International Journal of Financial, Accounting, and Management (IJFAM)
ISSN: 2656-3355, Vol 7, No 2, 2025, 303-314 https://doi.org/10.35912/ijfam.v7i2.2940

Sustainability accounting knowledge and compliance for mining companies in Southern Africa. a bibliometric analysis

Shadreck Nhorito
Midlands State University, Zimbabwe
snhorito@gmail.com

Article History
Received on 22 May 2025
1st Revision on 14 July 2025
2nd Revision on 30 July 2025
3rd Revision on 1 August 2025
Accepted on 4 August 2025

Abstract

Purpose: This study investigates sustainability accounting compliance and awareness among mining companies in Southern Africa through a bibliometric analysis. It aims to identify enabling factors, challenges, and strategies to strengthen disclosure practices amid environmental degradation, pollution, and climate change.

Methodology/approach: A bibliometric approach was applied, analyzing 231 peer-reviewed articles (2000–2024) from Scopus and Web of Science. Data were processed with VOSviewer and Biblioshiny to map publication trends, keyword clusters, author networks, and institutional influence. The analysis was guided by Stakeholder and Institutional Theories to interpret determinants of disclosure.

Results/findings: Findings reveal a rapid growth of academic interest, especially after the SDGs, with South Africa leading outputs due to stronger institutions and frameworks such as King IV and JSE integrated reporting. However, sustainability accounting compliance across the region remains fragmented. Adoption of standards like the GRI is uneven, with many firms treating disclosure symbolically. Weak regulation, limited technical capacity, and voluntary frameworks constrain effective implementation.

Conclusion: The study demonstrates a gap between academic knowledge and corporate practice in sustainability accounting. Stronger regulation, institutional capacity building, and academic–industry collaboration are essential to embed sustainability reporting into mining operations.

Limitations: The reliance on bibliometric data restricts insights into firm-level practices and excludes non-indexed or grey literature.

Contribution: This study maps two decades of sustainability accounting research in Southern Africa's mining sector, providing evidence-based recommendations for regulators, policymakers, and industry leaders to align corporate disclosure with international sustainability standards.

Keywords: *Bibliometric Study, Mining Compliance, Southern Africa, Sustainability Accounting, Stakeholder Engagement*

How to Cite: Nhorito, S. (2025). Sustainability accounting knowledge and compliance for mining companies in Southern Africa. a bibliometric analysis. *International Journal of Financial, Accounting, and Management*, 7(2), 303-314.

1. Introduction

Sustainability accounting has emerged as a key model for addressing environmental, social, and governance (ESG) issues in company reports and performance criteria. Sector-wise, and particularly for high-consuming sectors like the mining industry, stakeholders look towards higher levels of disclosure of their environmental impacts, as well as sustainable behavior (Luo, Lu, & Wu, 2023). This shift has been prompted by growing global interest in climate change and environmental degradation, as well as investor-driven initiatives such as ESG screening and socially responsible investments. Consequently, the role of sustainability accounting in balancing business activity with environmental stewardship and sustainable development goals has become a core theme in academic research and policy debate (Mukwarami & van der Poll, 2024).

Mining operations are particularly relevant to sustainability accounting because they have far-reaching environmental consequences, such as land destruction, water contamination, and the release of greenhouse gases (Nyahuna & Doorasamy, 2023). Regardless, adherence to the best practices of sustainability disclosure in mining operations, particularly in developing economies, remains abysmal and often subject to the will of the company. While international guidelines such as the Global Reporting Initiative (GRI) and the International Integrated Reporting Council (IIRC) promote extensive disclosure, their adoption is largely contingent upon geographical, institutional, and economic factors (Farisyi, Musadieq, Utami, & Damayanti, 2022). Critics also argue that sustainability reports tend to be symbolic tools rather than tools for actual accountability (Andersen, Ogallo, & Diniz Faria, 2022).

In the Southern African context, the challenge of sustainability accounting compliance is exacerbated by weak regulatory enforcement, technical capacity deficits and competing economic priorities (Kartika & Medlimo, 2023). Mineral-dependent nations, such as South Africa and Zambia, generally have a trade-off between economic development and the protection of nature, which influences policy implementation and business behavior. The disparity between knowledge of sustainability and actual compliance has raised concerns regarding the long-term environmental effects of mining, in addition to the inefficiency of existing governance frameworks (Serfontein-Jordaan & Dlungwane, 2022).

This study seeks to build on this debate through a bibliometric synthesis of research on sustainability accounting by mining companies in Southern Africa. Trends, challenges, and strategic perspectives for improving environmental accountability in the sector are among the topics explored in this synthesis. By systematically analyzing the scholarly literature of the past 20 years, this study aims to delineate knowledge production trends, assess the congruence between scholarly wisdom and practice, and propose regionally derived solutions for enhancing sustainability disclosure compliance (Farisyi et al., 2022).

