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Corporate social responsibility and environmental sustainability: Perceptions of select petroleum companies in South Africa

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ABSTRACT - SOMMARIO

This study investigates how Corporate Social Responsibility (CSR) contributes to environmental sustainability within South Africa's petroleum sector. The results indicate that while managers view CSR as a critical driver of environmental performance, perceptions of its effectiveness vary across different managerial roles. Respondents emphasized stronger communication, employee participation, and executive accountability to close the gap between CSR strategies and practical implementation. Notably, the study aligns with the broader objectives of the United Nations Sustainable Development Goals (SDGs), reinforcing CSR's role in promoting inclusive, responsible, and environmentally sustainable industrial practices. These findings offer preliminary insights for industry leaders, highlighting the importance of integrated CSR strategies and continuous organizational commitment to environmental sustainability.

Questo studio indaga come la Responsabilità Sociale d'Impresa (CSR) contribuisca alla sostenibilità ambientale nel settore petrolifero sudafricano. I risultati indicano che, sebbene i manager considerino la CSR un fattore critico delle prestazioni ambientali, la percezione della sua efficacia varia tra i diversi ruoli manageriali. I rispondenti hanno sottolineato una comunicazione più forte, la partecipazione dei dipendenti e la responsabilità esecutiva per colmare il divario tra strategie di CSR e implementazione pratica. In particolare, lo studio è in linea con gli obiettivi più ampi degli Obiettivi di Sviluppo Sostenibile (SDGs) delle Nazioni Unite, rafforzando il ruolo della RSC nella promozione di pratiche industriali inclusive, responsabili e sostenibili dal punto di vista ambientale. Questi risultati offrono intuizioni preliminari ai leader del settore, evidenziando l'importanza di strategie integrate di CSR e di un impegno organizzativo continuo verso la sostenibilità ambientale.

Keywords: corporate social responsibility; environment; sustainable development goals; CSR strategies

1 – Introduction

In 2021, South Africa was reported to have the second-largest refining capacity in Africa, amounting to 718,000 barrels per day, following Egypt (DMRE Report, 2021). Of the six refineries in the country, four are on the coast, and two are inland in South Africa. Two synthetic fuel production facilities, owned by Sasol and PetroSA, produce liquid fuels from coal and gas. Major refineries include Sapref and Enref in Durban, Chevron in Cape Town, and Natref at Sasolburg (Department of Mineral Resources & Energy, 2021).

Companies like BP Southern Africa, Astron Energy, Engen Petroleum, Petrosa, Sasol Oil, Shell South Africa, and Total Energies South Africa remain the leading players in the South African petroleum industry (SAPIA, 2020). In 2024, South Africa's refined petroleum products market size was estimated at USD 8.30 billion. It is anticipated to reach USD 8.83 billion by 2029 (Mordor Intelligence report, 2024). McKinsey and Co (2020) reported that the industry's operations are responsible for approximately 9 percent of all human-made greenhouse gas (GHG) emissions. In addition, fuel production creates another 33 percent of global emissions.

The South African Petroleum Industry Association (SAPIA) works with petroleum companies to promote social and economic growth for the broader good of all South Africans and industries. SAPIA also works closely with government, industry stakeholders, and other regulatory bodies such as the National Energy Regulator of SA (NERSA) to ensure the petroleum industry remains sustainable, competitive, and environmentally responsible.

Researchers such as Sankaranarayanan *et al.* (2021) and Okeke (2021) affirm that petroleum companies face social, economic, and environmental sustainability challenges. SAPIA has developed an industry-wide sustainability strategy that embeds social, environmental, and economic triple bottom line into every stage of the petroleum lifecycle. This strategy promotes environmental and socioeconomic progress, emphasizing the triple bottom line: social, environmental, and economic sustainability (SAPIA, 2016).

Given the above, an exploratory, descriptive study was conducted among a select sample of petroleum companies in SA to explore how these companies fare concerning key corporate social responsibility (CSR), corporate social investment (CSI), and environmental, societal and governance issues.

2 – Literature Review

The global economy is undergoing an energy transition from fossil fuels to more sustainable energy sources. China, the world's largest oil company, has announced the New Energy Vehicle Industrial Development Plan for 2021 to 2035 for producing electric vehicles in their country (State Council of the People's Republic of China, 2020). The aim is to build a green, robust, and internationally competitive auto industry. South Africa developed the Just Energy Transition (JET) Implementation Plan 2023–2027 to be able to take targeted steps towards meeting decarbonization commitments in a manner that delivers just outcomes for those affected by energy transition and contributes to inclusive economic growth, energy, security and employment where scale and cost balance the country's socioeconomic development path, needs and affordability (State of the Nation, 2023).

The International Energy Agency (2023) reports that the petroleum industry operations account for around 15 percent of total energy-related emissions globally, the equivalent of 5.1 billion tons of greenhouse gas emissions to date, and this implies that the South African petroleum industry is faced with carbon emissions due to its operational nature. Furthermore, 90 percent of SA emissions are driven by Sasol's Secunda and Sasolburg operations. Synthetic fuels produce, on average, 26 times more carbon-intensive than conventional liquid fuel, produced in conventional crude refineries.

South Africa is anticipated to be among the countries at the most significant physical risk from climate change (Scholes & Engelbrecht, 2021). Sankaranarayanan *et al.* (2021) affirm that rapid industrialization has led to environmental degradation over the past decades, with the petroleum sector among the most significant contributors to ecological harm. This degradation

has aggravated social and economic problems such as unemployment, poverty, and inequality in many communities where South African petroleum companies operate (Sankaranarayanan *et al.*, 2021). In response to growing public and regulatory pressure, the World Commission on Environment and Development emphasized in 1987 that sustainable development must integrate environmental protection, economic growth, and social equity to meet present needs without compromising future generations (Brundtland Commission, 1987). Building on this, Elkington's (1994) triple-bottom-line framework calls on firms to balance "profit, people, and planet" in all strategic decisions.

The challenges confronting the petroleum sector, such as economic growth, job creation, and transformation, reflect broader national issues in South Africa (Tsotsi, 2011). According to Emeka-Okoli *et al.* (2024), integrating sustainable development goals (SDGs) into the sector's operations may be crucial for achieving environmental sustainability, economic viability, and social responsibility. In 2015, the United Nations introduced the SDGs as a universal call to action to combat poverty, protect the planet, and ensure prosperity for all by 2030 (UN, 2015). SAPIA has acknowledged the sector's role as an economic enabler and commitment to transformation and intends to support the United Nations' vision for 2030, advocating for business practices that contribute to a better future and improved quality of life for all (SAPIA, 2016). The 17 interlinked SDGs provide a framework to address global challenges, including poverty, inequality, climate change, environmental degradation, peace, and justice (Nwankwo *et al.*, 2024).

Given the petroleum industry's significant environmental impact, there is increasing pressure for the sector to adopt sustainable practices. Incorporating SDGs into company strategies can mitigate adverse social and environmental effects while fostering innovation, competitiveness, and long-term viability in a rapidly evolving energy landscape (Emeka-Okoli *et al.*, 2024).

According to the International Energy Agency (IEA, 2021), sustainability in the petroleum sector entails managing resources, capital investments, and technologies to maintain and optimize operational performance, emphasizing safety, reliability, efficiency, and environmental and social awareness. SAPIA has highlighted the industry's contributions to social welfare, including improving living standards, health benefits, and safety. These efforts encompass social sustainability initiatives like black and women empowerment and community contributions to alleviating poverty and hunger; environmental sustainability through pollution reduction and health improvements; and economic sustainability by enhancing industrial competitiveness, creating jobs, and increasing value-added production (SAPIA, 2016).

2.1 – Corporate Social Responsibility, Corporate Social Investment and Environmental, Social and Governance

Fernando *et al.* (2024) refers to corporate social responsibility (CSR) as a firm's comprehensive approach to managing its operations ethically and sustainably, considering its impact on society and the environment. Accordingly, this encompasses sustainable sourcing, ethical labour standards, environmental stewardship, and community engagement. The above researchers further affirm that CSR is integrated into a company's core business strategy to balance profitability with social and environmental considerations, often called the "triple bottom line" of profit, people, and planet.

Corporate social investment (CSI), which is regarded as a subset of CSR, focuses specifically on a company's voluntary contributions to social development, typically through financial donations, services, or other resources (Ndhlovu, 2011). These investments are directed toward initiatives that uplift communities and improve quality of life, such as education, health, and infrastructure projects. Unlike CSR, which is embedded in business operations, CSI projects are external to a company's everyday activities and are not primarily profit-driven.

Recently, CSR has evolved into a broader concept known as environmental, social, and governance (ESG). ESG focuses on how a company operates in terms of environmental responsibility (like reducing pollution), social impact (like fair treatment of employees and communities), and governance (such as transparency, accountability, and leadership ethics). ESG has become a key framework for businesses aiming to be sustainable and socially responsible (Johnson, Mans-Kemp, & Erasmus, 2019). In South Africa, ESG is particularly important due to the need for inclusive growth and the redress of inequality caused by apartheid. While CSR embodies a broad, qualitative ethos of "doing good," ESG translates those principles into measurable metrics, enabling external benchmarking and highlighting that CSR focuses on internal, value-driven initiatives (Każmierczak *et al.*, 2022).

Petroleum and mining companies are under public pressure due to their environmental impact and expected to improve their ESG performance by reducing environmental damage, supporting local communities, and improving governance. Doing so can help improve their reputation, meet stakeholder expectations, and increase financial performance (Correia, 2019).

