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Exploring The Concept of Sustainability Accounting Practices and Its Influence on Financial Performance of Businesses in Turkana County, Kenya

Jared Okello Otieno[1], Solomon Ngahu[2]

[1]School of Business and Economics, Turkana University College
Email: *jokello[at]tuc.ac.ke*

[2]Professor, Graduate School of Business and Economics, Turkana University College, Kenya, P.O BOX 69-30500, Lodwar, Kenya
Email: *sngahu[at]sepu.ac.ke*

Abstract: ***Background: This paper looks at how sustainability accounting practices affect the financial performance of companies in Turkana County, Kenya-a geographically vulnerable area being a dry land with a high ecological and operational risk to businesses. As sustainability accounting continues to become an important strategic tool in improving transparency, resource management and long-term resilience, the research aimed to evaluate the effectiveness of environmental reporting, resource efficiency tracking, and sustainability standards compliance with financial performance of business. Methodology: A mixed-methods approach was used, with the survey of 222 businesses being identified by the use of the stratified random sampling technique, but supplemented by the key informant interviews and case studies. The analysis of the quantitative data employed correlation and regression methodology, whereas the qualitative data were analyzed through the thematic analysis to enhance the results interpretation. Results: Correlation results indicate that environmental reporting practices have a moderate and statistically significant positive relationship with financial performance ($r = 0.58$, $p = 0.001$). Resource efficiency tracking also shows a positive, though weaker, significant relationship ($r = 0.42$, $p = 0.008$), suggesting that firms that track and optimize resource use gain gradual financial benefits. Compliance with sustainability standards further exhibits a significant positive association with financial performance ($r = 0.55$, $p = 0.003$), highlighting the value of regulatory and industry alignment. Regression analysis confirms sustainability practice adoption as a strong predictor of business financial performance. A one-unit increase in sustainability adoption leads to a 0.68-unit increase in financial performance ($\beta = 0.68$, $t = 5.67$, $p < 0.001$), indicating substantial financial benefits associated with integrating sustainability into business operations. Conclusions and Recommendations: The study concludes that sustainability accounting enhances profitability, operational efficiency, and competitiveness. It recommends strengthening environmental reporting systems, promoting resource-efficiency investments, and enhancing regulatory incentives to accelerate sustainability adoption among businesses in Turkana County.***

Keywords: sustainability accounting, financial performance, environmental reporting, resource efficiency, Turkana County

1. Introduction

Sustainability accounting has become established as a concept of using environmental and social factors in financial reporting and management decision-making (Aladwan, 2024). Sustainability accounting is especially important in developing economies because there has been a growing demand on natural resources, the risks of climate change, and the prerequisite to have sustainable business operations. The county of Turkana in Kenya, a semi-arid area located in the north western part is a good example of where sustainability accounting is applicable. Due to its large but underutilized natural resources that includes petroleum deposits, fisheries and livestock, economic activities are highly prone to environmental degradation as a county (Monteiro, et al., 2021).

Sustainability accounting has become a regulatory requirement in most jurisdictions as opposed to being just a voluntary act of reporting (Juusola, & Srouji, 2023). The guidelines to disclose environmental and social performance indicators are offered by frameworks like Global Reporting Initiative (GRI), Sustainability Accounting Standards Board (SASB) and Task Force on Climate-related Financial Disclosures (TCFD) (Ozili, 2021). Sustainability accounting is an accounting practice that is integrated into the business models of many multinational corporations to promote transparency levels, reduction of risks, and good stakeholder involvement.

Ikpor, et al., (2022) opine that sustainability accounting has become an important trend in Africa over the past years as more governments and businesses are becoming more aware of the value of responsible and transparent management of resources. With the increased environmental awareness, climate change threats, and the overall increased focus on corporate responsibility across the globe, African countries are starting to implement practices that would conform to the standards of sustainability accounting (Ikpor, et al., 2022). Among them are the introduction of environmental, social and governance (ESG) measures in financial disclosures, the evaluation of the effects of development projects on the environment, and systems to ensure long-term ecological and economical sustainability. The adoption of sustainability accounting in the continent is disjointed. Lack of regulatory efforts, financial incentives, technical skills and poor access to quality information remain as a barrier to the wide implementation (Olarewaju, & Msomi, 2021).

