Evaluation of the Socioeconomic Impact of Four Northern Cape Mines

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LIST OF ABBREVIATIONS

AIDS	Acquired immunodeficiency syndrome
ARM	African Rainbow Minerals
B-BBEE	Broad-Based Black Economic Empowerment
CCMA	Commission for Conciliation, Mediation and Arbitration
CSI	Corporate social investment
CSR	Corporate social responsibility
ESD	Enterprise and supplier development
ESG	Environmental, social, and governance
ESIA	Environmental and social impact assessment
FPIC	Free, prior, and informed consent
GDP	Gross domestic product
GDP-R	Gross domestic product per region
GRI	Global Reporting Initiative
GVA	Gross value added
HDSA	Historically disadvantaged South African
HIV	Human immunodeficiency virus
ICMM	International Council on Mining and Metals
IFRS	International Financial Reporting Standards
ISO	International Organization for Standardization
JSE	Johannesburg Stock Exchange
LED	Local economic development
LTI	Long-term incentive
MPRDA	Mineral and Petroleum Resources Development Act
NDP	National Development Plan
PGDP	Provincial Growth and Development Plan
QCA	Qualitative content analysis
SANAS	South African National Accreditation System
SDG	Sustainable Development Goal
SLP	Social and Labour Plan
SMME	Small, medium, and micro enterprise
STI	Short-term incentive
UN	United Nations
UNEP	United Nations Environment Programme
US$	United States dollar

DECLARATION

I, Anèlle Niemand, hereby declare that the work contained in this mini-dissertation is my own work and that the sources used are substantiated through citations and a comprehensive reference list. The mini-dissertation was furthermore screened for similarity using Turnitin to ensure originality. I declare that I have not submitted this work to any other institution for another qualification.

_____ _____

Signed Date

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ABSTRACT

The mining industry is central to the economy of the Northern Cape and the social advancement of its mining communities. However, the sustainability of its operations and the longevity of its socioeconomic contribution are under scrutiny. Compliance with international sustainability reporting standards is important for mines to maintain their social licence to operate. The study evaluated the reported socioeconomic impact of four Northern Cape mines listed on the Johannesburg Stock Exchange and assessed their reporting against the Global Reporting Initiative sustainability reporting expectations, with the intention of identifying gaps in reporting practices that could make these mines susceptible to greenwashing[1]. The research followed a qualitative content analysis approach through the analysis of the annual reports of the identified mining companies, which were obtained from the public domain. The literature emphasises the importance of prefeasibility to ensure environmental and social sustainability in support of responsible production and community development. The research found partial disclosure of enterprise and supplier development, community ownership, food security, and indirect employment creation. This suggests partial integration of sustainable reporting principles and weakened accountability. The study excluded environmental aspects; future research can therefore analyse disclosures on energy efficiency, water use, land rehabilitation, and greenhouse gas emissions to provide a more comprehensive assessment of sustainability performance. The research concludes on the importance of inclusivity and quantifying the socioeconomic impact of mining for enhanced transparency and accountability to establish public confidence and the reputational integrity of the mining companies.

Keywords: Northern Cape, mining, responsible mining, sustainability reporting, Global Reporting Initiative (GRI), community development, transparency, socioeconomic development

[1] Greenwashing refers to the omission of information with the purpose of misleading stakeholders or to provide a false positive narrative (Talbot & Barbat, 2020).

CHAPTER 1:
INTRODUCTION

1.1 INTRODUCTION

For decades, mining has been recognised as a key global economic driver. The South African mining industry expanded significantly with the discovery of diamonds along the banks of the Orange River in the Northern Cape and gold on the Witwatersrand during the 19th century. The mining industry contributes to employment creation, taxation, and increased gross domestic product (GDP) in the South African economy (Zulu, Pretorius & Van der Lingen, 2021). Mining remains the primary contributor to the Northern Cape's economy (Northern Cape Department of Economic Development and Tourism, 2021). According to IHS Markit Regional eXplorer data (2025), the mining sector contributed 18.6% to the provincial economy in 2024, which yielded an average annual growth rate of 0.17%.