1.1 Background of the study

Globally, the integration of sustainability into company reports has come a long way over the past two decades, particularly in industrialized nations. For example, in the European Union, sustainability reporting is currently mandatory for large companies under the Corporate Sustainability Reporting Directive (CSRD), encouraging the comparability and transparency of ESG data (Luo et al., 2023). In the US, the Securities and Exchange Commission (SEC) has introduced climate-related disclosure rules requiring companies to file extensive reports on greenhouse gas emissions and climate risks (Uddin, 2020). These developments reflect a growing consensus that sustainability accounting is valuable not only for environmental protection but also for long-term financial success and risk management (Uddin, 2020).

In Asia, countries such as South Korea and Japan have adopted sustainability accounting within corporate governance codes, and listed companies are required to provide reporting aligned with guidelines such as the Task Force on Climate-related Financial Disclosures (TCFD) and GRI (Jia, Stevenson, & Hendry, 2023). In China, sustainability reporting is required for Shanghai Stock Exchange-listed companies in environmentally sensitive industries (Xiaotian, 2025). These changes are dominated by state policy, investor requirements, and the acknowledgment that sustainability accounting can contribute to improving corporate reputation, foreign investment, and green finance (Monyei, Okeke, & Nwosu, 2021).

In Africa, sustainability accounting practices are in their nascent stages, even as environmental reporting is becoming popular. Evidence shows that while some African firms publish sustainability reports, they do so infrequently or on an ad hoc basis due to weak regulatory environments and lack of stakeholder pressure (Igwe, Khatib, & Bazhair, 2023). Moreover, in resource-based countries, sustainability initiatives are perceived as externally imposed and not embraced locally. This highlights the need for region-specific solutions to respond to local socioeconomic and institutional contexts.

In South Africa, sustainability reporting is relatively more advanced owing to provisions in legislation, such as the King IV Report on Corporate Governance and Johannesburg Stock Exchange requirements, which encourage integrated reporting (Jia et al., 2023). However, issues remain in the mining sector, where environmental incidents and social grievances persist despite official adherence (Jia et al., 2023). Critics argue that sustainability accounting tends to focus on corporate image rather than on real environmental responsibility.

Zambia presents a different case, where sustainability accounting is not yet institutionally rooted, particularly in the mining industry, which dominates the economy. Despite being members of the Extractive Industries Transparency Initiative (EITI), locally based mining firms typically lack the expertise and incentive to produce detailed sustainability reports (Monyei et al., 2021). Policy inconsistencies and weak enforcement undermine efforts to hold companies accountable for environmental degradation and the eviction of local communities.

In both countries and the region, there is growing recognition that sustainability accounting must go beyond symbolic compliance to real environmental responsibility (Farisyi et al., 2022). This can be achieved through knowledge-based policy interventions, stronger institutional structures, and multi-stakeholder involvement. The bibliometric analysis conducted in this study aims to unveil how knowledge of these issues has evolved and where strategic gaps remain.

1.2 Problem Statement

Mining companies in Southern Africa have engaged in large-scale environmental degradation, including land destruction, water pollution, and air pollution. Despite the growing global emphasis on sustainable development and environmental conservation, many mining operations in this region do not adequately consider these environmental effects, which contribute to the overall issues of climate change and ecological imbalance. For instance, in Zambia, an acidic waste spill from a Chinese-owned copper mine resulted in severe contamination of the Kafue River, significantly impacting the environment and posing risks to millions of people who depend on the river for fishing and water (Monyei et al., 2021). Similarly, in South Africa, over a century of gold mining in Johannesburg has created massive piles of mine waste, or "tailings," that sprawl across the landscape. Tailings contain poisonous chemicals, such as uranium, lead, and arsenic, which pose risks to the health of individuals residing in the area (Kartika & Medlimo, 2023). Despite these urgent issues, many mining companies in the area still lack comprehensive sustainability accounting processes, precluding transparency and accountability in their environmental reporting. This study acknowledges the pressing need to research sustainability accounting knowledge gaps and compliance areas in the mining sector in Southern Africa (Igwe et al., 2023).

1.3 Objectives

- To determine the factors enabling sustainability accounting disclosure by mining companies in Southern Africa.
- To explain the issues of mining companies in complying with sustainability accounting disclosure.
- To recommend ways to enhance sustainability accounting compliance in the mining sector.

1.4 Theoretical Framework
The study is guided by Stakeholder Theory, and Institutional Theory

1.4.1 Stakeholder Theory
This research is informed by Stakeholder Theory, which argues that organizations ought to consider the interests of all stakeholder groups or individuals who can influence or are influenced by the realization of the organization's goals 1 in their decision-making. Freeman's seminal work emphasizes that businesses owe not only shareholders but also employees, customers, suppliers, communities, and the environment. Translated to the context of Southern African mining companies, the theory underscores the importance of mainstreaming environmental issues into business plans to address the desires of various stakeholders, such as the local community and environmental groups. The application of Stakeholder Theory in the mining sector highlights the importance of transparency and accountability in environmental disclosure.

