. (2022). Africa Carbon Markets Initiative launched to dramatically expand Africa's participation in voluntary carbon market. Retrieved from https://climatechampions.unfccc.int/africa-carbon-markets-initiative/

CloudCFO Global. (2024). Understanding green accounting. Retrieved from https://cloudcfo.co/understanding-green-accounting/

Da Fonseca, L. M. C. M. (2015). ISO 14001:2015: An improved tool for sustainability. *Journal of Cleaner Production, 101*, 56–63. https://doi.org/10.1016/j.jclepro.2015.04.024

DLA Piper. (2023). Implementing the new sustainability disclosure standards in Nigeria. Retrieved from https://www.dlapiperafrica.com/en/nigeria/insights/2023/Important-Legal-Update-Implementing-the-new-Sustainability-Disclosure-Standards-in-Nigeria..html

Doria, M., González, J., & López, R. (2020). Corporate social responsibility and environmental accounting: A new business approach. *Sustainability Journal, 12*(5), 345–360.

Dragomir, V. D. (2019). Environmental management systems and corporate sustainability: A global perspective. *Business Strategy and the Environment, 28*(4), 567–578. https://doi.org/10.1002/bse.2265

ELRI. (n.d.). Environmental law & policies in Nigeria. Retrieved from https://elri-ng.org/environmental-law-policies-in-nigeria/

Environmental Law Institute. (n.d.). Governance in Africa: Development of laws and regulations. Retrieved from https://www.eli.org/africa-program/governance-africa-development-laws-and-regulations

Erin, O. A., Bamigboye, O., & Oyewo, B. (2022). Sustainability reporting in Nigeria: Trends and implications for corporate governance. *African Journal of Business Management, 16*(2), 23–34.

Figueroa, E., Morales, A., & Castro, J. (2023). Environmental cost accounting: Challenges and opportunities. *Journal of Environmental Economics, 18*(3), 89–102.

GEFF Egypt. (n.d.). Welcome to the Green Economy Financing Facility. Retrieved from https://www.geff-egypt.com/

Green Climate Fund. (n.d.). Egypt. Retrieved from https://www.greenclimate.fund/countries/egypt

Green Climate Fund. (n.d.). Kenya. Retrieved from https://www.greenclimate.fund/countries/kenya

Green Climate Fund. (n.d.). Nigeria. Retrieved from https://www.greenclimate.fund/countries/nigeria

Green Climate Fund. (n.d.). South Africa. Retrieved from https://www.greenclimate.fund/countries/south-africa

GRI. (n.d.). GRI in Africa. Retrieved from https://www.globalreporting.org/about-gri/gri-in-africa/

Haldar, P. K. (2019). Green accounting and its impact on corporate sustainability. *International Journal of Environmental Studies, 76*(4), 612–625. https://doi.org/10.1080/00207233.2019.1591234

Hartwick, J. M. (1977). Intergenerational equity and the investing of rents from exhaustible resources. *American Economic Review, 67*(5), 972–974.

ICLG. (2024). Environmental, Social & Governance Laws and Regulations Report 2024 Kenya. Retrieved from https://iclg.com/practice-areas/environmental-social-and-governance-law/kenya

Igwe, P. A., Ochinanwata, C., & Madichie, N. O. (2023). Sustainability reporting in African economies: Challenges and opportunities. *Journal of African Business, 24*(1), 45–60.

Ikram, M., Zhou, P., & Qu, R. (2019). Environmental management systems and corporate performance: Evidence from developing economies. *Journal of Cleaner Production, 237*, 117–129. https://doi.org/10.1016/j.jclepro.2019.07.123

Kenya Treasury. (n.d.). The Kenya Green Bond Programme. Retrieved from https://www.treasury.go.ke/component/k2/item/2052-the-kenya-green-bond-programme

Kraus, S., Burtscher, J., & Vallaster, C. (2020). Corporate social responsibility and consumer perceptions: A stakeholder perspective. *European Management Journal, 38*(3), 456–467. https://doi.org/10.1016/j.emj.2019.12.004

Lasso, A., & Aguirre, M. (2021). Environmental cost accounting and corporate sustainability. *Journal of Business and Environmental Management, 10*(2), 45–58.