Mining in South Africa is regulated by the Mineral and Petroleum Resources Development Act (MPRDA) (No. 28 of 2002), which gives effect to Section 24 of the Constitution of the Republic of South Africa of 1996 to ensure that "mineral resources are developed in an orderly and ecologically sustainable manner while promoting justifiable social and economic development; and ensure that holders of mining and production rights contribute towards the socioeconomic development of the areas in which they are operating". The MPRDA also provides for the promotion of the beneficiation of minerals in the country by authorising the Minister to prescribe incentives for beneficiation and mandating a Social and Labour Plan (SLP) as a prerequisite for the granting of mining rights. Furthermore, the MPRDA promotes employment and contributions to the social and economic welfare of mining communities, which are essential for ensuring the revival of mining towns post-closure.

The Companies Act (No. 71 of 2008) plays a crucial role in the governance of mining companies and outlines the management structure and responsibilities of directors. The Act mandates companies to provide transparent reports, inclusive of financial, non-financial, and environmental, social, and governance (ESG) performance, to provide investors with information on fiscal constraints, internal control procedures, and stakeholder management. Furthermore, the Act integrates diversification by

prescribing the implementation of the Mining Charter, as grounded in the Broad-Based Black Economic Empowerment (B-BBEE) Amendment Act (No. 46 of 2013), to ensure that diversity targets are met by the mining industry. Companies are obligated to adhere to standards of local and preferential procurement, enterprise and supplier development (ESD), and land rehabilitation to ensure positive impacts on local communities and the environment.

The mining industry is recognised as one of the growth potential industries in the National Development Plan (NDP) (National Planning Commission, 2012). This envisioned growth is premised on investment in mineral processing and the development of mineral resource clusters based on environmental consciousness. There are, however, several constraints that may hamper industry growth, including unreliable energy supply, poor infrastructure, and regulatory burdens. Nonetheless, the mining industry has the potential to create approximately 300 000 work opportunities by 2030, through its investment in local community development that is facilitated by skills development, regional economic development, and local procurement.

The Provincial Growth and Development Plan (PGDP) – Vision 2024 (Northern Cape Office of the Premier, 2019) serves as the conceptual framework for the sustainable socioeconomic development of the Northern Cape. The framework consists of four drivers of change, directed at improved economic, social, governance, and environmental performance, each with identified interventions that serve as paths to prosperity. Mining and mineral beneficiation is one of the economic prosperity pathways that aim to facilitate localisation and industrialisation in the mining industry by encouraging local preferential procurement, public participation, and economic diversification to the benefit of the local capital equipment industry. The PGDP, like the NDP, recognises the risks associated with mine closures and stipulates the need for long-term investments to mitigate these risks. In addition, the PGDP emphasises integrated development through the participation of marginalised groups in the mining industry and housing supply, as aligned with overarching objectives of inclusive and citizen-based growth and development. The key interventions identified are discussed in the following section.

1.2 KEY INTERVENTIONS

1.2.1 Skills development for marginalised groups

The PGDP advocates for the capacity building of women, youth, and small-scale farmers to ensure that these individuals are upskilled and reskilled to be employable. By adopting an inclusive approach in planning and operations, mines safeguard their social licence to operate while addressing inequality and empowering marginalised groups through meaningful participation in the mining industry.

1.2.2 Promoting mineral exploration

The availability of comprehensive geoscientific data is fundamental for long-term investment in the mining industry. The PGDP therefore recommends greater accessibility to geoscientific information to encourage exploration and attract investment and to unlock previously unexplored minerals to expand growth opportunities in beneficiation and associated industries.

1.2.3 Modernising mines and encouraging partnerships

The vision of the PGDP is to create a modern, growing, and successful province; the recommendation is thus to modernise mining operations while limiting the impact on the workforce. Furthermore, a collaborative approach by the government, mining companies, and other relevant stakeholders, aligned with trade agreements, should be taken to integrate the industry into broader economic clusters and supply chains. Through modernisation and partnerships, the PGDP aims to leverage its rich mineral endowment to drive investment and transform the economic structure of the province.

1.2.4 Support for small-scale mining operators

The PGDP includes specific measures to formalise and support small-scale miners through the provision of technical and financial assistance to these operators to ensure that regulatory requirements are met. Means of support include access to startup funding for supply contracts and joint ventures to assist small-scale operations to link up with larger mining value chains. Integrating small-scale mining into the mainstream economy boosts entrepreneurship and improves the livelihoods of local communities.

1.2.5 Provincial mining charter and community ownership

A key initiative of the PGDP is the development of a provincial mining charter. The objective of the charter is to reinforce the role of state-owned mining enterprises and to ensure the equitable distribution of mining revenues to enable local communities and workers to benefit from operations. Additionally, community and employee shareholding is fundamental in the charter to ensure measurable socioeconomic benefits and equitable distribution of mineral wealth in support of transformation.