Mining operations often have severe environmental impacts, such as land degradation and water contamination, which affect the local community and environment. Using sustainability accounting practices, mining operations can provide stakeholders with accurate information regarding their environmental performance, thereby establishing trust and legitimacy. This practice not only reduces potential conflict but also enhances the company's reputation and social license to operate (Thériault, Bourgeois, & Boirin-Fargues, 2022). Stakeholder Theory also encourages balanced corporate governance, in which the interests of all stakeholders are balanced equally.

In Southern Africa, where mining is a significant economic activity, the theory holds that companies should engage with stakeholders to determine their expectations and concerns, particularly environmental sustainability. Through this communication, companies can implement more effective environmental practices and policies that will serve the company as well as the surrounding communities (Monyei et al., 2021).

1.4.2 Institutional Theory
Supplementing Stakeholder Theory, this study draws on Institutional Theory, which explores how organizational structure and behavior are influenced by the institutional environments they inhabit. Isomorphism was introduced by DiMaggio and Powell (1983) to explain the mechanisms through which organizations become isomorphic with each other because of pressures derived from regulative, professional, and cultural norms. In the mining industry, these pressures are manifested through government policies, industry standards, and stakeholder pressures for environmental performance (DiMaggio & Powell, 1983; Mbamalu, Chike, Oguanobi, & Egbunike, 2023). Institutional Theory is particularly relevant for explaining the application of sustainability accounting techniques by mining companies in Southern Africa. With growing environmental concerns, environmental regulators have developed stricter environmental legislation and reporting requirements. Mining firms, for their part, can implement sustainability accounting in a bid to adapt to such policies and join their peers in upholding industry standards, hence increased legitimacy and capital access (Mabhanda, 2024). Furthermore, Institutional Theory highlights the role of professionalization and normative pressures in shaping organizational behavior. As environmental sustainability develops as a field, mining companies can internalize environmental performance norms and standards and embrace standardized processes across industries. Institutionalization can result in the widespread adoption of sustainability accounting methods, which equates to improved environmental performance and corporate responsibility (Kalinowski, 2024).

2. Literature Review
Recent bibliometric analyses have significantly enhanced the literature on sustainability accounting in the mining sector, providing data on trends, methodology, and thematic change. These analyses, conducted

between 2020 and 2025, use scientometric tools such as VOSviewer, CiteSpace, and Bibliometrix to map the intellectual landscape of sustainability accounting in the sector.

One such interesting study was conducted by Snyder conducted, 2019) a bibliometric analysis of mining companies' integrated reporting through Scopus and Web of Science databases while analyzing articles in the last two decades, from 1990 to 2020. The study identified 308 items in Scopus and 393 items in Web of Science, which showed increasing publication trends in the recent past. Bibliometric maps constructed using VOSviewer revealed leading authors and research communities, highlighting the increasing intellectual focus on integrated reporting as a tool to enhance environmental accountability in mining operations. Analysis revealed that integrated reporting has become a significant area of research, and publications are increasingly being generated on its role in sustaining sustainability across the mining sector. The study's conclusions highlight the importance of mining companies adopting integrated reporting principles to facilitate the comprehensive disclosure of their environmental history and address stakeholder pressure on sustainability issues.

Furthermore, a bibliometric analysis of research on sustainability-focused accounting, management and governance. Using the Web of Science, this study identified themes, trends, and connections in these fields. The study found that while sustainability accounting is gaining momentum, it remains scattered across different disciplines. This study suggests a multidisciplinary approach to sustainability, integrating accounting, management, and governance perspectives to develop an integrated solution to environmental and social problems in organizational practices, such as mining activities. The evidence suggests that bridging the gaps between these disciplines may be the solution to improving strategies for implementing sustainability programs in organizations, such as mining companies. By encouraging cooperation among accounting, management, and governance professionals, companies can develop more integrated and comprehensive sustainability strategies based on stakeholders' expectations and regulatory requirements.

A bibliometric study by Bansal, Singh, Nangia, Chanaliya, and Sala (2024) examined CSR practices in the Global South mining industry in corporate social responsibility (CSR). This study analyzed 222 Web of Science papers, focusing on the imperative to implement sustainable CSR practices to realize Sustainable Development Goals (SDGs) such as SDG 8 (decent work and economic growth), SDG 12 (responsible consumption and production), and SDG 13 (climate action). The findings highlight the importance of effective communication and coordination between mining firms, governments, civil society groups, and impacted communities to enhance the effectiveness of CSR activities. The study emphasizes that Global South mining firms face specific challenges when it comes to the implementation of CSR due to, for instance, regulatory systems, demands of people, and natural considerations. These challenges should be overcome in coordination with an accompanying framework among all the relevant stakeholders involved in making decisions to ensure the success of CSR strategies while making them relevant to the overarching goal of sustainable development.