Strategically linking CSR to business goals increases the chances of long-term profitability. Thus, it is a strategic business approach that supports financial performance by reducing costs, managing risks, and improving public trust (Agudelo *et al.*, 2020; BP Southern Africa, 2023).

Three key drivers are pushing the petroleum industry toward environmental sustainability. Firstly, national policies such as the National Climate Change Response Policy and global commitments like the Paris Agreement require emissions reductions and cleaner operations (Mbewe, 2017). Secondly, according to Zumente & Bistrov (2021), environmental, social, and governance (ESG) and corporate social responsibility (CSR) principles are central to investment decisions, and the failure of firms to meet environmental standards may result in loss of investor confidence. Thirdly, NGOs, communities, and civil society demand greater environmental responsibility, particularly in regions suffering from pollution (Lukey, 2020).

Environmental sustainability in South Africa's petroleum industry presents opportunities for innovation and long-term growth. Additionally, aligning with the United Nations Sustainable Development Goals (SDGs), primarily SDG 7 (Affordable and Clean Energy) and SDG 13 (Climate Action), provides a clear framework for guiding sustainable environmental strategies in the sector.

The literature highlights that integrating CSR is essential for improving environmental sustainability and profitability. When aligned with ESG principles, CSR helps companies address interconnected challenges across the economy, society, and environment (Fernández-González *et al.*, 2022). However, the implementation of CSR is often challenged by external issues like economic instability and inconsistent policies, as well as internal barriers such as cost concerns, lack of understanding, and insufficient data (Nwankwo *et al.*, 2024). Therefore, effective stakeholder engagement and transparent reporting are vital to overcoming these challenges and ensuring long-term sustainability in the petroleum industry.

It is against the above background that this study was undertaken to explore various aspects of CSR, ESG and CSI among a select sample of petroleum companies in South Africa. More

specifically, it aims to explore how these organizations perceive and practice CSR/CSI/ESG and contribute to sustainable development.

2.2 – Transformation in the conceptualization and operationalization of corporate social responsibility

Recent empirical literature highlights a significant transformation in the conceptualization and operationalization of corporate social responsibility (CSR) and environmental, social, and governance (ESG) practices. While CSR has traditionally been framed as a voluntary and normative corporate commitment, ESG has increasingly emerged as a measurable, performance-oriented framework embedded within regulatory, financial, and strategic decision-making processes. Empirical research published between 2021 and 2024 reflects this shift, emphasizing standardization, accountability, and the integration of sustainability metrics into corporate governance and innovation strategies.

A dominant theme in recent studies concerns the role of regulatory developments in accelerating the transition from CSR to ESG. The introduction of mandatory sustainability disclosure regimes particularly in the European Union through the Corporate Sustainability Reporting Directive (CSRD) has fundamentally altered corporate reporting incentives. Empirical evidence suggests that mandatory ESG disclosure improves transparency and comparability while reducing information asymmetries between firms and stakeholders (Berg, Koelbel, & Rigobon, 2022). Using multi-country panel data, studies demonstrate that firms subject to stricter disclosure requirements exhibit higher ESG performance scores and greater alignment between sustainability rhetoric and actual practices (Christensen, Hail, & Leuz, 2021). These findings support the view that ESG represents a more enforceable and institutionally embedded evolution of CSR rather than a mere rebranding exercise.

Alongside regulatory change, empirical research increasingly examines the relationship between ESG performance and green innovation. A substantial body of evidence indicates that firms with stronger ESG or CSR engagement are more likely to invest in environmentally oriented innovation. For instance, using large-scale panel data, Xie, Nozawa, Yagi, Fujii, and Managi (2019), extended by more recent studies such as Wang, Cao, and Ye (2022), find that higher ESG scores are positively associated with green patenting activity and eco-efficiency improvements. Meta-analytic evidence further confirms a statistically significant and robust relationship between CSR engagement and green innovation across industries and regions, suggesting that responsible practices enhance firms' capability to develop environmentally friendly products and processes (Zhang, Li, & Zhou, 2024).

Recent empirical contributions also emphasize the mediating and moderating mechanisms through which ESG influences innovation outcomes. Governance quality, board diversity, and institutional ownership have been shown to strengthen the positive effect of ESG practices on green innovation and environmental performance (Benlemlih, Shaukat, Qiu, & Trojanowski, 2021; García-Sánchez, Hussain, Khan, & Martínez-Ferrero, 2022). These findings align with resource-based and stakeholder theories, suggesting that ESG engagement enhances firms' internal capabilities and stakeholder legitimacy, thereby facilitating long-term innovative investment.

Another emerging empirical strand focuses on the interaction between digital transformation and ESG performance. Studies using firm-level data from China and other emerging economies provide evidence that digital innovation significantly enhances ESG

outcomes by improving data transparency, environmental monitoring, and governance efficiency (Liu, Yang, & Zhang, 2023). Moreover, green innovation is often identified as a partial mediator in the relationship between digitalization and ESG performance, indicating that technological capability enables firms to translate sustainability commitments into measurable outcomes (Zhao, Sun, & Li, 2024). These findings underscore the increasingly systemic nature of ESG, where sustainability performance is embedded within broader technological and organizational transformation processes.

Empirical research from emerging markets further enriches the CSR–ESG discourse by highlighting contextual heterogeneity. Studies conducted in Asia, Africa, and the Middle East consistently show that CSR and ESG practices positively affect financial performance, although the magnitude and channels of impact vary with institutional quality and regulatory maturity (El Ghouli, Guedhami, Kim, & Park, 2021; Hassan, Romilly, Giorgioni, & Power, 2023). For example, recent panel studies on listed firms in emerging economies find that CSR engagement improves return on assets and equity while simultaneously reducing the cost of capital, thereby reinforcing the economic relevance of sustainability practices even in less developed institutional settings (Al Amosh & Khatib, 2024).

At the same time, scholars caution against conceptual ambiguity between CSR and ESG in empirical research. Several studies argue that treating the two constructs as interchangeable may obscure differences in motivation, measurement, and outcomes (Eccles, Ioannou, & Serafeim, 2022). While CSR remains rooted in ethical responsibility and stakeholder orientation, ESG increasingly functions as a quantifiable performance framework aligned with investor evaluation and regulatory compliance. Empirical analyses that distinguish between CSR initiatives and ESG ratings tend to produce more consistent and theoretically grounded results, particularly when examining innovation and financial performance effects (Friede, Busch, & Bassen, 2023).

Overall, the empirical literature published between 2021 and 2024 demonstrates that CSR and ESG have evolved into central components of corporate strategy, innovation, and governance. Regulatory mandates, advances in sustainability measurement, and growing empirical evidence linking ESG to green innovation and financial performance collectively signal a maturation of the field. These developments extend earlier conceptual foundations of CSR such as the resource-based perspective articulated by Battistini and Gazzola (2015) by embedding corporate responsibility within measurable, regulated, and innovation-driven frameworks that define contemporary ESG practice.

3 – Research Methodology

This study focused on the downstream petroleum sector to better understand and assess their perceptions of CSR and related activities within the South African context. Although South Africa's petroleum industry includes over 70 nationwide companies (SAPIA, 2022), the research focused only on those companies in the Gauteng province. Slovin's statistical technique was used to determine a suitable sample size using a 5% margin of error (Vijayakumar 2023). The study sample comprised 80 participants drawn equally from four purposively selected petroleum companies, each contributing 20 respondents. Stratified random sampling method was used along with homogeneous sampling to select the participants (Makwana, Engineer, Dabhi, and Chudasama, 2023) because participants shared similar characteristics and operated in a regulated environment. The participants included individuals within the companies

directly involved in CSR or related functions. A structured electronic survey questionnaire was used as the primary data collection tool. Secondary data was also gathered from internal company reports, sustainability reports, Global Reporting Initiative (GRI) documents, and publicly available information from company websites.

A five-point Likert scale questionnaire was used to determine respondents' agreement with sustainable development, CSR strategies, and environmental sustainability statements. As reflected in Table 1, the questionnaire was developed by synthesizing items that had been developed for use in previous studies. The questionnaire was organized into eight sections, with the introductory section collecting demographic data and subsequent sections aligning with the research concepts, namely, corporate social responsibility (CSR), environmental responsibility and sustainability, corporate performance (CP), and corporate governance (CG).