1.2.6 Strengthening government developmental tools

Structural transformation and developmental strategies are regarded as key to socioeconomic growth; however, their implementation needs to be strengthened. This requires institutional capacity, improved intergovernmental coordination, compliance enforcement, and continuous monitoring and evaluation of the socioeconomic impact and contribution to sustainable development.

The interventions set out in the PGDP to drive economic transformation, growth, and development in the Northern Cape are ambitious and seek to address important issues such as housing provision, community shareholding, and the inclusion of marginalised groups in the mining industry. However, given the realities on the ground, the achievement of the objectives set out in the PGDP is improbable and should be evaluated against the reality of volatility.

1.3 PROBLEM STATEMENT

The mining industry is fundamental to the Northern Cape's economy and its people. Despite the considerable comparative advantage, there is a need to enhance the industry's sustainability, including its socioeconomic contribution and alignment with international sustainability standards. Improved socioeconomic impacts and compliance with sustainability standards can ensure a resilient future for the mining industry and the local communities adjacent to mining operations.

1.4 AIM

The study analysed the socioeconomic impact of mining operations reported by four Johannesburg Stock Exchange (JSE)-listed mines in the Northern Cape and assessed

their sustainability reporting practices against the Global Reporting Initiative (GRI) expectations.

1.5 OBJECTIVES

The following objectives were formulated to meet the aim of the study:

- Assess the GRI expectations of socioeconomic factors in sustainability reporting that are relevant to the Northern Cape mining industry.
- Evaluate the current practices of Northern Cape mines in reporting their socioeconomic impacts against GRI Standards.
- Identify areas for improvement that mining companies can focus on to enhance their reporting and more effectively communicate their socioeconomic contributions and challenges.

1.6 METHODOLOGY

This section outlines the methodological approach adopted in conducting the study. In consideration of the study's aim, the researcher employed a qualitative content analysis (QCA) approach through the assessment and analysis of the annual reports of identified mining companies.

The aim of qualitative research is to achieve a comprehensive understanding of a specific phenomenon, which is an abstract term that cannot be conveyed numerically, such as the concept of sustainability (Sirilakshmi et al., 2024). According to Oranga and Matere (2023), qualitative research is responsive, versatile, and applicable to small sample sizes. QCA was deemed the most suitable methodological approach for this study as it enabled the researcher to gain a thorough understanding of the sustainability reporting practices of selected mining companies in relation to global standards and to identify potential instances of greenwashing.

Despite the flexibility inherent in QCA, it necessitates that researchers adhere to a systematic approach in data analysis and interpretation. According to Schreier (2012), this methodology is popular in social research as it allows for significant depth of insight into exceptional occurrences. Baxter (2020) argues that, despite the similarities between QCA and quantitative content analysis, QCA offers greater validity and flexibility. Conversely, QCA can be laborious and somewhat subjective, which has the

potential to influence the reliability and validity of research outcomes. However, such limitations can be addressed by adopting a directed content analysis approach to mitigate bias through deductive reasoning (Bengtsson, 2016). Given the extensive literature on sustainability, this study employed a directed content analysis approach to identify the key dimensions of sustainability as the foundation for the coding frame.

QCA is a flexible method with no explicit instructions regarding the sources of data or the type of textual material to be utilised (Bengtsson, 2016). Considering the researcher's resource constraints, the flexibility of QCA in relation to existing documents available in the public domain was deemed appropriate. The researcher remained cognisant of the potential for greenwashing that arises from selective disclosure by the mining companies (Van Oorschot et al., 2024), which may impact the credibility of the findings. Nonetheless, the directed QCA approach, which focused on the relevant dimensions of sustainable and responsible mining, strengthened the viability and reliability of the research findings (Hsieh & Shannon, 2005).

QCA, conducted through document analysis, aimed to develop statements regarding how sustainable mining practices are implemented in the Northern Cape (Mayring, 2014). The quality of QCA largely depends on the categories selected for the coding frame, as this determines the significance of a study (Kuckartz & Rädiker, 2023). In this study, the themes of the coding frame were based on the literature review, which identified the fundamental dimensions of sustainable mining, namely economic, environmental, and social welfare considerations. However, to narrow the scope of the research and to align with the developmental priorities outlined in the PGDP, this study focused on the socioeconomic dimensions of sustainability while purposefully excluding environmental aspects from the detailed analysis.