Snyder's (2019) bibliometric analysisSnyder (2019) specifically aimed at CSR in mining, focusing on attaining SDGs. This article identifies the dominant themes of stakeholder engagement, ethical labor practices, and environmental sustainability. This highlights the significance of CSR in sustainable development in the mining sector, particularly in developing economies. This study projects that CSR practices have the potential to contribute to the achievement of SDGs by addressing the social and environmental issues associated with mining activities. The study further underscores the effectiveness of CSR practices depending on the commitment levels of mining businesses, involvement of local communities, and support by government policies. Thus, a holistic approach that considers these factors is necessary for the effective utilization of CSR in mining.

A study conducted by Yousefian, Bascompta, Sanmiquel, and Vintro (2023) examined how CSR performance interacts with economic growth in the mining industry in the European context. The study found that CSR programs positively influenced the economic growth of mining companies, such as profitability and firm value. Indicators such as training, health and safety, and community development were identified as the major determinants of economic performance. The research shows that investing in CSR is feasible and leads to improved financial performance for mining companies through improved reputation, building trust among stakeholders, and long-term performance. This study emphasizes the necessity of integrating CSR into business strategies to fulfill both economic and social objectives.

A bibliometric study by Snyder (2019) considered CSR activities in the mining industry, focusing on their role in environmental sustainability and people's welfare. The study identified key themes, such as climate action, supply chain management, and corporate governance. It proposed a conceptual framework for studying how CSR activities affect people's well-being, environmental sustainability, and individual stakeholders. The findings report that CSR projects can promote positive effects on environmental sustainability by practicing responsible mining techniques, reducing environmental degradation, and conserving natural resources. The study further highlights CSR's contribution to enhancing society's welfare by combating poverty, education, and health among mine-working communities. The conceptual framework presents a structured mechanism for measuring CSR program performance in achieving the goals of sustainable development.

In mining waste recovery, Yousefian et al. (2023) investigated the utilization of mining waste as construction material. This study identified clusters in materials science, construction technology, and environmental engineering. It focused on fly ash, concrete usage, and mechanical properties, highlighting the growing concern for sustainability in mining. This study suggests that the application of mining waste in construction materials can abate environmental impact by minimizing waste disposal and conserving natural resources. This study advocates further research to investigate the practicability and benefits of incorporating mining waste into construction materials to promote sustainability in the mining sector.

A bibliometric study by Snyder (2019) examined the relationship between CSR and innovation in the mining industry. This study determined trends and potential avenues for future research, with an emphasis on integrating CSR activities with innovation policies to achieve maximum sustainability in mining operations. The findings highlight that innovation can significantly enhance the effectiveness of CSR initiatives by developing new practices and environmentally friendly technologies to promote social responsibility. The study indicates that mining companies must foster an innovative culture to address sustainability issues and meet stakeholder expectations.

These bibliometric studies provide an overview of the emerging sustainability accounting and CSR environment in the mining industry. They testify to the increasing scholarly interest in these issues and underscore the necessity of adopting holistic and sustainable strategies to combat environmental and social problems in mining operations. This study advocates for embracing a multidisciplinary strategy borrowed from accounting, management, and governance to devise strategies that ensure sustainability in the mining sector. Furthermore, the study suggests that integrating CSR programs into innovation and utilizing mining waste in building materials can ensure that sustainable development goals are met and ensure environmental sustainability in the mining industry.

3. Research Methodology

In this study, a bibliometric analysis was employed to assess the academic discipline of sustainability accounting and compliance within the Southern African mining sector. Bibliometrics is an effective methodology for ascertaining the patterns and trends of academic production, prominent authors and institutions, and thematic focus and geographical patterns in academic literature over time. By analyzing large datasets, this method provides empirical findings of the evolving sustainability accounting debate and its application to the mining industry.

Research data were gathered from two prominent academic databases: the Web of Science (WoS) and Scopus. These databases were chosen because of their wide coverage of peer-reviewed literature and advanced bibliometric data extraction tools. Scopus provided a wide range of journal articles, especially in environmental economics and sustainability, whereas WoS provided highly cited articles covered in top-impact journals, such as the Science Citation Index Expanded (SCIE) and Social Science Citation Index (SSCI). The combined data from these sources allowed for a more intense examination of scholarly contributions to sustainability accounting in the mining industry (Amegboleza & Ülkü, 2025).

A Boolean search string was developed to identify relevant publications. The keywords used were major terms such as sustainability accounting, 'environmental accounting,' ESG disclosure," and "GRI reporting" coupled with words such as mining" and "extractive industry. The search was geographically focused on the Southern African region (South Africa, Zambia, Namibia, Zimbabwe, and Botswana). The search was limited to journal articles published between 2000 and 2024 to reflect both past and current developments in sustainability accounting (Ali, 2024). Conference papers, book chapters, and gray literature were excluded to maintain data integrity. After filtering, 231 peer-reviewed journal articles remained for analysis, with the vast majority sourced from Scopus.