Countries in Africa have indeed performed towards institutionalization of sustainability reporting (Girón, et al., 2021). A case in point is South Africa that is the leader in the

region with its full legislative and policy frameworks. Integrated reporting has become a mandatory disclosure of both the environmental and social impact in addition to the financial performance of the companies listed in the Johannesburg Stock Exchange (JSE) due to the introduction of the King Reports on Corporate Governance particularly King III and King IV which require listed companies to prepare integrated reporting. These actions have made South Africa a leader in merging corporate responsibility with sustainability-related concepts (Girón, et al., 2021). Comparatively, a large number of other African countries, including the East African countries, are still at the infantile phase of incorporating sustainability accounting in national and corporate governance systems (Tauringana, 2021). The difference in adoption is attributed to the different levels of institutional capacity, policy orientation, awareness of stakeholders, and sustainability training investment.

Kenya is characterized as a country in transition-taking significant first steps to sustainability accounting but still struggling with structural issues (Agutu, & Githira, 2023). At the regulatory level, Kenya has put in place measures that promote environmental and social accountability. The National Environment Management Authority (NEMA) is at the center of implementing environmental standards by requiring developer projects to submit and approve Environmental Impact Assessments (EIAs) to ensure their development projects are environmentally friendly. These evaluations are essential in making sure that the businesses and infrastructure projects consider any damage to the environment and local communities before they are carried out (Masila, et al., 2024). Moreover, Capital Markets Authority (CMA) of Kenya has enacted ESG disclosure policies on listed companies, which is an indication of a deeper consideration of the sustainability transparency in the corporate world.

Bigger companies and multinational organizations have greater chances of employing ESG disclosure requirements, and small and medium-sized businesses (SMEs) that comprise most of the Kenyan business environment are highly impeded (Mwika, 2025). These are a lack of financial and human resources, little regulatory control and ignorance concerning the importance of sustainability reporting. SMEs are not always able to spend money on sustainability consultants or technology necessary to track and report on ESG indicators. As a result, the larger economic framework has been marked by lapses in sustainability indicators, lack of accounting of environmental costs in accounting, and a lack of policy-practice relationship (Mwika, 2025).

The case of Turkana County, in northwestern Kenya can be seen as a strong example in the context of the challenges and opportunities linked to the sustainability accounting within the areas that are resource-dependent and prone to climate changes (Njaya, 2022). Rich natural resources are also bestowed to the county such as petroleum deposits, large livestock count, and large fisheries along Lake Turkana (Njaya, 2022). Such resources are the keystones of the local economy and provide possible ways to evolve and decrease poverty. Nevertheless, the exterior risks that they bring when not dealt with appropriately present both environmental and social risks that, when unchecked, might lead to the collapse of sustainability in the long term.

Optimism and concern have been raised by the discovery of oil in Turkana (Chacha, et al., 2024). Although the oil extraction promises to create unemployment and enhance the infrastructure, it presents some threats including land degradation, water contamination, and displacement of people. The absence of an adequate sustainability accounting systems makes it hard to estimate the actual cost of the extraction processes or to make sure that the local communities share the benefits equally (Chacha, et al., 2024). In addition to this the risks associated with the environment are increased as the region is prone to extreme weather conditions like frequent droughts, floods and heat waves that pose a threat to the food security, water and business continuity.

In spite of these factors, sustainability accounting in the business and governance of Turkana is not developed (Omala, 2025). Majority of the businesses, particularly local and community-based businesses, are informal businesses with no structures that will help measure and report on environmental and social impacts. Simultaneously, the development plans and resource governance strategies at the county level tend to focus on the short-term economic benefits at the expense of the long-term ecological resilience. The lack of localized sustainability measures and reporting instruments has made it hard to track the aggregate effect of resource utilization or to develop responsive adjustment plans when there is variable weather.