1.7 ETHICAL CONSIDERATIONS

The General Human Research Ethics Committee reviewed the research proposal and granted a waiver of approval. No ethical concerns were identified during the research process.

1.8 STUDY OUTLINE

This chapter provided the background to the study and outlined the research aim, objectives, and methodological framework. The study sought to address the research problem through directed QCA. Chapter 2 provides an overview of existing literature on the impact of mining, sustainability, and the evolution of sustainability reporting practices. Chapter 3 offers a socioeconomic overview of the Northern Cape and introduces the selected mining companies. Chapter 4 presents a comprehensive discussion of the data analysis and the insights generated. Lastly, Chapter 5 recaps the key findings and presents recommendations to improve reporting practices, and, in conclusion, acknowledges the limitations of the study.

CHAPTER 2:
LITERATURE REVIEW

2.1 INTRODUCTION

This chapter reviews literature on the impact of mining on communities, sustainable development, and mining practices, as well as the methodologies employed for measuring and reporting in these areas.

2.2 THE IMPACT OF MINING

South Africa's mineral wealth has not equally benefitted all affected communities; rather, it has had a somewhat negative impact on the health and safety of communities and the environment, which often leads to community protests, halted operations, and loss of income. Beyond these social dimensions, communities also experience lasting socioeconomic challenges when mining operations decline or cease. Cole (2024) notes that manganese mines in the Northern Cape record high social viability closure rates, primarily due to their remote locations and the poor living conditions in the surrounding rural communities. Marais and Ntema (2018) also recognise the impact of mining on local communities, particularly when mining operations commence, with migration leading to increased crime and social conflicts, which are often exacerbated by ineffective service delivery by the local government and inadequate social infrastructure planning due to capacity constraints. Mining towns are also most often economically dependent on mining activities and lack diversification. It is further noted that labour practices have evolved over time, with mining companies importing labour, which reduces local spending and skills development. Subcontracting to local companies presents challenges, as mines must adhere to stringent health, safety, and environmental regulations while also addressing community needs.

According to Seloa and Ngole-Jeme (2022), the impact of mining companies on surrounding communities is evident in the provision of job opportunities and their contribution to critical services, such as water, electricity, clinics, schools, and roads; however, conflict arises when mines fail to meet community expectations. Mining companies must therefore establish positive relationships with local communities. Balancing the needs of the community while minimising environmental impact and

maximising profit is guided by corporate social responsibility (CSR), which promotes the image of the mining company and focuses on reducing inequality. Efforts to manage the impact of mining on the community, environment, and economy include requirements for mining companies to conduct an environmental impact assessment and submit an Environmental Management Plan to obtain mining rights. These applications also necessitate an SLP, which outlines developmental projects to be implemented in the affected mining community. Community perceptions play a critical role in how individuals view and respond to mining activities. With growing access to information, communities become more aware of the social and environmental consequences of mining. A deeper understanding and recognition of these perceptions are therefore essential to maintain and promote sustainable mining operations.

According to a comparative study by the World Bank (2019), mining in Southern Africa contributes significant economic value through job creation, infrastructure development, and increased public revenue. However, these economic benefits do not overshadow the adverse social and environmental impacts. High levels of inequality indicate that growth in mining is not inclusive of local communities. This can be attributed to a shortage of local inputs, such as investment and skilled labour, which results in mining revenues benefitting foreign investors and imported workers. Nonetheless, mining provides considerable forward and backward linkages that are essential for the development of value chains and that ultimately yield positive net benefits.

Mahadeoa et al. (2024) also note that mining operations often rely on imported labour. They attribute this trend to job insecurity, high-risk conditions, and a shortage of local skills development. This reliance deepens income inequality, as only a few individuals from the local communities benefit from mining work opportunities. Mining-related investment can also strain public infrastructure and services, such as health, education, housing, and service delivery. In some instances, this has led to community displacement and socioeconomic disruptions. Additional negative effects include the loss of cultural heritage, rising environmental and health risks, and greater economic vulnerability due to sector volatility and the constant risk of mine closure.