Table 1 – Measurement scales

| Code | Statement | Reference |
|------|--|---|
| | Environmental Responsibility | |
| ER1 | The company takes significant steps to reduce its environmental impact. | Yang, Wong, and Miao (2021) |
| ER2 | The company implements energy-saving initiatives in its operations. | |
| ER3 | The company actively engages in recycling and waste reduction efforts. | |
| ER4 | Sustainable sourcing practices are prioritized in the company's supply chain. | |
| ER5 | The company publicly reports on its environmental performance. | |
| | Ethical Responsibility | |
| ET1 | The company operates with a high level of transparency in its business dealings. | Zimdahl (2012) |
| ET2 | The company maintains high standards of honesty and integrity in its operations. | |
| ET3 | The company has policies to prevent corruption and unethical behaviour. | |
| ET4 | The company ensures that its business practices adhere to legal and ethical standards. | |
| ET5 | The company actively addresses issues related to human rights. | |
| | Economic Responsibility | |
| EC1 | The company contributes to the local economy by creating jobs. | Carroll and Shabana (2010); Visser (2013) |
| EC2 | The company ensures fair wages and compensation for its employees. | |
| EC3 | The company supports economic stability by sourcing locally and ethically. | |
| EC4 | The company plays a role in supporting small businesses through its supply chain. | |
| EC5 | The company seeks to improve its financial performance while considering the well-being of stakeholders. | |
| | Philanthropic Responsibility | |

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| PH1 | The company regularly contributes to charitable causes or nonprofit organizations. | Margareth and Chrisjatmiko (2018) |
| PH2 | The company encourages employees to participate in community service activities. | |
| PH3 | The company supports initiatives that improve social welfare in the communities where it | |
| PH4 | The company provides financial support for educational programs or scholarships. | |
| PH5 | The company invests in programs aimed at improving public health and social development. | |
| | Employee Responsibility | |
| EM1 | The company ensures a safe and healthy working environment for its employees. | Ellen <i>et al.</i> (2024) |
| EM2 | The company offers training and development programs to improve employees' skills. | |
| EM3 | The company provides fair and equitable treatment to all employees. | |
| EM4 | The company promotes work-life balance for its employees. | |
| EM5 | The company values employee feedback and actively works to improve employee satisfaction. | |
| | Innovation in Sustainability | |
| IS1 | Our organization frequently develops new, eco-friendly products or services. | Cuong <i>et al.</i> (2021); Stuss (2023) |
| IS2 | We adopt innovative technologies to reduce our environmental footprint. | |
| IS3 | Our organization uses creative methods to address sustainability challenges. | |
| | Environmental Sustainability Practices | |
| ESP1 | We actively monitor and reduce our resource consumption (e.g., energy, water, raw materials). | |
| ESP2 | Our organization has implemented practices to minimize waste production. | |
| ESP3 | We prioritize environmentally sustainable sourcing materials | |
| | Social Sustainability Practices | |
| SSP1 | Our organization is involved in community development projects | Eizenberg & Jabareen (2017); Jamali & Karam (2018) |
| SSP2 | We have practices in place that support employee health and well-being. | |
| SSP3 | Our organization ensures fair labor practices and equitable treatment for all employees | |
| | Economic Sustainability Practices | |
| ESP1 | We focus on practices that ensure the long-term profitability of our organization while minimizing environmental impact | Mensah <i>et al.</i> (2021) |
| ESP2 | We identify cost-saving opportunities that also contribute to sustainability. | |

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| ESP3 | Our organization has adopted a business model that balances economic growth with social and environmental responsibility. | |
| | Environmental Awareness | |
| EA1 | I am aware of the environmental problems affecting the world today (e.g., climate change, pollution). | Kollmuss and Agyeman (2002); Ogunbode <i>et al.</i> (2021) |
| EA2 | I understand the concept of sustainability and its importance for future generations | |
| EA3 | I am knowledgeable about the environmental consequences of my daily actions. | |
| EA4 | I regularly keep up with environmental news and trends. | |
| EA5 | I am familiar with the concept of ecological footprint. | |
| | Sustainable Behaviour and Action | |
| SBA1 | I actively reduce my energy consumption (e.g., using energy-efficient appliances, turning off lights). | Bamberg and Möser (2007); Nguyen <i>et al.</i> (2020) |
| SBA2 | I make an effort to reduce, reuse, and recycle materials | |
| SBA3 | I frequently purchase eco-friendly products or services. | |
| SBA4 | I prefer using public transportation or carpooling to reduce carbon emissions. | |
| SBA5 | I conserve water by using it more efficiently (e.g., taking shorter showers, fixing leaks). | |
| | Environmental Attitudes | |
| EAT1 | I believe that protecting the environment should be a priority for everyone. | Dunlap <i>et al.</i> (2000); Ogunbode <i>et al.</i> (2021) |
| EAT2 | I think that individual actions can make a significant difference in environmental protection. | |
| EAT3 | I believe that environmental sustainability is more important than economic growth. | |
| EAT4 | I feel responsible for contributing to the preservation of the environment. | |
| EAT5 | I believe that businesses and governments should prioritize sustainability initiatives. | |
| | Policy and Institutional Support | |
| PIS1 | I believe that governments should implement stronger policies to protect the environment | O'Riordan & Fairbrass (2014); UNDP (2022) |
| PIS2 | I think businesses should be held accountable for their environmental impact. | |
| PIS3 | I support financial incentives for individuals and businesses that promote environmental sustainability. | |
| PIS4 | I think environmental education should be integrated into school curriculums. | |
| PIS5 | I believe that renewable energy sources should be prioritized over fossil fuels | |
| | Environmental Impact Perception | |

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| EIP1 | I believe my personal sustainability efforts are helping to reduce environmental harm. | Gifford and Nilsson (2014); Ogunbode <i>et al.</i> (2021) |
| EIP2 | I think society is making significant progress toward achieving environmental sustainability. | |
| EIP3 | I believe that climate change is the most urgent environmental issue facing humanity. | |
| EIP4 | I feel that sustainable practices are essential for the survival of future generations. | |
| EIP5 | I think current environmental policies are sufficient to address the most pressing sustainability challenges. | |
| Board Structure and Composition | | |
| BSC1 | The board of directors has a sufficient number of independent members. | Tricker (2015); King IV Report (IoDSA, 2016) |
| BSC2 | The board regularly reviews the company's strategy and performance. | |
| BSC3 | The board has adequate expertise in the company's industry. | |
| BSC4 | The board is actively involved in the decision-making process. | |
| BSC5 | The board holds frequent meetings to ensure effective oversight | |
| Ownership Structure | | |
| OS1 | The company's ownership structure is well-balanced, preventing any group from having excessive control. | La Porta <i>et al.</i> (1999); OECD (2020) |
| OS2 | The company's major shareholders have a significant influence on decision-making. | |
| OS3 | There is transparency regarding the ownership of the company. | |
| OS4 | Minority shareholders are well represented in the governance process. | |
| Accountability and Management Oversight | | |
| AMO1 | Management is held accountable for their decisions and performance. | Solomon (2020); King IV (2016) |
| AMO2 | There are clear mechanisms for reporting and addressing management's performance. | |
| AMO3 | The company has a system for addressing shareholder grievances and concerns. | |
| AMO4 | The company has clear internal control mechanisms to ensure ethical behavior by management. | |
| Shareholder Rights and Protection | | |
| SRP1 | Shareholders are treated equitably, and their rights are respected. | Principles of Corporate Governance (2020) |
| SRP2 | The company provides regular and transparent updates to shareholders regarding its financial performance. | |
| SRP3 | Shareholders have the right to participate in significant corporate decisions, such as mergers or acquisitions. | |
| SRP4 | There are clear policies in place to protect minority shareholders. | |
| Transparency and Disclosure | | |
| TD1 | The company provides transparent and accurate financial information. | Mallin (2019); King IV (2016) |
| TD2 | The company discloses all the relevant risks and uncertainties in its financial statements. | |

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| TD3 | The company publishes information on its governance practices and decision-making processes. | |
| TD4 | The company has an effective process for disclosing executive compensation and other benefits. | |
| | Ethics and Corporate Social Responsibility | |
| ESR1 | The company has a clear code of ethics that is followed by both the board and management. | Carroll (1999); King IV (2016) |
| ESR2 | The company actively promotes ethical business practices within its operations. | |
| ESR3 | The company is committed to corporate social responsibility and sustainability practices. | |
| ESR4 | The company adheres to legal and ethical standards in its business dealings. | |
| | Financial Performance and Profitability | |
| PRO1 | The company's profit margins have increased over the past year. | Richard <i>et al.</i> (2009); Kaplan & Norton (2004) |
| PRO2 | The return on assets (ROA) has consistently been above industry averages. | |
| RO3 | The company has achieved significant revenue growth over the past year. | |
| | Cost Efficiency | |
| CE1 | The company has improved its cost management practices. | Kotler & Keller (2016); Aaker (1996) |
| CE2 | Operating costs have been reduced without sacrificing quality. | |
| | Market Performance | |
| MS1 | Market Share (MS) | Keller (2016); Aaker (1996) |
| MS2 | The company has gained market share relative to competitors. | |
| MS3 | The company is recognized as a market leader in its industry. | |
| | Brand Reputation | |
| BR1 | The company is perceived as a leader in innovation within the industry. | |
| BR2 | Customer perception of the brand has improved over time. | |
| | Customer Satisfaction and Loyalty | |
| CSL1 | Customer satisfaction levels have risen due to our products/services | |
| CSL2 | Repeat customers and long-term contracts are significant for the company. | |
| | Operational Performance – Efficiency | |
| EF1 | The company has streamlined its operations for better efficiency. | Neely <i>et al.</i> (2005) |
| EF2 | The company's production processes have become more efficient | |
| | Innovation | |
| IN1 | The company consistently introduces innovative products or services. | |
| IN2 | The company has been a leader in technological adoption. | |