Considering this fact, the need to encourage the introduction of sustainability accounting in Turkana County as a tool of improving economic resilience and environmental stewardship is urgent (Kaguara, 2023). Given the adoption of sustainability accounting frameworks, businesses and local governments can be more efficient in rating risks, resource allocation, and alignment of these operations with those of the global best practices. As an illustration, sustainability indicators might be stipulated within the county level budgeting and development planning procedures to allow the decision-makers to make trade-offs between development and environment protection (Kaguara, 2023). Business might also use simplified templates of ESG reporting depending on the size and the ability of the business and the simplified ESG reporting may enable the business to report its sustainability to its stakeholders such as investors, regulators, and community members.

In addition, local training and technical support program development initiatives may be used to develop capacity among the SMEs, as well as county officials (Barauskaite, & Streimikiene, 2021). Collaborations with academic institutions, non-governmental organizations and actors in the private sector might enable share of knowledge and co-develop usable tools to sustainability accounting in the unique environment of Turkana Anno, & Nakeno, (2025). Such activities may also lead to enhanced transparency, accountability, and social license to operate of the companies which are engaged in extracting resources and in the development of infrastructure.

1.1 Financial Performance of Businesses in Turkana

Financial performance is a measure of how well a business meets its financial goals (Lassala, Orero-Blat, & Ribeiro-Navarrete, 2021), like its profitability, revenue, management of costs, and the returns of investment. In the Turkana County, businesses are affected by the environmental, socio-economic, and operational factors in a blend so that financial performance is affected. The dry climate of the area, poor infrastructure and resources pose specific challenges to businesses influencing cash flows, business operation and profitability.

Barauskaite, & Streimikiene, (2021) states that companies which embrace the best financial management practices such as budgeting, cost management and performance management have a tendency of performing better despite such constraints. The adoption of sustainability practices, including environmental reporting, resources efficiency monitoring, and adherence to sustainability standards have gradually become an event that affects financial performance (Barauskaite, & Streimikiene, 2021). Those firms that have their resources effectively managed, minimize wastage and adhere to the environmental guidelines tend to accrue cost benefits and a good reputation that can lead to better financial performance.

According to Anno, & Nakeno, (2025), the business environment of Turkana is dominated by micro, small and medium enterprises (MSMEs) and they are usually vulnerable to external shocks such as weather problems and market variations, which affect their financial performance. Therefore, the study is important in formulating interventions that improve profitability, operation, and business sustainability in the Turkana County.

1.2 Problem Statement

Financial performance is critical for every business (Salamah, 2023). Meanwhile, the practice of sustainability is becoming more and more popular as the possible source of financial profit. Monitoring environmental reporting and resource efficiency, waste minimization, and compliance with environmental regulations can improve the reputation, lowering of the operation costs, and long-term profitability.

However, in Turkana County, this is one of the major issues because the environmental conditions in the regions are harsh, the infrastructure insufficient, and resources are also scarce which has direct influence on business operations (Kaguara, 2023). The profitability, cost management and return on investment are the key sign-posts of financial well-being of the business, but most enterprises cannot reach the desired goals because of disruption of cash flows, high operations costs, and lack of access to vital support systems of the business (Lowalan, 2024). Such obstacles are compounded by the dry climate in Turkana, frequent droughts, and lack of transport and market infrastructure that deteriorates the stability and growth opportunities of business.

Even though the companies that apply good financial management practices that included effective budgeting, cost management, and performance monitoring are more likely to present enhanced results, the ability of the practices to counteract the challenging nature of the business in the region has not been adequately addressed. Nevertheless, there is no empirical study that determines the impacts of these sustainability practices on financial performance in Turkana.

This is further aggravated by the fact that micro, small and medium enterprises (MSMEs) which constitute the majority of businesses in the area are very susceptible to climatic shocks, unstable markets and uncertainty in operations (Abdul Rahman, & Hamzah, 2024).. Such businesses have a high vulnerability to financial crises because they do not have the strength and capital resources required to adjust to environmental forces. This knowledge gap raises a critical study that should be carried out with the aim of exploring the financial performance drivers in the business environment characterized by challenges in Turkana. These factors play a crucial role in the design of interventions that can enhance profitability, increase the strength of the operational capacity, and business sustainability across the county.