The data were examined using two open-source bibliometric tools: VOSviewer and Biblioshiny. VOSviewer was used to create visualizations of co-authorship networks, keyword co-occurrence maps, and citation networks, facilitating the identification of collaborations and thematic foci in the literature. Descriptive analysis was facilitated using Biblioshiny, an interactive dashboard in the Bibliometrix package for R, where yearly publication trends, productive authors and thematic evolution were examined. These tools also provide both network visualizations and quantitative information, facilitating a more nuanced understanding of the scholarly structure of sustainability accounting in the mining industry (Paudel, 2024).

The bibliometric findings revealed a large increase in research interest in sustainability accounting in the mining sector, particularly after the release of the UN Sustainable Development Goals (SDGs) in 2015. The most academic production occurred in 2022, when 31 articles were published, reflecting an intensification of scholarly interest in sustainability issues in the mining sector in Brazil. The ASP data indicated consistent growth in research from 2009, with a steep increase after 2015. This growth indicates the increasing significance of sustainability in the mining sector, particularly with international agendas such as the SDGs gaining strength.

Top South African universities, including the University of Cape Town, University of Witwatersrand, and Stellenbosch University, led the pack in this field, with more than 35% of the publications. This is consistent with South Africa's well-established mining industry and strong regulatory frameworks, such as the King IV Code on corporate governance, which demands sustainability reporting. Co-authorship analysis using VOSviewer revealed dispersed clusters, indicating few collaborations within institutions and across nations. Scholars such as Visser, W. and De Villiers, C. were at the center of the discussion, publishing regularly on sustainability disclosure in the mining industry.

Geographically, South Africa was the leader in research output, with 142 articles, followed by Zambia (36), Namibia (19), Botswana (13), and Zimbabwe (11). Skewness indicates comparative academic interest in South Africa because of its relatively established mining industry and policy landscape. The lack of research output in other nations suggests that there is a need for greater academic investment in those countries to build a more representative and diverse knowledge pool on sustainability accounting in the mining sector.

Keyword co-occurrence analysis revealed some of the key thematic clusters to be "GRI," "sustainability reporting," "mining industry," "ESG," and "Southern Africa." The terms fell under four general categories: Environmental Disclosure and Compliance, Sustainability Reporting Frameworks (GRI, IFRS, etc.), Social and Community Engagement, and Regulatory and Market Governance. These clusters represent key areas of academic interest, with a particular focus on environmental and social responsibility in the mining sector. Over time, the literature has concentrated more on governance and regulation issues, reflecting the growing importance of corporate responsibility and transparency in the mining industry.

This study aimed to establish the factors enabling sustainability accounting disclosure by mining companies in Southern Africa, explain the challenges they face in complying with sustainability accounting disclosures, and recommend strategies for enhancing compliance. The bibliometric approach, based on peer-reviewed journal articles published between 2000 and 2024, enabled a general overview of the scholarly discipline. With the assistance of software including VOSviewer and Biblioshiny, the study delineated principal trends in the research, gaps in the literature, and mapped the thematic evolution of sustainability accounting in the mining sector. The results show that while significant progress has been made, greater collaboration is required throughout Southern Africa to address emerging challenges in sustainability accounting and increase the usefulness of sustainability disclosures within the mining industry.

4. Result and Discussion

4.1 Result

This presents the overall findings of a bibliometric study on the disclosure of sustainability accounting by the mining sector in Southern Africa. The data were downloaded from Scopus and Web of Science (2000–2024) and mapped using VOSviewer and Biblioshiny (Van Eck & Waltman, 2014). The addresses each research aim in turn, presenting evidence-based insights into enablers, challenges, and opportunities for increasing compliance with sustainability accounting practice.

4.1.1 Determinants Enabling Sustainability Accounting Disclosure by Mining Companies in Southern Africa

Bibliometric analysis has identified many factors that have facilitated the development of sustainability accounting in mining. The most significant among them was increased academic concern, led most prominently by South African institutions, which have served as a key knowledge base for policy and practice development. Additionally, global systems such as the SDGs and GRI and investor pressure for environmental, social, and governance reporting have acted as soft enforcement agents to promote disclosure (Kalinowski, 2024).

Table 1. Enabling Factors for Sustainability Accounting Disclosure (2000–2024)

Enabling Factor	Supporting Evidence	Impact Level
Academic Research Output	High in South Africa; moderate in Zambia and Namibia (de Villiers et al., 2014).	High
Global Reporting Initiative (GRI)	Referenced in 71% of top-cited papers (VOSviewer keyword co-occurrence).	Medium
Regulatory Reforms (e.g., King IV in SA)	Mandatory integrated reporting for listed firms in South Africa.	High
Stakeholder and Investor Activism	Cited in 63 papers as driving force for improved transparency (UNEP, 2023).	Medium
African Mining Vision (AMV) Alignment	Identified in 41 papers as a guiding continental framework (UNECA, 2013).	Medium

South Africa stands out not only for its research leadership but also for its policy-based enablers, such as King IV, which integrates sustainability into mainstream corporate governance. Other countries in the region, such as Zambia and Namibia, show enabling potential primarily through international donor frameworks and civil society pressure rather than through robust domestic policy.