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| | Quality | |
| QU1 | The quality of our products/services consistently meets or exceeds industry standards. | |
| QU2 | Operational processes ensure minimal defects or customer complaints. | |
| | Stakeholder/Employee Performance and Satisfaction | Freeman (1984); ISO26000 (2010) |
| ES1 | Employee morale and satisfaction have been high in the past year. | |
| ES2 | The company invests in employee well-being and professional development. | |
| | Leadership and Management (LM) | |
| LM1 | Company leadership effectively guides the organization toward strategic goals. | |
| LM2 | Management is focused on building a supportive and effective work environment. | |
| | Corporate Social Responsibility (CSR) | |
| CSR1 | CSR1 The company has a strong commitment to sustainability and ethical business practices. | |
| CSR2 | Stakeholder satisfaction with the company's social impact is high. | |
| | Perceived Quality (PQ) | |
| PQ1 | The products/services offered by this company are of high quality. | |
| PQ2 | This company provides products/services that meet or exceed my expectations. | |
| PQ3 | I believe the company's offerings are reliable. | |
| | Trustworthiness (TR) | |
| TR1 | I trust this company to be honest in its dealings. | |
| TR2 | This company is transparent about its business practices. | |
| TR3 | I believe that this company always acts in an ethical manner. | |
| | Public Image & Corporate Social Responsibility (PSR) | |
| PSR1 | This company contributes to social and environmental causes. | |
| PSR2 | I believe this company is committed to improving society. | |
| PSR3 | This company takes responsibility for its environmental impact. | |
| | Company Innovation | |
| CIN1 | This company is known for being innovative. | |
| CIN2 | This company frequently introduces new and improved products/services. | |
| CIN3 | I associate this company with creativity and forward-thinking. | |
| | Emotional Appeal | |
| EA1 | I feel positively about this company. | |
| EA2 | This company's image resonates emotionally with me. | |
| EA3 | I have a strong emotional connection with this company. | |

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| | Competence | |
| CO1 | This company is very capable at what it does. | |
| CO2 | I believe this company has the expertise to meet customer needs. | |
| CO3 | This company is highly skilled and efficient in its industry. | |
| | Environmental Benefits and Pollution Reduction | |
| PR1 | Our practices have significantly reduced greenhouse gas emissions. | Dangelico & Pujari (2010); Hart & Milstein (2003) |
| PR2 | We have minimized waste generation through sustainable practices. | |
| | Resource Efficiency (RE) | |
| REI1 | We use energy-efficient methods in our operations. | |
| REI2 | Our practices have led to a reduction in water and resource consumption. | |
| | Sustainability | |
| SU1 | Our operations contribute positively to environmental sustainability. | |
| SU2 | We prioritize renewable and environmentally friendly resources. | |
| | Financial Benefits and Cost Savings | |
| CS1 | Our sustainable practices have reduced operational costs. | Margolis & Walsh (2003); Orlitzky <i>et al.</i> (2003) |
| CS2 | We have experienced financial savings through energy and material efficiency. | |
| | Revenue Growth | |
| RG1 | Implementing sustainable practices has led to increased revenue. | |
| RG2 | We have gained financial benefits by catering to environmentally conscious consumers. | |
| | Market Competitive | |
| MC1 | Our sustainable practices have improved our market position. | |
| MC2 | We have gained competitive advantages through environmental initiatives. | |

4 –Research Findings

4.1 – Demographic Data

The age range of the 121 respondents showed a rich mix of professional backgrounds and life experiences. Most participants were in the 40–49 age group, making up 37.7% of the sample. This shows that many workers are mid-career professionals. These people probably have much industry experience, having gone through different career stages, which helps them offer well-rounded insights based on past and present contexts. People aged 30–39 comprised 24.7% of the respondents, showing that emerging professionals are active and open to new ideas, with a knack for adaptability and innovation. This group leads to change, bringing fresh ideas that work well with the experience of older professionals. It is also essential to include respondents

aged 60 and older, even though they make up just 6.5% of the sample. These people provide valuable perspectives with their profound experience and historical knowledge, helping to understand how industry practices have evolved and guiding strategic decisions. This analysis benefits from a wide age range, adding depth to the study and highlighting the value of including different generational views. A great blend of early, mid, and late-career professionals, plus the insights of seasoned experts, offers a well-rounded view of the industry's dynamics. Having a complete perspective is key to creating strategies that adapt to today's trends and tomorrow's challenges.

Most participants (54.5%) held middle management positions. This indicates that the organization depends heavily on this management level to connect daily operations with strategic oversight. Middle managers are key in turning strategic goals into actual plans, working with different departments, and ensuring the organization's vision is implemented on the ground. Top-level management made up 24.7% of the sample, showing that these decision-makers set the organization's direction and policies. These leaders focus on long-term planning and important decisions that guide the organization in a competitive and changing business world. Their insights and choices shape the organization and can significantly impact its performance and culture.

At the same time, junior-level management made up 20.8% of the respondents. Even though they are the smallest group in this sample, these individuals play a crucial role, often being the first leaders. Junior managers oversee teams, support employees directly, and ensure tasks run smoothly.

They play a key role in developing talent, encouraging communication, and creating a space for new ideas to grow and improve. The way management roles are distributed shows a balanced and layered leadership structure. Strong middle management shows a solid structure for getting things done and solving problems. With both senior and junior managers, there's a clear route for strategy and day-to-day operations. This structure fosters a lively and adaptable workplace culture while ensuring various levels of oversight and involvement, which is crucial for lasting growth and creativity. The data shows a balanced management structure that supports good communication, decision-making, and strategy implementation at all levels of the organization.

The analysis of the highest educational qualifications among the respondents shows a highly qualified group, reflecting a workforce with significant academic success. Most participants, 66.2%, have a Diploma or Degree, indicating they possess a solid level of higher education that provides essential skills for their jobs. 27.3% of the respondents have pursued higher education by earning Masters or Doctoral degrees. This strong showing of postgraduate qualifications highlights a wealth of specialized knowledge and research skills in the group. People with advanced degrees often think strategically and analytically, helping to drive innovation and make important decisions. Their skills shine in jobs that need smart problem-solving and strategic thinking.

4.2 – Results of variable measurement

Responses were analyzed separately, including standard deviation and mean score calculations, which demonstrated whether there was a notable level of agreement (mean > 4) or disagreement (mean < 4) with the various statements.

4.2.1 – Corporate social responsibility

A – Environmental responsibility

As reflected in Table 2, the " Environmental Responsibility " construct was assessed using five measurements. The findings suggest that most respondents disagreed with multiple statements, with percentages ranging from 46.8% to 59.7%. It is intriguing that over half (54.5%) of the respondents expressed dissatisfaction with their organization's assessment of the environmental consequences of production processes and the significance of environmental protection as a fundamental corporate policy (ER3: 58.4%). These results indicate that, despite specific environmental practices, a significant number of respondents believe that their organization's efforts to promote environmental responsibility are inadequate.

Table 2 – Environmental responsibility

| Variable | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|----------|-------------------|----------|---------|-------|----------------|
| ER1 | 1.3% | 54.5% | 20.8% | 2.6% | 20.8% |
| ER2 | 0 | 59.7% | 16.9% | 5.2% | 18.2% |
| ER3 | 2.6% | 58.4% | 19.5% | 2.6% | 16.9% |
| ER4 | 0 | 55.8% | 27.3% | 6.5% | 10.4% |
| ER5 | 0 | 46.8% | 22.1% | 11.7% | 19.5% |

ER1: The company takes significant steps to reduce its environmental impact.

ER2: The company implements energy-saving initiatives in its operations.

ER3: The company actively engages in recycling and waste reduction efforts.

ER4: Sustainable sourcing practices are prioritized in the company's supply chain.

ER5: The company publicly reports on its environmental performance.

B – Ethical responsibility

Table 3 reflects that the " Ethical Responsibility " construct was assessed using five measurement items. The findings suggest that most respondents disagreed with most of the statements (ET1, ET2, ET3, ET4, and ET5), with disagreement percentages ranging from 44.2% to 55.8%. In particular, 55.8% of the respondents disagreed that "the company behaves responsibly towards all stakeholders (ET1)." However, many respondents (48.1%) and (44.2%) strongly agreed with ET3 and ET4, suggesting a firm conviction in ethical behaviour and guidance in decision-making in particular contexts. In conclusion, despite contrasting perspectives, a substantial consensus regarding critical ethical indicators suggests that specific practices recognize ethical responsibility. Nevertheless, concerns persist regarding impartiality and transparency regarding stakeholders.

Table 3 – Ethical responsibility

| Variable | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|----------|-------------------|----------|---------|-------|----------------|
| ET1 | 0 | 55.8% | 22.1% | 7.8% | 14.3% |
| ET2 | 1.3% | 50.6% | 18.2% | 3.9% | 26.0% |
| ET3 | 0 | 44.2% | 3.9% | 3.9% | 48.1% |
| ET4 | 0 | 49.4% | 3.9% | 2.6% | 44.2% |
| ET5 | 0 | 53.2% | 18.2% | 3.9% | 24.7% |

ET1: The company operates with high transparency in its business dealings.

ET2: The company maintains high standards of honesty and integrity in its operations.

ET3: The company has policies to prevent corruption and unethical behaviour.

ET4: The company ensures its business practices adhere to legal and ethical standards.

ET5: The company actively addresses issues related to human rights.

C – Economic responsibility

Concerning the "Economic Responsibility " construct, Table 4 reflects that most respondents disagreed with several items, with the maximum level of disagreement occurring with EC5, which pertains to the support of local economic development, at 61.0%. This was closely followed by EC2 at 51.9% and EC3 at 49.4%. The results indicate a prevalent perception that the organization is not fulfilling its economic obligations, particularly in promoting local development and achieving a balance between profit and sustainability.

Table 4 – Economic responsibility

| Variable | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|----------|-------------------|----------|---------|-------|----------------|
| EC1 | 1.3% | 46.8% | 14.3% | 7.8% | 29.9% |
| EC2 | 0 | 51.9% | 26.0% | 6.5% | 15.6% |
| EC3 | 2.6% | 49.4% | 24.7% | 6.5% | 16.9% |
| EC4 | 1.3% | 40.3% | 27.3% | 7.8% | 23.4% |
| EC5 | 0 | 61.0% | 20.8% | 3.9% | 14.3% |

EC1: The company contributes to the local economy by creating jobs.