1.3 Significance of the Study

Turkana County's economic growth is heavily dependent on businesses that interact with fragile ecosystems. Sustainability accounting allows the businesses to reduce these risks by ensuring the responsible management of resources, increasing regulatory compliance, and financial performance. This paper offers empirical evidence to determine the feasibility of sustainability accounting and its advantages to the businesses in Turkana County.

1.4 Objectives of the Study

The study aims to:
1) To determine how environmental reporting practices affect the financial performance of businesses in Turkana County.
2) To examine the extent to which resource efficiency tracking contributes to financial performance of businesses in Turkana County.
3) To assess the influence of compliance with sustainability standards on financial performance of businesses in Turkana County.

1.5 Research Hypotheses

H_{01}: There is no significant effect of environmental reporting practices on the financial performance of businesses in Turkana County.
H_{02}: There is no significant contribution of resource efficiency tracking to the financial performance of businesses in Turkana County.
H_{03}: There is no significant influence of compliance with sustainability standards on the financial performance of businesses in Turkana County.

2. Literature Review

2.1 Theoretical Framework

This study is grounded in two key theoretical perspectives: Triple Bottom Line (TBL) Theory and Institutional Theory.

The TBL theory, developed by Elkington (1997), proposes that organizations should measure their performance not only by financial outcomes but also by environmental and social impact. It emphasizes sustainability as a threefold concern people, planet, and profit encouraging businesses to address environmental risks and opportunities while fostering long-term economic viability. This theory is crucial in evaluating how businesses in Turkana County balance economic goals with environmental stewardship.

Institutional Theory provides insight into how external pressures such as regulations, norms, and stakeholder expectations influence organizational behavior. DiMaggio and Powell (1983) argue that institutions shape corporate practices through coercive, mimetic, and normative forces. In the context of Turkana, institutional pressures from government agencies, NGOs, and the public may drive the adoption of sustainability accounting, despite the absence of stringent regulatory enforcement.

2.2 Empirical Literature Review

Environmental Reporting Practices

Empirical studies underscore the significant environmental risks confronting businesses in arid and semi-arid regions like Turkana County (Nogbou, & Nalugala, 2022). These include water scarcity, prolonged droughts, flash floods, land degradation, and biodiversity loss all of which can disrupt business continuity and reduce productivity (UNEP, 2020). According to Nogbou, & Nalugala, 2022), pastoral and agricultural enterprises in northern Kenya are increasingly vulnerable to climate variability, leading to loss of livestock, crop failure, and migration, which in turn affect local economies. In Turkana, oil exploration and extraction have introduced additional environmental challenges, including land use conflicts, deforestation, and potential pollution risks (Lowalan, 2024).

Despite these threats, opportunities exist for sustainable enterprises in renewable energy, eco-tourism, and climate-smart agriculture, if environmental management is prioritized. However, studies reveal that local businesses often lack the tools and knowledge to identify and act upon such opportunities (World Bank, 2019). The limited integration of environmental risk assessments into business planning hinders proactive adaptation. Understanding these risks and opportunities is critical for shaping policies and interventions aimed at enhancing resilience in Turkana's business environment.

Resource Efficiency Tracking

Sustainability accounting has shown positive financial and environmental impacts in various global and regional contexts. Empirical evidence from emerging markets reveals that businesses adopting sustainability accounting frameworks are better equipped to manage environmental risks and improve long-term profitability (Qian, Tilt, & Belal, 2021). For example, companies in Nigeria and India that implemented environmental management accounting reported enhanced cost savings and resource efficiency. In the Kenyan context, large corporations listed on the Nairobi Securities Exchange (NSE) that disclose ESG data often experience improved investor confidence and brand reputation (Capital Markets Authority, 2020).

However, in rural and underdeveloped areas like Turkana County, empirical studies remain scarce. Evidence from small enterprises in similar settings shows that basic sustainability reporting even informal can improve access to green financing and build trust with local communities (Chacha, Nyangena, & Imbiakha, 2024). Moreover, businesses practicing sustainability accounting tend to reduce environmental liabilities by integrating eco-friendly technologies and practices into their operations. Despite initial resource challenges, the long-term gains in efficiency and environmental stewardship suggest significant value in promoting sustainability accounting among Turkana's SMEs (Song, Wen & Wang, 2021).