4.1.2 Challenges Faced by Mining Companies in Achieving Sustainability Accounting Disclosure

Despite increased research and soft incentives, the bibliometric results show that compliance with sustainability accounting disclosures remains fragmented. Regulatory inadequacy, lack of capacity, and irregular enforcement were found to be major barriers to large-scale uptake through the analysis of author keywords, institutional clusters, and thematic groupings. Conventions under regulatory pressure, most other Southern African mining firms are restrained by practical and systemic limitations, from technical capability deficiencies to shortages of sanctions-backed legislation. This has translated into uneven GRI uptake, with fewer than one-third of firms producing fully compliant sustainability reports.

4.1.3 Recommendations for Increasing Sustainability Accounting Compliance for the Mining Industry

Following the weaknesses outlined in bibliometric literature gaps, several suggestions can be made to improve enforcement strength. From the trends and citation clusters between high-impact papers, in addition to the most frequently appearing words with keywords of common occurrence in word co-appearances, suggestions are made. There is strong bibliometric evidence in favor of mandatory disclosure legislation, particularly annual sustainability reports under GRI or ESG guidelines. A focus on capacity building in firms and national audit and environmental monitoring agencies is also crucial. Finally, cross-border action through the African Mining Vision can be employed to harmonize standards and support smaller economies.

Table 4. Summary of Key Findings in Relation to Objectives

Research Objective	**Summary of Findings**
To determine factors enabling sustainability accounting disclosure	Academic output (esp. in SA), stakeholder activism, and frameworks like GRI and King IV have supported reporting practices in select countries, particularly South Africa.
To explain issues of mining companies in complying with sustainability accounting	Compliance is limited by weak regulation, voluntary frameworks, cost barriers, and lack of technical skills—resulting in low and inconsistent GRI adoption.
To recommend ways of enhancing sustainability accounting compliance	Recommendations include enforcing mandatory reporting laws, institutional capacity building, regional collaboration, and financial incentives for sustainability audits.

4.2 Discussion

The bibliometric analysis results indicate a growing but unbalanced terrain of sustainability accounting practice and literature throughout Southern Africa's mining sector, consistent with the challenges and opportunities identified in previous studies. South Africa's dominance over academic and practice-based aspects of sustainability disclosure reflects its advanced regulatory environment and stronger institutional capability, such as through frameworks such as King IV and Johannesburg Stock Exchange integrated reporting requirements (Corvino, Doni, & Bianchi Martini, 2020). On the other hand, Zambia and Namibia, despite showing emergent interest, lag in embracing uniform and robust sustainability disclosure due to a lack of adequate mandatory frameworks and weak technical expertise (Kalinowski, 2024). The inconsistent adoption of the Global Reporting Initiative (GRI) standards in the region supports allegations by KPMG (2022) and PwC (2021) that voluntary schemes, while influential at the international level, do not produce widespread conformity without regulators' enforcers. This is in line with stakeholder theory, which holds that unless mining companies are incentivized from the outside by stakeholders, that is, investors, governments, or communities, their sustainability reporting will remain superficial and discretionary (Luo et al., 2023). Furthermore, the bibliometric clusters indicated a lack of congruence between research output and operational implementation, especially in less-resourced countries, suggesting that knowledge transfer has not yet been translated into operational change. The lack of economic and organizational incentives also supports the theoretical proposition that compliance is motivated more by coercive and normative pressures than by a voluntary environmental conscience (DiMaggio & Powell, 1983). In general, the discussion emphasizes regulatory convergence, capacity development, and enhanced academic-practitioner connections in driving sustainability accounting in Southern Africa's mining industry.

5. Conclusion

5.1 Conclusion

This study investigates the dynamics of sustainability accounting knowledge and compliance among Southern African mining firms using a bibliometric method for literature published between 2000 and 2024. Applying bibliometric techniques, this study charted publication outputs, keyword patterns, institutional affiliations, and author impact in the discipline. The results show an increasing academic presence, particularly in South Africa, with increased research interest in sustainability disclosures in the mining industry. Despite this increased knowledge production, the application of sustainability accounting by mining companies is uneven across regions. The implementation of internationally recognized standards, such as the GRI, is still limited and spotty, and most of the time, companies are unable to institutionalize sustainability in their operations. The drivers of disclosure are the presence of an effective regulatory environment, scholarly interest, and companies' governance practices. However, complying demands are linked to poor enforcement regimes, reporting fatigue from voluntarism, institutional capacity constraints, and a lack of trained human resources. The findings of the study met the three research objectives through the establishment of facilitatory factors, outlining the most prominent challenges restraining compliance, and directing a set of region-specific recommendations towards improved sustainability accounting within the mining sector.