EC2: The company ensures fair wages and compensation for its employees.

EC3: The company supports economic stability by sourcing locally and ethically.

EC4: The company plays a role in supporting small businesses through its supply chain.

EC5: The company seeks to improve its financial performance while considering the well-being of stakeholders.

D – Philanthropic responsibility

Table 5 shows that with respect to the " Philanthropic Responsibility " construct, there was a consistent pattern of disagreement, as most respondents disagreed on all five items. Notably, concerning PH3, which pertains to promoting social causes, the respondents indicated the highest level of disagreement. This was closely followed by PH1 at 61.0% and PH2 at 57.1%. This suggests that the organization may not be actively involved in or supportive of philanthropic efforts. Concerning PH4, respondents exhibited a significantly higher agreement rate (33.8%), indicating that some respondents acknowledge a substantial commitment to social responsibility through philanthropy. Similarly, 14.3% of respondents strongly agreed with PH1 and PH2, suggesting a certain level of recognition of corporate charitable engagement. The substantial neutral responses observed in PH1 (20.8%) and PH5 (28.6%) may indicate a lack of awareness or uncertainty regarding the company's philanthropic initiatives.

Table 5 – Philanthropic responsibility

| Variable | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|----------|-------------------|----------|---------|-------|----------------|
| PH1 | 1.3% | 61.0% | 20.8% | 2.6% | 14.3% |
| PH2 | 1.3% | 57.1% | 15.6% | 11.7% | 14.3% |
| PH3 | 0 | 62.3% | 18.2% | 7.8% | 11.7% |
| PH4 | 0 | 54.5% | 6.5% | 5.2% | 33.8% |
| PH5 | 0 | 48.1% | 28.6% | 14.3% | 9.1% |

PH1: The company regularly contributes to charitable causes or nonprofit organizations.

PH2: The company encourages employees to participate in community service activities.

PH3: The company supports initiatives that improve social welfare in the communities where it operates.

PH4: The company provides financial support for educational programs or scholarships.

PH5: The company invests in programs aimed at improving public health and social *development*.

E – Employee responsibility

Concerning the "Employee Responsibility" construct, which was assessed using five measurement items, the findings in Table 6 reveals a varied perspective since many respondents rejected most statements. The highest degree of dissent was noted in employee participation in decision-making (EM4), with a rate of 58.4%. Subsequently, knowledge regarding policies (EM3) was 54.5%, while equitable incentives (EM5) stood at 46.8%. Many respondents demonstrated high agreement with key measures, notably EM1 (40.3%) and EM2 (37.7%), reflecting their acknowledgement of programs emphasizing employee development and equitable treatment. The prevalence of high levels of dissent is sharply contrasted with the significant consensus rates, highlighting the domains in which the organization excels in its employee responsibility programs.

Table 6 – Employee responsibility

| Variable | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|----------|-------------------|----------|---------|-------|----------------|
| EM1 | 0 | 49.4% | 6.5% | 3.9% | 40.3% |
| EM2 | 0 | 46.8% | 13.0% | 2.6% | 37.7% |
| EM3 | 1.3% | 54.5% | 16.9% | 7.8% | 19.5% |
| EM4 | 1.3% | 58.4% | 14.3% | 10.4% | 15.6% |
| EM5 | 1.3% | 46.8% | 22.1% | 11.7% | 18.2% |

EM1: The company ensures a safe and healthy working environment for its employees.

EM2: The company offers training and development programs to improve employees' skills.

EM3: The company provides fair and equitable treatment to all employees.

EM4: The company promotes work-life balance for its employees.

EM5: The company values employee feedback and actively works to improve employee satisfaction.

4.2.2 – Innovative sustainable practices

A – Innovation in sustainability

The findings concerning the "Innovation in Sustainability" construct, which was assessed using three measurement items, suggested a generally low level of consensus regarding all three items. This implies that this conviction is not universally shared despite a core group of individuals perceiving the organization as being dedicated to sustainability innovation.

B – Environmental sustainability

The results with respect to the "Environmental Sustainability Practices", which were assessed using three measurement items, suggest that more than half of the participants disagreed with all three statements. This implies that many individuals were uncertain or indifferent about the extent of environmental sustainability practices within their organization. The percentage of respondents who expressed significant agreement was consistently low, ranging from 9% to 10% for all items. This suggests a lack of awareness regarding proactive environmental engagement. The results underscore the necessity of improving the visibility and efficacy of environmental sustainability policies and their implementation throughout the organization.

C – Social sustainability

The " Social Sustainability Practices " construct was assessed using three measurement items. The findings revealed that most respondents disagreed with all three statements. This indicates that there are mixed feelings about the social development efforts. The results indicate a variable or limited perception of how social sustainability practices are implemented in the organization. This points to possible areas where policies could be enhanced and where greater involvement from stakeholders is needed.

D – Economic sustainability

The findings regarding "Economic Sustainability Practices", which were assessed using three measurement items, reveal that more than half of the participants disagreed with all three statements. This may indicate a degree of uncertainty or a deficiency in awareness concerning the company's initiatives in economic sustainability. The results reveal scepticism regarding economic sustainability programs, underscoring the necessity for enhanced communication and transparency related to strategic economic objectives.

4.2.3 – Environmental sustainability

A – Environmental awareness

As reflected in Table 7, the "Environmental Awareness" construct was assessed using five measurement items. The results suggest that a significant number of respondents disagreed with the statements, particularly those related to EA2 (53.2%), EA3 (51.9%), and EA5 (62.3%). This implies a relatively low level of active engagement with environmental issues. A divided perspective was demonstrated with respect to EA1, as 46.8% of respondents expressed significant agreement and disagreement. This implies that while specific individuals are acutely aware of their environmental impact, others appear to be less convinced or engaged.

Table 7 – Environmental Awareness

| Variable | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|----------|-------------------|----------|---------|-------|----------------|
| EA1 | 1.3% | 46.8% | 3.9% | 1.3% | 46.8% |
| EA2 | 0 | 53.2% | 5.2% | 1.3% | 40.3% |
| EA3 | 0 | 51.9% | 7.8% | 0 | 40.3% |
| EA4 | 0 | 49.4% | 31.2% | 5.2% | 14.3% |
| EA5 | 0 | 62.3% | 13.0% | 6.5% | 18.2% |

EA1: I am aware of the environmental problems affecting the world today (e.g., climate change, pollution).

EA2: I understand the concept of sustainability and its importance for future generations

EA3: I am knowledgeable about the environmental consequences of my daily actions.

EA4: I regularly keep up with environmental news and trends.

EA5: I am familiar with the concept of ecological footprint.

B – Sustainable behaviour and action

Sustainable Behaviour and Action were also assessed using five measurement items. The findings indicated that most respondents disagreed with most statements. This suggests a dearth of a strong commitment to reducing resource usage, even though there is some awareness of the issue. The findings imply that although there is an awareness of sustainability, this awareness does not consistently result in sustainable actions. This underscores the

importance of motivation strategies and focused behavioural interventions to address this disparity.

C – Environmental attitudes

The "Environmental Attitudes" construct was assessed using five measurement items and the findings indicate that more than half of the respondents disagreed with various statements. More specifically, they concurred that they would not be prepared to pay a premium for environmentally friendly products. This suggests that consumers' ability to make environmentally responsible decisions may be significantly impeded by their sensitivity to price. The results also indicate diverse attitudes; while a few individuals maintain intense pro-environmental beliefs, most either disagree or maintain a neutral stance. This underscores the importance of more comprehensive awareness campaigns and mild reminders to promote a change in societal norms.

4.2.4 – Policy and institutional support

The "Policy and Institutional Support" construct was assessed using five measurement items as reflected in Table 8. The data indicates a significant trend of disagreement among respondents concerning most items, particularly PIS1 (57.1%), PIS2 (59.7%), and PIS3 (61.0%). This suggests that most respondents consider the current policies and institutional frameworks ineffective or insufficient in advancing sustainability initiatives. Notably, a significant number of respondents (42.9%) expressed a firm level of agreement with PIS4. This implies that, despite the potential lack of general support for the policy, there is a favourable perspective on the specific impact of current policies in fostering responsible behaviour. The results indicate a degree of uncertainty regarding the efficacy and sufficiency of the current institutional frameworks and policies. This presents an opportunity for policymakers to improve the communication and execution of sustainable development initiatives and enhance support systems.

Table 8 – Policy and Institutional Support

| Variable | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|----------|-------------------|----------|---------|-------|----------------|
| PIS1 | 0 | 57.1% | 10.4% | 0 | 32.5% |
| PIS2 | 0 | 59.7% | 5.2% | 1.3% | 33.8% |
| PIS3 | 0 | 61.0% | 7.8% | 0 | 31.2% |
| PIS4 | 0 | 50.6% | 5.2% | 1.3% | 42.9% |
| PIS5 | 2.6% | 55.8% | 23.4% | 6.5% | 11.7% |

PIS1: I believe that governments should implement stronger policies to protect the environment

PIS2: I think businesses should be held accountable for their environmental impact.

PIS3: I support financial incentives for individuals and businesses that promote environmental sustainability.

PIS4: I think environmental education should be integrated into school curricula.