Compliance with Sustainability Standards

ISO 14001 continues to play a central role in guiding firms toward structured environmental management and sustainability performance (Bravi, et al., 2020). Recent studies indicate that ISO-certified firms demonstrate stronger operational efficiency, improved risk management, and enhanced environmental monitoring capabilities (Testa et al., 2020). Adherence to ISO standards has also been linked to higher stakeholder trust and competitiveness as firms communicate stronger sustainability commitments to regulators and customers (Del Giudice & Khan, 2021). In developing economies, however, challenges persist, including certification costs and limited technical capacity among SMEs, which constrain full implementation (Abid et al., 2022). Despite these barriers, post-2020 evidence confirms that ISO standards remain an effective mechanism for promoting environmental accountability and institutionalizing sustainability within business processes.

Environmental regulations remain powerful drivers of sustainable business conduct, compelling firms to manage emissions, waste, and resource use more responsibly. Recent literature shows that stronger regulatory enforcement significantly enhances firms' environmental performance and encourages investment in cleaner technologies (Zobel & Cook, 2020). Regulatory compliance improves operational legitimacy, reduces penalty risks, and supports long-term resilience, especially in environmentally sensitive regions (Song, Wen & Wang, 2021). However, enforcement challenges including limited monitoring capacity and inadequate institutional support still hinder regulatory effectiveness in many developing contexts (Mbah & Nzeadibe, 2020). Studies emphasize that regulatory compliance is strengthened when governments pair enforcement with incentives such as subsidies, training, and compliance assistance programs, enabling firms to exceed basic legal requirements and adopt more proactive sustainability measures.

Industry sustainability codes represent voluntary frameworks that guide firms toward responsible production, ethical practices, and environmental stewardship (Ayentimi & Burgess, 2020). Recent studies highlight that organizations adopting sector-specific sustainability codes experience stronger stakeholder trust, enhanced brand value, and improved environmental outcomes (Bui & de Villiers, 2021).

These codes often include commitments to responsible sourcing, energy efficiency, carbon reduction, and community welfare, supporting firms in aligning with global sustainability expectations. However, voluntary codes continue to face limited uptake in developing regions due to financial constraints, weak institutional support, and minimal incentives (Ayentimi & Burgess, 2020).

3. Conceptual Framework

The conceptual framework illustrates how the independent variables influence the dependent variable. It shows the expected relationship between independent variables (environmental reporting practices, resource efficiency tracking and resource efficiency tracking) and dependent variable (Financial Performance of Businesses**).** This framework guides the study by clarifying how these factors interact to affect financial and environmental outcomes for businesses in Turkana County.