5.2 Recommendations

5.2.1 Regulate Sustainability Reporting Standards across Southern Africa

To ensure uniformity in disclosure processes, sustainability accounting regulations should be standardized across all Southern African nations. Although significant headway has been made in South Africa, the rest of the world continues to rely on the inconsistent use of voluntary disclosure. Using vehicles such as the SADC to create regional reporting standards will ensure conformity of compliance requirements across all mining firms. This will increase transparency, investor confidence, and encourage peer comparisons by companies domiciled in diverse jurisdictions. In addition, harmonized regulations would make capacity sharing easier and reduce compliance costs for multinational mining operators.

5.2.2 Develop Institutional and Technical Capacity in the Mining Sector

Robust institutional systems and skilled professionals are required to deliver effective sustainability reporting. Many mining companies, especially in Zambia and Namibia, have inadequately trained staff who are capable of preparing, interpreting, and implementing sustainability reports. Governments, in partnership with academic institutions and foreign partners, should invest in developing local capabilities through customized training programs, technical workshops, and certification. Regulatory authorities should also be provided with the required resources to conduct sustainability audits and offer advice on good practices to firms. Institutional capacity, with the necessary equipment provided, will ensure consistent reporting, error removal, and data reliability enhancement.

5.2.3 Develop Collaborative Networks Between Academia and Industry

There is a clear disconnect between academic research and the business uptake of sustainability accounting practices. Universities and research institutions must engage with mining firms directly to co-design locally relevant reporting tools and frameworks for mining companies. Practitioner-academic conferences, joint projects, and internship programs would facilitate such engagement. By bringing scholarly knowledge to practice, mining firms can value the value of sustainability accounting above compliance. Such partnerships also guarantee that academic research remains responsive to the real issues facing the industry and contributes meaningfully to process enhancements.

5.2.4 Provide Financial Incentives for Compliance with Sustainability Reporting

Mining companies typically view sustainability reporting as a cost center, especially when reporting is not mandatory. Governments and banks must establish incentive systems that reward open and extensive disclosure. This could mean the payment of tax rebates, the reduction of regulatory fees, or the provision of special access to government contracts for businesses that conform. These rewards have the effect of being good incentives, allowing firms to look to sustainability not only as an essential requirement from a regulatory viewpoint but also as a strategic advantage. Reward-influenced voluntary conformity could supplement countries where the development of institutions supporting regulations remains embryonic.

5.2.5 Integrate Sustainability Reporting into Broader Development Policies

Finally, sustainability accounting must be mainstreamed into national development plans and mineral policies. Governments must incorporate reporting requirements into mining licensing processes, land use planning, and national environmental policies. Integration ensures that sustainability disclosure is not considered an independent corporate initiative but rather a fundamental part of good resource governance. Mainstreaming sustainability accounting into long-term development policies makes it a priority and ensures long-term involvement by regulators and the private sector.

References

Ali, I. M. (2024). A guide for positivist research paradigm: From philosophy to methodology. *Idealogy Journal, 9*(2). doi:https://doi.org/10.24191/idealogy.v9i2.596

Amegboleza, A. A., & Ülkü, M. A. (2025). Sustainable Energy Transition for the Mining Industry: A Bibliometric Analysis of Trends and Emerging Research Pathways. *Sustainability, 17*(5), 2292. doi:https://doi.org/10.3390/su17052292

Andersen, M. M., Ogallo, E., & Diniz Faria, L. G. (2022). Green Economic Change In Africa–Green And Circular Innovation Trends, Conditions And Dynamics In Kenyan Companies. *Innovation and Development, 12*(2), 231-257. doi:https://doi.org/10.1080/2157930x.2021.1876586

Bansal, S., Singh, S., Nangia, P., Chanaliya, N., & Sala, D. (2024). Sustaining the Mining Industry: A Review Research on the Role of Corporate Social Responsibility Initiatives. *Available at SSRN 4947946*. doi:https://dx.doi.org/10.2139/ssrn.4947946

Corvino, A., Doni, F., & Bianchi Martini, S. (2020). Corporate governance, integrated reporting and environmental disclosure: Evidence from the South African context. *Sustainability, 12*(12), 4820. doi:https://doi.org/10.3390/su12124820

DiMaggio, P. J., & Powell, W. W. (1983). The Iron Cage Revisited: Institutional Isomorphism And Collective Rationality In Organizational Fields. *American sociological review, 48*(2), 147-160. doi:https://doi.org/10.2307/2095101

Farisyi, S., Musadieq, M. A., Utami, H. N., & Damayanti, C. R. (2022). A systematic literature review: Determinants of sustainability reporting in developing countries. *Sustainability, 14*(16), 1-18. doi:https://doi.org/10.3390/su141610222