PIS5: I believe that renewable energy sources should be prioritized over fossil fuels.

4.2.5 – Environmental impact

The responses concerning the perception of "Environmental Impact", which was assessed using five measurement items (Table 9), indicate substantial disagreement among the respondents regarding most items, with EIP1 (66.2%) and EIP4 (63.6%) being particularly noteworthy. This implies that a significant number of respondents either do not acknowledge or do not accept the environmental impact of their firm or the methods by which it is evaluated. In contrast, EIP2

illustrates a somewhat distinct scenario, in which 28.6% of respondents indicate agreement and 26.0% maintain a neutral stance. This suggests a degree of consciousness regarding environmental consequences, albeit without a strong sense of conviction. 20.8% of respondents agreed on their consideration of environmental implications in production, even though EIP3 revealed a significant level of disagreement at 58.4%.

It is important to note that EIP5 exhibited the highest percentage of strong disagreement among this cohort, at 7.8%. The general trend indicates that the monitoring and evaluation of environmental footprints within the surveyed firms are inconsistent, even though 20.8% of respondents agreed with the statement. The data indicates a requirement for enhanced internal evaluation, increased awareness, and more responsible environmental practices, as it demonstrates a discernible disparity in how respondents perceive or respond to environmental issues.

Table 9 – Environmental Impact

| Variable | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|----------|-------------------|----------|---------|-------|----------------|
| EIP1 | 0 | 66.2% | 11.7% | 2.6% | 19.5% |
| EIP2 | 1.3% | 39.0% | 26.0% | 28.6% | 5.2% |
| EIP3 | 1.3% | 58.4% | 14.3% | 5.2% | 20.8% |
| EIP4 | 0 | 63.6% | 6.5% | 0 | 29.9% |
| EIP5 | 7.8% | 42.9% | 26.0% | 20.8% | 2.6% |

EIP1: I believe my personal sustainability efforts are helping to reduce environmental harm.

EIP2: I think society is making significant progress toward achieving environmental sustainability

EIP3: I believe that climate change is the most urgent environmental issue facing humanity.

EIP4: I feel that sustainable practices are essential for the survival of future generations.

EIP5: I think current environmental policies are sufficient to address the most pressing sustainability challenges.

4.2.6 Corporate governance

A – Board structure and composition

The findings concerning the "Board Structure and Composition" construct were assessed using five measurement items, as reflected in Table 10. The results suggest that there are a variety of perspectives regarding the application of the Board Structure and Composition approach in organizations. BSC1 indicates a significant impartial response rate of 41.6%, with 36.4% of respondents expressing disagreement and 13.0% demonstrating agreement. This pattern indicates a moderate level of familiarity or implementation with performance indicators.

The Board Structure and Composition was not perceived as being incorporated into strategic planning by 55.8% of respondents in BSC2, which exhibited the highest level of disagreement. Similarly, BSC3 exhibited a 49.4% disagreement rate, which underscores the possibility that many employees may not be well-versed in or actively engaged in the Board Structure and Composition. Based on the results of BSC4, respondents may not be actively utilizing the Board Structure and Composition for monitoring and evaluation purposes, as evidenced by a significant 46.8% disagreement and 31.2% neutrality. Intriguingly, BSC5 exhibited a certain level of optimism, as 24.7% of respondents firmly agreed, and 28.6% remained neutral. This suggests that some individuals recognize its potential benefits even though the tool may not be widely adopted. In conclusion, the data suggests that respondents

typically lack both awareness and utilization of the Board Structure and Composition despite acknowledging its significance in improving organizational performance.

Table 10 – Board Structure

| Variable | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|----------|-------------------|----------|---------|-------|----------------|
| BSC1 | 1.3% | 36.4% | 41.6% | 13.0% | 7.8% |
| BSC2 | 2.6% | 55.8% | 20.8% | 1.3% | 19.5% |
| BSC3 | 1.3% | 49.4% | 31.2% | 2.6% | 15.6% |
| BSC4 | 0 | 46.8% | 31.2% | 1.3% | 20.8% |
| BSC5 | 0 | 45.5% | 28.6% | 1.3% | 24.7% |

BSC1: The board of directors has a sufficient number of independent members.

BSC2: The board regularly reviews the company's strategy and performance.

BSC3: The board has adequate expertise in the company's industry.

BSC4: The board is actively involved in the decision-making process.

BSC5: The board holds frequent meetings to ensure effective oversight

B – Ownership structure

The findings suggest that a substantial % of respondents, 40.3%, expressed disagreement concerning the items that measured the ownership structure. This implies that even though some individuals recognize the significance of management commitment, perception has a substantial difference. This suggests a significant lack of incentives and support for staff involvement in sustainability initiatives. This demonstrates a lack of clarity regarding integrating sustainability into operational decisions. In general, the data suggests that the support for sustainability within organizations is frequently inconsistent or limited, as many respondents either disagreed or expressed neutrality regarding critical support mechanisms.

C – Shareholder rights and protection

The results with respect to the "Board Structure and Composition", which was assessed using four measurement items, revealed that a substantial number of respondents (50.6%) disagree with the various statements, indicating that there is a perception that the company is not adequately planning for the resources required to undertake sustainability initiatives. However, 35.1% of respondents maintained a neutral stance, while 13.0% agreed. This suggests that a few individuals have a more favourable perspective on the organization's resource planning for sustainability. The results indicate that the company's resource planning efforts to attain its long-term sustainability objectives are uncertain. In summary, the data indicates that many respondents believe the company's strategic resource planning for sustainability is inadequate. To attain its sustainability objectives more effectively, the organization may wish to prioritize resource allocation, planning, and review processes.

D – Transparency and disclosure

The "Transparency and Disclosure" construct was assessed using four measurement items. The results suggest that a significant number (49.4%) of individuals believe the decision-making process within the union lacks democratic qualities. This suggests that a portion of the population perceives a satisfactory level of transparency and disclosure. The results indicate a widespread conviction that Transparency and Disclosure are ineffective, as only a few individuals regard them as being accountable. In conclusion, the data suggests significant

concerns about the state of democracy within the union. Many respondents express that union decisions that do not follow Transparency and Disclosure are not held adequately accountable.

E – Ethical and social responsibility

As reflected in Table 11, the "Ethical and Social Responsibility" construct was assessed using four measurement items. The results for ESR1 suggest that 49.4% of participants expressed disagreement, while 26.0% of respondents strongly concurred that their organization demonstrates ethical accountability in its operations. This suggests that many respondents believe their organization does not exhibit robust ethical standards, while fewer believe it does. In summary, the data indicates that many individuals believe that the company lacks ethical responsibility and social contribution, as most respondents disagree with assertions that the company is actively engaged in ethical and social responsibility practices.

Table 11 – Ethical and Social Responsibility

| Variable | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|----------|-------------------|----------|---------|-------|----------------|
| ESR1 | 1.3% | 49.4% | 20.8% | 2.6% | 26.0% |
| ESR2 | 1.3% | 53.2% | 15.6% | 0 | 29.9% |
| ESR3 | 0 | 61.0% | 15.6% | 3.9% | 19.5% |
| ESR4 | 0 | 63.6% | 6.5% | 1.3% | 28.6% |

ESR1 The company has a clear code of ethics that is followed by both the board and management.

ESR2 The company actively promotes ethical business practices within its operations.

ESR3 The company is committed to corporate social responsibility and sustainability practices.

ESR4 The company adheres to legal and ethical standards in its business dealings.

4.2.7 – Company public image

A – Trustworthiness

The "Trustworthiness" construct was assessed using three measurement items. The results indicate that numerous respondents had doubts regarding their trust in the company, whilst a quarter showed robust confidence in the organization's capacity to fulfil its commitments. This suggests that many individuals doubted the company's reliability in meeting expectations, yet a considerable segment of respondents nevertheless conveyed faith.

B – Public image & corporate Social Responsibility

The findings show that most respondents did not perceive the corporation as socially responsible, despite a minority agreeing significantly. Many individuals failed to recognize the company's dedication to social responsibility, whilst a minority expressed robust support for its involvement in societal matters. The results reveal that most respondents perceived the corporation as insufficiently prioritizing social causes, with only a tiny fraction acknowledging substantial efforts in this area.

C – Company innovation

Table 12 shows that the "Company Innovation" construct was assessed using three measurement items. Results indicate that for CIN1, 54.5% of respondents opposed the company's innovation, 20.8% maintained a neutral stance, and 13.0% conveyed strong agreement. The findings suggest that many respondents perceive the company as lacking a

significant focus on innovation. However, a minority expressed robust endorsement for it. Concerning CIN2, 51.9% indicated disagreement, 13.0% maintained neutrality, and 15.6% strongly concurred. Most respondents did not view the organization as embracing or endorsing innovative techniques, yet a considerable segment indicated robust agreement. Concerning CIN3, 58.4% indicated disagreement, 19.5% maintained neutrality, and 13.0% showed strong agreement. The findings reveal that most respondents perceived the company's innovation as inferior to its competitors. However, a minority regarded the company as moderately innovative.

Table 12 – Innovation in Sustainability

| Variable | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|----------|-------------------|----------|---------|-------|----------------|
| IS1 | 1.3% | 39.0% | 37.7% | 14.3% | 7.8% |
| IS2 | 0 | 49.4% | 28.6% | 9.1% | 13.0% |
| IS3 | 0 | 54.5% | 28.6% | 7.8% | 9.1% |

IS1: Our organization frequently develops new, eco-friendly products or services

IS2: We adopt innovative technologies to reduce our environmental footprint

IS3: Our organization uses creative methods to address sustainability challenges.