Reyneke (2021) concurs with the negative impacts of mining, which are exacerbated by poor social conditions that result in distrust of mining companies. Although these companies aim to contribute to community development through business development, infrastructure, public health, education, and gender equality initiatives, these initiatives do not always align with the community's needs, and a lack of awareness is prevalent. Proper stakeholder engagement and collaboration are therefore required to establish a responsible mining industry. Dikgwatlhe and Mulenga (2023) note that despite the negative consequences of mining, local communities have benefitted from job creation, expanded local business prospects, and improved access to basic amenities and services. The question, however, is how sustainable these employment opportunities, small businesses, and accessibility are if mining operations cease.

2.3 SUSTAINABLE DEVELOPMENT

Sustainable development emerged as a response to the tension between economic growth and development, social responsibility and equity, and the need to protect the environment. The United Nations (UN, 2016) defines it as development that meets present needs without compromising the ability of future generations to fulfil theirs.

The concept of sustainable development first gained attention in the 1980s and was further refined in 1992 by the UN to include environmental considerations, which led to engagement on the relationship between mining and sustainable development (De Sa, 2019). While sustainable development is a global ambition, it is important to recognise that implementation will differ across countries, and even within regions, depending on distinct socioeconomic and environmental realities. Some countries are technologically more advanced than others, and although innovation positively contributes to sustainable development, its impact on the environment requires further research (Endl et al., 2019).

Marais and De Lange (2021) argue that planning for sustainable development throughout the mining lifecycle is necessary, including planning for downscaling and closure to avoid the common situation where the local municipality is expected to provide services previously offered by the mine. Gorman and Dzombak (2018) support the argument for sustainability throughout the mining lifecycle. However, they expand

on sustainable mining beyond the mine lifecycle to the lifespan of the mined resource. Lifecycle assessment determines the extent to which mining, processing, and reuse are environmentally sustainable.

2.4 SUSTAINABLE MINING

Tost et al. (2018) refer to the Global Mining Initiative, which defines sustainable mining as the comprehensive process of setting short- and long-term objectives to capitalise on the contribution of the mineral value chain to the welfare of present and future generations while ensuring equality. However, the concern is the extent to which mining addresses environmental sustainability. According to Farjana et al. (2021), sustainable mining minimises environmental impacts throughout the mining lifecycle by employing technology and best practices. Innovation and technology are crucial in addressing the socioeconomic and environmental challenges associated with resource depletion and facilitating access to, as well as the sustainable mining of, previously inaccessible deposits (Aznar-Sánchez et al., 2019).

Broad (2014) differentiates between four leading practices that promote sustainable mining. The first relates to neoclassical economic theory, in which responsible mining maximises economic benefits, which results in a snowball effect that leads to social benefits, such as reduced poverty and inequality. Allowing society to improve its relationship with the environment therefore helps to reduce environmental degradation. Secondly, the term relates to a mine's CSR, which utilises profits to invest in mining communities and their natural environments. Thirdly, from a structuralist perspective, responsible mining involves retaining taxes paid by mining companies in the regional government for service delivery to the mining community. According to Broad (2014), the fourth and most meaningful definition of responsible mining is one in which the mining company obtains the community's permission and is well-informed of possible social risks and environmental consequences before exerting any influence.

This closely relates to the social licence to operate, which is a self-regulated framework adopted by mining companies to protect their public image in response to pressures from mining communities to be included in the management of natural resources. Matebesi and Twala (2024) note, however, that studies have found it to be

merely a strategy to ensure industry sustainability and uninterrupted operations; therefore, concerns persist regarding the impact of mining on mining communities, the environment, and human rights. Bice (2014) highlights the basic principles of a social licence to operate, which include upholding human rights, abstaining from corruption, and minimising environmental impact. Bice (2016) further notes that it is essential for sustainable mining not only to prevent harm but also to mitigate criticism by applying these principles in practice.

Goodland (2012) identifies the following eight principles for responsible mining:

1) Social and environmental assessment, which should be conducted during prefeasibility planning and verified independently by a third party.
2) Transparency throughout the process ensures awareness and participation of all affected stakeholders.
3) Buy-in and acceptance from all stakeholders, including Indigenous peoples.
4) Food security, as no mining activity should reduce resources in areas with restricted land and water sources.
5) Compliance with international standards related to social and environmental agreements and CSR is crucial for earning community acceptance to operate.
6) Prequalification or certification of potential mining by a neutral party before applying for a mining permit from the relevant government organisation.
7) Insurance and performance bonds as a requirement to ensure compliance and improved performance.
8) Royalties, taxes, and fees will ensure that a proposal will produce a substantial net benefit.