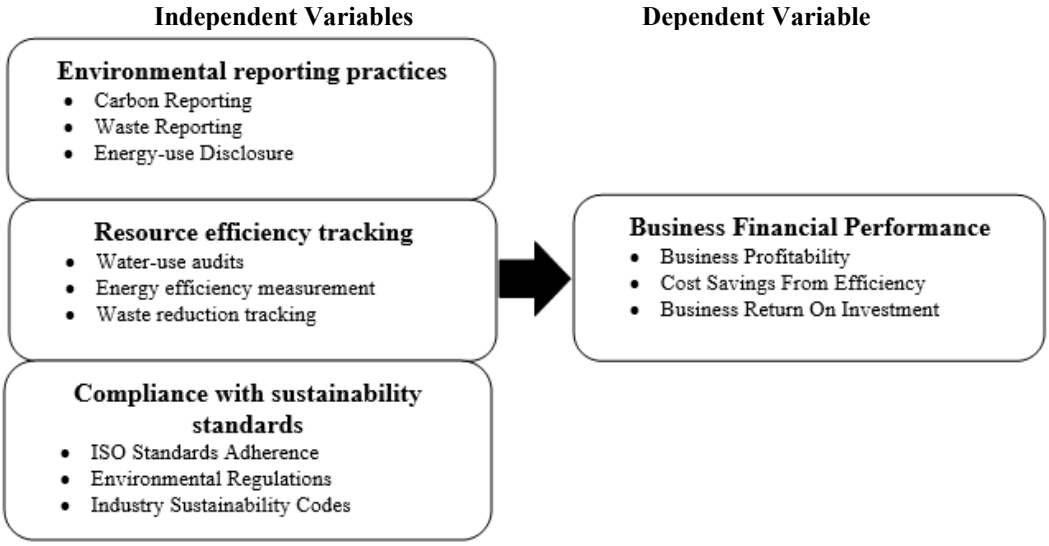

Figure 1: Conceptual Framework

Environmental reporting practices, resource efficiency tracking, and compliance with sustainability standards collectively influence business financial performance. Effective environmental reporting enhances transparency and accountability, enabling businesses to identify inefficiencies and reduce operational risks, which in turn improves profitability. Resource efficiency tracking strengthens internal management of water, energy, and waste, leading to cost savings and improved returns on investment. Additionally, compliance with sustainability standards ensures adherence to regulatory and industry requirements, reducing potential penalties and enhancing corporate reputation. Together, these sustainability accounting practices support better financial outcomes by lowering operating costs, improving efficiency, and increasing long-term business value.

4. Research Methodology

This study adopted a mixed-methods research design, combining both quantitative and qualitative approaches to provide a holistic understanding of sustainability accounting practices in Turkana County. This methodology allows for triangulation of data, enhancing the validity and depth of findings. The target population comprises registered businesses operating across various sectors in Turkana County, including retail, agriculture, fisheries, and energy. According to the Turkana County Government Business Register (2023), there are approximately 500 active formal and informal businesses in the region. A sample size of 222 businesses were selected using stratified random sampling, ensuring proportional representation across different sectors and business sizes.

Yamane's Formula:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = desired sample size

N = population size

e = margin of error (usually 0.05 for a 95% confidence level).

Applying the Formula:

Given:

N=500N

e=0.05

$$n = \frac{500}{1 + 500\ (0.05)^2}$$

$$n = \frac{500}{1 + 500\ (0.0025)}$$

$$n = \frac{500}{1 + 1.25}$$

$$n = \frac{500}{2.25}$$

= **222**

Data Collection Methods

Quantitative data were collected through structured questionnaires distributed to business owners and managers.

The survey assessed environmental reporting practices, resource efficiency tracking, compliance with sustainability standards and business financial performance**.** Qualitative data were gathered through key informant interviews with selected stakeholders, including business leaders, county government officials, environmental consultants, and representatives from regulatory bodies such as NEMA and the Kenya Capital Markets Authority. This supports the three case studies of businesses actively practicing sustainability accounting conducted to explore business financial performance (Juusola, & Srouji, 2023).

Data Analysis Techniques

Quantitative data were analyzed using descriptive statistics (frequencies, means, and percentages) and inferential methods such as correlation and regression analysis using SPSS or Stata, to test the study's hypotheses. Qualitative data were subjected to thematic analysis, where interview transcripts and case study notes were coded and categorized to identify recurring themes, patterns, and unique insights. This integrated approach provided an understanding of both the measurable outcomes and contextualizing concept of sustainability accounting practices and financial performance of businesses in Turkana County, Kenya.

5. Results and Discussion

The study targets a total sample size of 222 businesses in Turkana County, selected using stratified random sampling. Below is a summary of the statistics related to the study objectives, including environmental risks, opportunities, financial performance, and sustainability accounting practices.

5.1 Results

5.1.1 Descriptive Statistics

The study presents descriptive results as shown in Table 1. The descriptive statistics show that the environmental reporting among the firms is moderately developed where a significant difference in the levels of implementation should be noted. Carbon reporting has the largest mean score (M = 3.62, SD = 1.02) indicating that there is a large awareness of the carbon gas emission and its importance to the sustainability of the corporation.