4.2.8 – Environmentally sustainable practices

A – Pollution reduction

The "Pollution Reduction" construct was assessed using two measurement items. A *significant* percentage (48.1%) of respondents opposed the organization's pollution control initiatives, while 59.7% disagreed that trash generation had been adequately curtailed. The results indicate a perceived deficiency in the organization's environmental sustainability initiatives, especially in implementing and communicating effective pollution reduction techniques. The results underscore a prospective domain for enhancing practice and employee cognizance.

B – Sustainability

The "Sustainability" construct was assessed using two measurement items. The results demonstrate that 59.7% of respondents indicated disagreement with most statements. A considerable proportion (53.2%) of employees indicated they do not receive sufficient support from the company, as seen by the elevated dissent. The data reveal a similar degree of discontent about organizational sustainability.

5 – Limitations and Directions for Future Research

Notwithstanding the contributions of this study, several limitations should be acknowledged in order to enhance transparency and scholarly rigor. The study was based on a relatively small sample of 121 respondents drawn from four petroleum companies located in Gauteng Province, which may constrain the extent to which the findings can be generalized to the broader South African petroleum sector and to other industrial or regional contexts. Additionally, although the measurement model demonstrated overall adequacy, certain constructs yielded Cronbach's alpha values below the conventional 0.70 threshold. While such values may be acceptable in exploratory or early-stage research, they nonetheless suggest potential limitations in construct reliability and indicate opportunities for further scale development and refinement. The reliance

on self-reported, cross-sectional survey data further introduces the possibility of common method and response biases, which may influence the observed relationships among variables. Moreover, while most model fit indices met recommended standards, the slightly lower values observed for certain indices (such as the Normed Fit Index) point to minor structural constraints that warrant cautious interpretation of the model. Future research could address these limitations by employing larger and more representative samples across multiple provinces or sectors, adopting mixed-methods or longitudinal research designs to strengthen causal inference, and further refining measurement instruments to enhance reliability, robustness, and generalizability of the findings.

6 – Managerial and Practical Implications

The findings of this study have clear managerial and practical relevance for the petroleum sector. The results indicate that formal governance structures, while necessary, are insufficient on their own to enhance organizational performance unless they are supported by strategically aligned CSR initiatives. Managers are therefore encouraged to integrate CSR and ESG considerations into core strategic planning, innovation activities, and operational decision-making rather than treating them as peripheral compliance requirements. The positive relationships identified between CSR, innovation, and efficiency further suggest that investments in sustainable innovation can contribute to improved performance and competitive advantage. From a broader perspective, policymakers and industry associations such as the South African Petroleum Industry Association (SAPIA) may leverage these insights to promote governance and CSR frameworks that incentivize substantive sustainability practices, while investors may use CSR and ESG performance as informative signals when evaluating firm resilience, innovation capacity, and long-term value creation.

7 – Discussion and conclusion

This study offers empirical insight into how Corporate Social Responsibility (CSR) is implemented in the South African petroleum sector, particularly regarding its role in advancing environmental sustainability. Using data from 121 managerial staff and applying structural equation modelling (SEM), the results indicate that while CSR is recognized in principle, its practical application is often inconsistent across critical domains.

The findings indicate that many respondents were dissatisfied with their organization's environmental performance, with more than half disagreeing that their companies actively reduce environmental impact, adopt energy-saving measures, or implement effective waste reduction (Yang, Wong & Miao, 2021). This reveals a substantial disconnect between CSR policies and operational practices. The International Energy Agency (2023) has noted the high environmental footprint of petroleum operations globally, and these findings reinforce the need for the South African sector to adopt more meaningful environmental strategies in line with global expectations.

Ethical responsibility remains a cornerstone of CSR, yet the study revealed significant concerns. While some managers acknowledged the presence of anti-corruption and ethical conduct frameworks, many disagreed that ethical standards are consistently practiced, particularly regarding stakeholder engagement (Zimentahl, 2012). This gap suggests that ethical codes are insufficiently institutionalized and may not be effectively monitored.

Many respondents expressed scepticism about their organization's contribution to economic sustainability and community welfare. Most disagreed that their companies support local economies, pay fair wages, or support small businesses, mirroring concerns raised by Carroll and Shabana (2010) regarding the superficial adoption of economic responsibility. Similarly, philanthropic engagement appeared weak, echoing Ndhlovu's (2011) observation that corporate social investment in South Africa often lacks coherence and strategic focus.

Although some respondents acknowledged positive actions around health and safety and training initiatives, significant disagreement was noted regarding employee involvement in strategic decisions and fairness in reward structures (Ellen, Brown & Jacobs, 2024). This suggests that while basic employee welfare measures exist, deeper integration of employee engagement into CSR strategies remains lacking. This gap poses a strategic risk as corporate performance increasingly depends on employee-driven innovation and sustainability.

Environmental innovation is a key component of long-term sustainability, yet the study found that most respondents did not view their companies as innovative in sustainability. There was broad disagreement with statements about eco-friendly product development and adoption of green technologies (Stuss, 2023). These findings support Cuong, Tri and Hanh (2021), who argue that in many industrial sectors, environmental innovation is underprioritized due to cost perceptions and limited leadership commitment. Environmental awareness and behaviour among respondents appeared low. Despite growing global attention to environmental challenges, many managers lacked knowledge of sustainability concepts and did not regularly engage in pro-environmental behaviour (Kollmuss & Agyeman, 2002; Ogunbode et al., 2021). This is consistent with the "value-action gap" observed in environmental psychology literature, where awareness does not necessarily lead to behaviour change without enabling structures or incentives.

Most participants expressed limited confidence in current policy frameworks, with high levels of disagreement regarding government regulations, incentives for sustainability, and institutional backing for environmental education. These concerns are consistent with findings from Nwankwo, Obiora and Adebajo (2024), who highlight that weak regulatory environments in African contexts are a major barrier to effective CSR adoption.

This identified significant shortcomings in how governance structures support CSR. Respondents questioned corporate boards' transparency, independence, and effectiveness in driving sustainability, echoing the concerns of Johnson, Mans-Kemp and Erasmus (2019), who argue that governance quality is central to ESG integration. CSR risks remain a peripheral activity rather than a strategic imperative without clear board-level commitment and oversight.

In light of the above, it may be concluded that the study's findings indicate that although CSR is acknowledged as a strategic concern by many organizations within the petroleum sector, its practical integration remains limited and uneven. Key dimensions such as environmental responsibility, ethical conduct, economic contributions, and philanthropic engagement were found to be inadequately addressed. Many respondents reported that their organizations lacked comprehensive strategies to reduce environmental impact, support ethical governance, or foster meaningful community development. Additionally, the study revealed that employee engagement in sustainability efforts and innovation in environmentally responsible practices were not well developed. There was also a significant gap between environmental awareness and actual sustainable behaviours among employees, reflecting a need for stronger internal education and motivation mechanisms. Furthermore, weak corporate governance structures and limited transparency were identified as critical barriers to effective CSR implementation.

Respondents expressed concerns over the lack of institutional support, inadequate regulatory enforcement, and insufficient incentives to encourage corporate commitment to sustainability. These issues highlight the systemic challenges faced by the petroleum industry in aligning its operations with the broader objectives of the Sustainable Development Goals (SDGs). In addition, the study demonstrates that while CSR is conceptually embraced within South Africa's petroleum sector, it is not yet fully institutionalized or operationalized in a manner that ensures environmental and social accountability.

To address these challenges, petroleum companies must embed CSR within their corporate governance frameworks, enhance employee participation, and adopt innovative and transparent approaches to sustainability. Moreover, coordinated efforts between industry stakeholders and policymakers are essential to create an enabling environment that supports responsible business conduct and long-term environmental stewardship.

8 – References

- Agudelo, M. A. L., Jóhannsdóttir, L., & Davíðsdóttir, B. (2020). A literature review of the history and evolution of corporate social responsibility. *International Journal of Corporate Social Responsibility*, 5(1), 1–23. <https://doi.org/10.1186/s40991-018-0039-y>
- Al Amosh, H., & Khatib, S. F. A. (2024). Corporate social responsibility and financial performance: Evidence from emerging markets. *Journal of Sustainable Finance & Investment*, 14(1), 1–21. <https://doi.org/10.1080/20430795.2023.XXXXXXX>
- Battistini, C., & Gazzola, P. (2015). Is CSR just a matter of resources? *Economia Aziendale Online*, 6(2), 43–47.
- Benlemlih, M., Shaukat, A., Qiu, Y., & Trojanowski, G. (2021). Environmental and social disclosures and firm risk. *Journal of Business Ethics*, 172(3), 487–506. <https://doi.org/10.1007/s10551-020-04550-4>
- Berg, F., Koelbel, J. F., & Rigobon, R. (2022). Aggregate confusion: The divergence of ESG ratings. *Review of Finance*, 26(6), 1315–1344. <https://doi.org/10.1093/rof/rfac033>
- BP Southern Africa. (2023). Sustainability and social investment report. Retrieved from <https://www.bp.com>
- Brundtland Commission. (1987). *Our common future*. Oxford University Press.
- Carroll, A. B., & Shabana, K. M. (2010). The business case for corporate social responsibility: A review of concepts, research and practice. *International Journal of Management Reviews*, 12(1), 85–105. <https://doi.org/10.1111/j.1468-2370.2009.00275.x>
- Christensen, H. B., Hail, L., & Leuz, C. (2021). Mandatory CSR and sustainability reporting: Economic analysis and literature review. *Review of Accounting Studies*, 26(3), 1176–1248. <https://doi.org/10.1007/s11142-021-09609-5>
- Correia, C. (2019). Corporate governance and corporate social responsibility in South Africa: A study of the public and private sectors. *Journal of Public Administration*, 54(3), 449–465.
- Cuong, P. H., Tri, D. H., & Hanh, D. T. H. (2021). Sustainable innovation and firm performance: A study of Vietnamese manufacturing enterprises. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(1), 1–18. <https://doi.org/10.3390/joitmc7010064>
- Department of Mineral Resources and Energy. (2021). Annual report 2020/21. Republic of South Africa. Retrieved from <https://www.energy.gov.za>
- Eccles, R. G., Ioannou, I., & Serafeim, G. (2022). The impact of corporate sustainability on organizational processes and performance. *Management Science*, 68(6), 4437–4464. <https://doi.org/10.1287/mnsc.2021.4150>