Legal500. (n.d.). South Africa: Environment – Country Comparative Guides. Retrieved from https://www.legal500.com/guides/chapter/south-africa-environment/

Lexology. (n.d.). A general introduction to environment and climate change law in Kenya. Retrieved from https://www.lexology.com/library/detail.aspx?g=05488646-7091-440b-9c7b-014da1ae98fb

Maama, H., & Appiah, K. O. (2019). Green accounting and environmental performance in emerging economies. *Journal of Accounting in Emerging Economies, 9*(2), 234–248. https://doi.org/10.1108/JAEE-03-2018-0032

MedCrave. (2021). Environmental laws and management agencies in Nigeria. Retrieved from https://medcraveonline.com/BIJ/environmental-laws-and-management-agencies-in-nigeriandash-what-hope-for-desecrated-landscape.html

Muñoz-Pico, M., Velasco, A., & Torres, P. (2021). Environmental responsibility and economic development: A global perspective. *Sustainability, 13*(7), 3890. https://doi.org/10.3390/su13073890

Nordhaus, W. D., & Tobin, J. (1972). Is growth obsolete? *Economic Research: Retrospect and Prospect, 5*, 1–80.

Ogunkan, D. O. (2022). Environmental regulations and sustainability in Nigeria: Aligning with global standards. *African Journal of Environmental Law, 14*(1), 23–35.

Pechancová, V., Hrbek, J., & Mitwallyová, H. (2019). Environmental management systems and corporate sustainability: A case study approach. *Sustainability, 11*(19), 5324. https://doi.org/10.3390/su11195324

Pope, P. F., & Bhimani, A. (1994). Environmental accounting and corporate decision-making. *Accounting and Business Research, 24*(95), 245–256.

Prieto, A., & Yzaguirre, J. (2021). Eco-efficiency and corporate sustainability: Theoretical perspectives. *Journal of Cleaner Production, 289*, 125–134. https://doi.org/10.1016/j.jclepro.2020.125789

Pulp. (n.d.). Compendium of South African environmental legislation. Retrieved from https://www.pulp.up.ac.za/catalogue/legal-compilations/compendium-of-south-african-environmental-legislation

Ramutsindela, M., & Mickler, D. (2020). Sustainable development goals and environmental governance in Africa. *African Studies Review, 63*(2), 345–362. https://doi.org/10.1017/asr.2019.56

Reuters. (2024). Nigeria gives businesses four years to adopt eco-friendly reporting standards. Retrieved from https://www.reuters.com/world/africa/nigeria-gives-businesses-four-years-adopt-eco-friendly-reporting-standards-2024-03-22/

Singh, A., & Singh, P. (2016). Environmental accounting and sustainability: Global perspectives. *International Journal of Environmental Management, 8*(3), 123–135.

Songi, O., & Dias, J. (2019). Sustainability reporting in African countries: A comparative analysis. *Journal of Sustainable Development in Africa, 21*(4), 56–70.

Soto, M. (2022). Tools for environmental management systems: A global review. *Environmental Management Journal, 14*(2), 78–89.

Teulings, C., & Huysmans, M. (2025). Microeconomic theory and environmental policy: Market failures and interventions. *Journal of Economic Perspectives, 39*(1), 45–60.

Trucios Kleiman, L. (2023). Integrated reporting and corporate sustainability: A global initiative. *Business Strategy Review, 34*(2), 89–102.

Velasco, A., Muñoz-Pico, M., & Torres, P. (2024). Green accounting mechanisms and environmental cost calculations. *Journal of Environmental Accounting, 16*(1), 34–47.

Wikipedia. (2013). South African environmental law. Retrieved from https://en.wikipedia.org/wiki/South_African_environmental_law