Nevertheless, the comparatively large standard deviation indicates variance, as there are firms with high reporting structures, and there are others with very low ones. There is also average adoption in waste reporting (M = 3.40, SD = 0.88), indicating that there is still the need to spread the knowledge of waste management processes and policies to minimize them. Nearly all energy-use disclosure comes right behind (M = 3.20, SD = 0.90), meaning that companies recognize the value of energy disclosure but have not yet formalized full reporting procedures. It seems that environmental reporting practices are emerging in an uneven way across organizations. It might be caused by the variation in regulatory pressure, availability of expertise, organizational priorities, or availability of resources. The results support that the harmonized guidelines, improved monitoring systems and specific capacity building are necessary to secure the homogeneous and reliable environmental reporting among firms, thus contributing to the increased level of transparency and accountability of the sustainability performance (Abdul Rahman, & Hamzah, 2024).

The efficiency in the usage of resources is not highly developed among the surveyed firms as the mean scores of all indicators are lower. Audits on water-use, having an average score of 3.10 (SD = 0.95) show moderate levels of adoption, indicating that some companies take a regular assessment of water usage. The measurement of energy efficiency records even lower mean (M = 2.80, SD = 0.75), which means that there is little application of monitoring tools or performance benchmarks to measure the decrease in energy use. The least scoring indicator is waste reduction tracking (M = 2.50, SD = 0.70) indicating that extensive mechanisms of tracking waste minimization practices are insignificant or not present in most companies. The poor uptake is an indication that resource efficiency is not yet in the operational strategies, perhaps because of cost constraints, technical lack of expertise, or because of low emphasis of environmental performance on the core business operations (Nogbou, & Nalugala, 2022). Increment of capacity, investment in monitoring technologies, and adjustment of resource tracking with financial and regulatory incentives can make a huge contribution to the improvement of resource efficiency performance.

Sustainability adherence presents a mixed outcome, where mandatory and voluntary frameworks maintain the level of compliance to various extents. The highest performance is shown by the ISO standards adherence (M = 3.45, SD = 0.85), which means that the variety of firms adheres to the internationally recognized environmental and sustainability management systems. This implies a fairly high adherence to systematic compliance procedures in which certification has reputational and operational advantages. Conversely, environmental regulation has an average performance (M = 3.00, SD = 0.80), which means that companies usually comply with the few legal requirements but hardly go beyond them. The industry sustainability codes have the lowest score (M = 2.50, SD = 0.70). These findings were in support of Lowalan, (2024) that indicates that regulative forces are the main drivers of compliance as opposed to voluntary environmental stewardship.

Business financial performance indicators present moderately positive outcomes, suggesting that firms are experiencing some financial benefits associated with sustainability-related activities. Cost savings from efficiency show the highest mean score (M = 3.55, SD = 0.88), indicating that a significant proportion of firms benefit financially from improved energy use, reduced waste, and optimized resource consumption. This reinforces the understanding that sustainability practices can yield direct economic gains through operational cost reductions. Business profitability also demonstrates moderate performance (M = 3.30, SD = 0.92), though the relatively higher standard deviation suggests that financial outcomes differ substantially among firms, possibly due to sectoral variations, resource allocation, and competitive positioning.

Return on investment (ROI) follows a similar pattern (M = 3.25, SD = 0.90), indicating that investments in sustainability and operational improvements are producing reasonable returns but vary across organizations.

Table 1: Construct for Descriptive Statistics

Variable	Sample Size (n)	Mean	Standard Deviation (SD)
Environmental reporting practices			
Carbon Reporting	222	3.62	1.02
Waste Reporting	222	3.40	0.88
Energy-use Disclosure	222	3.20	0.90
Resource Efficiency Tracking			
Water-use audits	222	3.10	0.95
Energy efficiency measurement	222	2.80	0.75
Waste reduction tracking	222	2.50	0.70
Compliance with sustainability standards			
ISO Standards Adherence	222	3.45	0.85
Environmental Regulations	222	3.00	0.80
Industry Sustainability Codes	222	2.50	0.70
Business Financial Performance			
Business Profitability	222	3.30	0.92
Cost Savings From Efficiency	222	3.55	0.88
Business Return On Investment	222	3.25	0.90

5.1.2 Correlation Analysis

Correlation analysis was performed to identify the strength and direction of the relationship between environmental sustainability practices (environmental reporting, resource efficiency monitoring, and adherence to sustainability standard) and business financial performance. The findings show that there are different levels of correlation among the constructs.