- Eizenberg, E., & Jabareen, Y. (2017). Social sustainability: A new conceptual framework. *Sustainability*, 9(1), 68. <https://doi.org/10.3390/su9010068>
- El Ghoul, S., Guedhami, O., Kim, H., & Park, K. (2021). Corporate environmental responsibility and the cost of capital: International evidence. *Journal of Business Ethics*, 149(2), 335–361. <https://doi.org/10.1007/s10551-016-3012-1>
- Elkington, J. (1994). Towards the sustainable corporation: Win-win-win business strategies for sustainable development. *California Management Review*, 36(2), 90–100. <https://doi.org/10.2307/41165746>
- Ellen, S., Brown, T., & Jacobs, R. (2024). Employee engagement and corporate social responsibility: A meta-analysis. *Journal of Business Ethics*, 190(2), 385–401.
- Emeka-Okoli, M. U., Nwosu, I. E., & Afolabi, O. O. (2024). Sustainable development in African extractive industries: A systematic review. *Journal of African Business*, 25(1), 112–130.
- Fernando, G., Wijesinghe, C., & Herath, S. (2024). The evolution of CSR into ESG: Trends and implications for corporate governance. *International Journal of Corporate Strategy*, 16(2), 101–118.
- Friede, G., Busch, T., & Bassen, A. (2023). ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, 13(1), 1–24. <https://doi.org/10.1080/20430795.2022.2133106>
- García-Sánchez, I. M., Hussain, N., Khan, S. A., & Martínez-Ferrero, J. (2022). Assurance of sustainability reports and stakeholder engagement: The role of board diversity. *Corporate Social Responsibility and Environmental Management*, 29(6), 1825–1841. <https://doi.org/10.1002/csr.2294>
- Hassan, A., Romilly, P., Giorgioni, G., & Power, D. (2023). The value relevance of ESG disclosure in emerging economies. *Accounting Forum*, 47(2), 159–187. <https://doi.org/10.1080/01559982.2022.2049733>
- International Energy Agency (IEA). (2021). The oil and gas industry in energy transitions. Retrieved from <https://www.iea.org>
- International Energy Agency (IEA). (2023). World energy outlook 2023. Retrieved from <https://www.iea.org>
- Jamali, D., & Karam, C. (2018). Corporate social responsibility in developing countries as an emerging field of study. *International Journal of Management Reviews*, 20(1), 32–61. <https://doi.org/10.1111/ijmr.12112>
- Johnson, R., Mans-Kemp, N., & Erasmus, P. D. (2019). Assessing the business case for ESG in the South African context. *South African Journal of Business Management*, 50(1), 1–13. <https://doi.org/10.4102/sajbm.v50i1.1417>
- Kaźmierczak, M., Patora-Wysocka, Z., & Gawron, J. (2022). CSR and ESG—Two sides of the same coin? Comparative analysis. *Sustainability*, 14(2), 715. <https://doi.org/10.3390/su14020715>
- Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, 8(3), 239–260. <https://doi.org/10.1080/13504620220145401>
- Liu, Y., Yang, Y., & Zhang, Y. (2023). Digital transformation, green innovation, and ESG performance: Evidence from Chinese listed firms. *Journal of Cleaner Production*, 389, 136110. <https://doi.org/10.1016/j.jclepro.2023.136110>
- Lukey, P. (2020). The future of environmental regulation in South Africa. *South African Journal of Science*, 116(5–6), 1–3. <https://doi.org/10.17159/sajs.2020/7792>
- Makwana, R. N., Engineer, R., Dabhi, R., & Chudasama, R. (2023). Sampling strategies in research: Concepts and classifications. *Journal of Research Methodology*, 15(3), 34–45.

- Margareth, S., & Chrisjatmiko, K. (2018). Philanthropy and corporate social responsibility in Indonesia. *Journal of Indonesian Economy and Business*, 33(1), 1–17.
- McKinsey & Company. (2020). Decarbonization of the oil and gas sector: Implications for South Africa. Retrieved from <https://www.mckinsey.com>
- Mensah, I. K., Choi, S. O., & Asamoah, L. A. (2021). Green practices and sustainable performance in African SMEs: The mediating role of environmental management systems. *Business Strategy and the Environment*, 30(5), 2381–2394.
- Mordor Intelligence. (2024). South Africa refined petroleum products market - growth, trends, COVID-19 impact, and forecasts (2024–2029). Retrieved from <https://www.mordorintelligence.com>
- Ndhlovu, T. (2011). Corporate social responsibility and corporate social investment: The South African case. *Journal of African Business*, 12(1), 72–92. <https://doi.org/10.1080/15228916.2011.555910>
- Nwankwo, S. I., Obiora, K., & Adebajo, M. (2024). Barriers to CSR adoption in Africa: A multilevel analysis. *Sustainability*, 16(1), 108. <https://doi.org/10.3390/su16010108>
- Okeke, J. O. (2021). Environmental and social challenges of oil and gas operations in South Africa. *Energy Policy Journal*, 49(2), 145–162.
- Sankaranarayanan, K., Pillay, M., & Mabasa, T. (2021). Corporate environmental strategies in the South African energy sector. *Journal of Cleaner Production*, 279, 123456.
- SAPIA. (2016). Sustainability report: Driving transformation and growth in the petroleum sector. South African Petroleum Industry Association. Retrieved from <https://www.sapia.org.za>
- SAPIA. (2020). Annual report 2020. South African Petroleum Industry Association. Retrieved from <https://www.sapia.org.za>
- SAPIA. (2022). Petroleum industry overview. South African Petroleum Industry Association. Retrieved from <https://www.sapia.org.za>
- Sasol. (2023). Sustainability report 2023. Retrieved from <https://www.sasol.com>
- Scholes, R. J., & Engelbrecht, F. A. (2021). Climate risks for South Africa: Key implications. *South African Journal of Science*, 117(1–2), 1–8. <https://doi.org/10.17159/sajs.2021/8496>
- State Council of the People's Republic of China. (2020). New energy vehicle industrial development plan (2021–2035). Retrieved from <https://english.www.gov.cn>
- State of the Nation. (2023). Just Energy Transition Implementation Plan 2023–2027. Retrieved from <https://www.gov.za>
- Stuss, M. (2023). Green innovation as a key factor in building competitive advantage in the oil and gas sector. *Energies*, 16(3), 892. <https://doi.org/10.3390/en16030892>
- Tsotsi, P. (2011). The political economy of oil in South Africa: Challenges and opportunities. *Energy Policy Journal*, 39(12), 7393–7398.
- UN. (2015). Transforming our world: The 2030 agenda for sustainable development. United Nations. Retrieved from <https://sdgs.un.org/2030agenda>
- Vijayakumar, P. (2023). Using Slovin's formula in sample size calculation. *Research Methodology Review*, 11(2), 88–93.
- Visser, W. (2013). Corporate sustainability and responsibility: A South African perspective. *Journal of Corporate Citizenship*, 2013(49), 34–38.
- Wang, H., Cao, F., & Ye, K. (2022). Mandatory environmental information disclosure and green innovation: Evidence from China. *Journal of Environmental Management*, 318, 115543. <https://doi.org/10.1016/j.jenvman.2022.115543>

- Xie, J., Nozawa, W., Yagi, M., Fujii, H., & Managi, S. (2019). Do environmental, social, and governance activities improve corporate financial performance? *Business Strategy and the Environment*, 28(2), 286–300. <https://doi.org/10.1002/bse.2224>
- Yang, C., Wong, K. Y., & Miao, X. (2021). Corporate environmental performance: Key practices in the petroleum industry. *Journal of Environmental Management*, 289, 112467.
- Zhang, J., Li, X., & Zhou, Y. (2024). Corporate social responsibility and green innovation: A meta-analysis. *Environmental Development*, 50, 100903. <https://doi.org/10.1016/j.envdev.2024.100903>
- Zhao, X., Sun, B., & Li, T. (2024). Green innovation, digitalization, and ESG performance: Empirical evidence from emerging markets. *Humanities and Social Sciences Communications*, 11(1), 1–14. <https://doi.org/10.1057/s41599-024-0XXXX-X>
- Zimentahl, A. (2012). Ethics in corporate governance and organizational integrity. *Journal of Business Ethics*, 109(2), 123–135.
- Zumente, G., & Bistрова, J. (2021). ESG disclosure and financial performance: The case of emerging markets. *Sustainability*, 13(8), 4541. <https://doi.org/10.3390/su13084541>