2.5 MEASURING SUSTAINABLE MINING

Literature on sustainable mining suggests that several factors should be considered to measure sustainability. Since the adoption of sustainable mining practices, several frameworks have been developed to assess the performance of mining companies in relation to the respective sustainability principles (Fonseca et al., 2013). The International Council on Mining and Metals (ICMM) defines the concept of sustainable mining in the Sustainable Development Framework (Jarvie-Eggart, 2015). Within this

framework, the ICMM (2022) outlines the following 10 principles of sustainable mining development:

1) Ethical business conduct supported by strong corporate governance and transparency.
2) The integration of sustainable development into corporate strategy and decision making.
3) Respect for human rights and community values.
4) Science-based risk management strategies.
5) Improved physical and psychological health and safety.
6) Enhanced environmental performance.
7) Biodiversity conservation and integrated land-use planning.
8) Responsible production.
9) Greater socioeconomic outcomes for host countries and communities.
10) Continuous stakeholder consultation, transparent reporting, and independent verification of performance.

ICMM membership is voluntary, and participating companies are expected to align annual reports with the GRI's Sustainability Reporting for the Mining and Metals Sector guidelines. The GRI provides performance indicators and codes of conduct to ensure corporate accountability to investors. The GRI is focused on transparency, while the ICMM framework focuses on assessing the overall contribution of the mining industry to sustainable development (Jarvie-Eggart, 2015).

Table 2.1 illustrates the alignment between the ICMM (2022) framework for sustainable development in the mining sector and Goodland's (2012) eight principles for responsible mining practices to highlight the shared value of sustainable mining.

Table 2.1: Alignment of Goodland's (2012) principles for responsible mining with the International Council on Mining and Metals' (ICMM, 2022) mining principles

Goodland's responsible mining principles	ICMM principles	Alignment explained
1. Environmental and social impact assessment (ESIA) by a panel of experts	• Principle 2: Informed decision making, integrating sustainable development • Principle 6: Environmental performance • Principle 8: Responsible production	Goodland (2012) emphasises that ESIAs should be initiated at the outset of project planning. This approach is consistent with Principle 2 of the ICMM, which advocates for evidence-based decision making in relation to sustainability. Additionally, Principle 6 promotes responsible environmental stewardship through the provision for closure, sustainable water management, and pollution control. Furthermore, Principle 8 encourages the adoption of responsible production methods that minimise social and environmental harm.
2. Transparency (impacted stakeholders' participation)	• Principle 1: Ethical business • Principle 6: Environmental performance • Principle 10: Transparent stakeholder engagement	Goodland (2012) emphasises the importance of transparent engagement with all affected stakeholders, which is directly aligned with Principle 10 of the ICMM (2022). Principle 1 of the ICMM mandates the disclosure of grease payments and political donations, while Principle 6 underscores the necessity of transparent disclosure regarding ecological consequences. Collectively, these principles illustrate the critical role of stakeholder engagement in facilitating informed decision making and fostering ethical business practices, which are founded upon the principles of transparency and accountability.
3. Acceptance by stakeholders (free, prior, and informed consent [FPIC])	• Principle 3: Human rights • Principle 8: Responsible production	Goodland (2012) observes that the acceptance of host communities, along with the consent of Indigenous groups, is integral to sustainable mining practices. ICMM Principles 3 and 8, which underscore the importance of human rights and responsible production, acknowledge FPIC as essential for securing a social licence to operate.
4. Food production trumps questionable mining (protection of scarce land or water)	• Principle 1: Ethical business • Principle 6: Environmental performance • Principle 10: Transparent stakeholder engagement	According to Goodland (2012), mining operations should prioritise the protection of endangered ecosystems and the preservation of agricultural livelihoods. This perspective aligns closely with the principles set forth by the ICMM (2022), which emphasise ethical conduct, environmental protection, and transparency in stakeholder relations. Furthermore, there is a particular focus on sustainable land management practices that aim to safeguard food security.