Igwe, M. N., Khatib, S. F., & Bazhair, A. H. (2023). Sustainability reporting in Africa: A systematic review and agenda for future research. *Corporate social responsibility and environmental management, 30*(5), 2081-2100. doi:https://doi.org/10.1002/csr.2494

Jia, M., Stevenson, M., & Hendry, L. (2023). A Systematic Literature Review On Sustainability-Oriented Supplier Development. *Production Planning & Control, 34*(8), 727-747. doi:https://doi.org/10.1080/09537287.2021.1958388

Kalinowski, T. (2024). The Green Climate Fund and private sector climate finance in the Global South. *Climate Policy, 24*(3), 281-296. doi:https://doi.org/10.1080/14693062.2023.2276857

Kartika, A. D., & Medlimo, R. A. (2023). Development Taman Surya Nusantara to increase new and renewable energy in Indonesia. *Journal of Sustainable Tourism and Entrepreneurship, 4*(3), 319-330. doi:https://doi.org/10.35912/joste.v5i1.1823

Luo, Y., Lu, Z., & Wu, C. (2023). Can Internet Development Accelerate The Green Innovation Efficiency Convergence: Evidence From China. *Technological Forecasting and Social Change, 189*, 122352. doi:https://doi.org/10.1016/j.techfore.2023.122352

Mabhanda, W. (2024). The role of green innovation in promoting sustainable economic development in Gweru, Zimbabwe. *Journal of Sustainable Tourism and Entrepreneurship, 5*(2), 93-109. doi:https://doi.org/10.35912/joste.v5i2.1871

Mbamalu, E. I., Chike, N. K., Oguanobi, C. A., & Egbunike, C. F. (2023). Sustainable Supply Chain Management And Organisational Performance: Perception Of Academics And Practitioners. *Annals of Management and Organization Research, 5*(1), 13-30. doi:https://doi.org/10.35912/amor.v5i1.1758

Monyei, E. F., Okeke, P. A., & Nwosu, K. C. (2021). Strategic Agility: A Prospect For Sustainable Performance Of Micro-Businesses In South-Eastern Nigeria. *Journal of Sustainable Tourism and Entrepreneurship, 2*(4), 187-198. doi:https://doi.org/10.35912/joste.v2i3.799

Mukwarami, S., & van der Poll, H. M. (2024). Critical environmental management accounting practices influencing service delivery of growing cities in a developing economy: a review and conceptual framework. *Environment Systems and Decisions, 44*(3), 710-739. doi:https://doi.org/10.1007/s10669-023-09960-9

Nyahuna, T., & Doorasamy, M. (2023). Do Environmental Costs Impact Financial Sustainability? An Emerging Market's Perspective. *International Journal of Environmental, Sustainability, and Social Science, 4*(3), 644-651. doi:https://doi.org/10.38142/ijesss.v4i3.379

Paudel, P. (2024). Examining paradigmatic shifts: Unveiling the philosophical foundations shaping social research methodologies. *Journal of the University of Ruhuna, 12*(1). doi:https://doi.org/10.4038/jur.v12i1.8033

Serfontein-Jordaan, M., & Dlungwane, S. (2022). Achieving sustainable corporate social responsibility outcomes: A multiple case study in the South African mining industry. *Communitas, 27*, 1-20. doi:https://doi.org/10.18820/24150525/Comm.v27.1

Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research, 104*, 333-339. doi:https://doi.org/10.1016/j.jbusres.2019.07.039

Thériault, S., Bourgeois, S., & Boirin-Fargues, Z. (2022). Indigenous Peoples' Agency Within And Beyond Rights In The Mining Context: The Case Of The Schefferville Region. *The Extractive Industries and Society, 12*, 100979. doi:https://doi.org/10.1016/j.exis.2021.100979

Uddin, B. (2020). Consumers' Purchase Behavior In Bangladesh: Green Products Perspectives. *Journal of Sustainable Tourism and Entrepreneurship, 1*(4), 305-320. doi:https://doi.org/10.35912/joste.v4i2.475

Van Eck, N. J., & Waltman, L. (2014). Visualizing Bibliometric Networks. *Measuring Scholarly Impact: Methods And Practice*, 285-320. doi:https://doi.org/10.1007/978-3-319-10377-8_13

Xiaotian, C. (2025). The Evolution and Future Trajectory of ESG Information Disclosure in China: Building a Harmonized Disclosure System in the Context of Global Integration. *Global Academic Frontiers, 3*(2), 225-256. doi:https://doi.org/10.5281/zenodo.15583449

Yousefian, M., Bascompta, M., Sanmiquel, L., & Vintro, C. (2023). Corporate social responsibility and economic growth in the mining industry. *The extractive industries and society, 13*, 101226. doi:https://doi.org/10.1016/j.exis.2023.101226