The relationship between environmental reporting practices like carbon reporting, waste reporting and energy-use disclosure and financial performance is moderate positive (r = 0.58) indicating that those firms which are more transparent in their reporting perform better on the financial part.

The resource efficiency tracking variables such as water-use audit, energy efficiency measurement and waste reduction tracking show a positive albeit less significant correlation with financial performance (r = 0.42) that is, firms that track their efficiency are accumulating monetary gains gradually.

Compliance with sustainability standards, such as adherence to ISO standards, environmental regulations, and industry sustainability codes, shows a moderate positive correlation with financial performance (r = 0.55), implying that regulatory alignment enhances firm credibility and financial outcomes.

Table 2: Correlation Coefficients

Variables	Correlation Coefficient (r)	Significance (p-value)
Environmental Reporting & Business Financial Performance	0.58	0.001
Resource Efficiency Tracking & Business Financial Performance	0.42	0.008
Sustainability Standards Compliance & Business Financial Performance	0.55	0.003

5.1.3 Regression Analysis

In order to evaluate further the impact of sustainability practices on the financial performance of the business, a linear regression model was estimated with combined sustainability scores (environmental reporting, efficiency tracking, and standards compliance) serving as the predictor variable. The regression outcomes indicate that the financial performance of a company is significantly predicted by sustainability practices adoption ($p < 0.001$). The analysis also demonstrates that the increase in the financial performance is 0.68 units each time the sustainability practice is boosted, other factors being held constant. This demonstrates that firms that integrate sustainability into their operational systems are more likely to achieve improved financial outcomes.

Regression Model Summary

- **Dependent Variable:** Financial Performance
- **Independent Variable:** Sustainability Practice Adoption

Regression Equation:

$Y = \beta 0 + \beta 1 + ... + \epsilon ..... i$

$Business\ Financial\ Performance = \beta 0 + \beta 1\ (Sustainability\ Adoption) + \epsilon ..... ii$

Table 3: Coefficients

Coefficients	Estimate	Standard Error	t-Statistic	p-value
Intercept (β_0)	1.60	0.28	5.71	0.000
Sustainability Adoption (β_1)	0.68	0.12	5.67	0.000

6. Conclusion

The study findings indicate that sustainability practices within firms are moderately developed but have a high degree of variability in various dimensions. The environmental reporting practices are relatively more adopted especially in carbon and waste reporting but discrepancies in standardization and uniformity are still clear. Resource efficiency monitoring is less developed, and there are low adoption of energy efficiency measurement and waste reduction monitoring, so many companies have not entirely implemented resource optimization in their work processes. The adherence to sustainability standards portrays inconclusive outcomes with companies adhering to ISO standards more than those that adhere to industry codes that are not mandatory and that encompass comprehensive environmental policies. All in all, these descriptive results imply partial adoption of sustainability in the business processes which are more comprehensive based on the regulatory requirements rather than proactive environmental management.

The correlation analysis ensures that the relationship between the environmental reporting, resource efficiency tracking, and standards compliance and the business financial performance are positive. Companies that have stronger sustainability initiatives achieve better financial results, such as increased profitability, cost reductions, and better IR. This is also confirmed by the regression results where sustainability adoption is a significant predictor of financial performance with a one unit change in sustainability practice adoption resulting in a 0.68 unit change in financial performance.

These results confirm the significance of sustainability to business competitiveness in business and efficiency in operations in the long-term.

7. Recommendations

- Firms should adopt standardized and transparent environmental reporting systems to improve the accuracy and consistency of carbon reporting, waste reporting, and energy-use disclosure.
- Organizations need to prioritize resource efficiency by investing in technologies and systems that support regular water-use audits, energy efficiency measurement, and waste reduction tracking.
- Stronger enforcement and incentives are necessary to improve compliance with both mandatory regulations and voluntary industry sustainability codes.

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