Goodland's responsible mining principles	ICMM principles	Alignment explained
5. Compliance with international standards (CSR)	• Principle 5: Health and safety • Principle 7: Conservation of biodiversity	Goodland's (2012) principle on CSR and adherence to international social and environmental compacts is closely aligned with ICMM Principle 7, which focuses on biodiversity conservation. Both frameworks recognise the critical significance of environmental health and safety in safeguarding community well-being.
6. Prequalification or certification of potential mining permit seekers (independent certification regime)	• Principle 2: Informed decision making, integrating sustainable development	Goodland (2012) advocates for independent verification of performance concerning environmental and social disclosures, which aligns with the ICMM principle of integrating sustainability to facilitate informed decision making by investors.
7. Insurance and performance bonds (compliance with contractual obligations)	• Principle 4: Risk management • Principle 9: Social performance	Compliance with the requirements for rehabilitation is consistent with the principles of risk management and social performance established by the ICMM, thereby ensuring the well-being of host communities following mine closure.
8. Royalties, taxes, and fees (cost-benefit analysis, no-go zones)	• Principle 3: Human rights • Principle 6: Environmental performance • Principle 7: Conservation of biodiversity	Goodland's (2012) expectation for transparent economic contributions and the exclusion of mining in sensitive areas resonates with the ICMM's (2022) support for human rights (Principle 3), environmental protection (Principle 6), and biodiversity conservation (Principle 7). These principles collectively advocate for the safeguarding of regions deemed too ecologically or culturally significant for mining activities. Both concepts necessitate accountability in terms of public benefit and involve trade-offs concerning environmental impact.

Source: Own construction from literature review

In addition to the ICMM and the GRI, several other frameworks guide sustainability in the mining industry. These include the Sustainability Accounting Standards Board's *Metals and Mining Sustainability Accounting Standard*, the International Finance Corporation's *Performance Standards on Social and Environmental Sustainability*, the *Responsible Mining Index Framework* of the Responsible Mining Foundation, the *Reporting Framework* of the International Integrated Reporting Council, and the Organisation for Economic Co-operation and Development's *Guidelines for Multinational Enterprises*. Corresponding topic-specific standards that support sustainability reporting and due diligence in disclosures include the *Guiding Principles on Business and Human Rights* and the *Mining Local Procurement Reporting Mechanism*. There has been an uptake of voluntary sustainability initiatives to improve transparency to address stakeholder concerns and to adhere to the disclosure of ESG information to appease investors (United Nations Environment Programme [UNEP], 2020).

2.6 REPORTING ON SUSTAINABILITY: GLOBAL REPORTING INITIATIVE (GRI)

Climate change, population growth, and the overconsumption of limited natural resources are global challenges that necessitate increased transparency and accountability that extend beyond financial reporting to include social and environmental responsibilities towards employees and communities. Since the inception of the GRI in 1997, guidelines for CSR reporting have been developed to measure the impact of CSR initiatives by assessing sustainable performance and considering stakeholder concerns and needs. These guidelines include both general and specific standardised indicators across economic, environmental, and social aspects, including water, energy, emissions, waste management, employee health and safety, community engagement, and human rights (Ackers & Grobbelaar, 2022). The GRI promotes balanced reporting that is transparent, reliable, and comparable, including both positive and negative information to prevent misleading investors and communities through greenwashing.

The GRI Sustainability Reporting Framework was developed to emphasise the social responsibility of companies to report on their economic, social, and environmental impact in support of sustainable development as a norm. The JSE, in response to the

growing need for sustainability reporting, requires listed companies to adhere to the King III Code of Governance, which mandates integrated sustainability reports, using the GRI Sustainability Reporting Framework, in addition to International Financial Reporting Standards (IFRS) reports (Hindley & Buys, 2012).

The GRI provides Universal Standards for companies to incorporate into reporting. The first, GRI 1, presents the purpose and key concepts of sustainability reporting and the specifications of the reporting standards that companies must adhere to in order to comply with the GRI Standards. GRI 2: General Disclosures 2021 requires the disclosure of reporting practices, governance practices, and policies to provide insight into a company's impact. This is followed by determining the material topics applicable to the company's operations and reporting, in accordance with GRI 3: Material Topics 2021. However, if a company is unable to comply with any disclosure, it must provide reasons for such non-compliance. As a method of enhancing transparency, companies should publish a GRI content index, accompanied by a statement of use, and inform the GRI of their reporting process (Global Sustainability Standards Board, 2024).

In addition to the GRI Universal Standards, companies are obligated to report on relevant Sector Standards and Topic Standards. Currently, there are sector-specific standards for the following sectors: oil and gas sector (GRI 11), coal sector (GRI 12), agriculture, aquaculture, and fishing sectors (GRI 13), and the mining sector (GRI 14). The mining sector standards were introduced in 2024 and will only be applicable to reports published starting from 1 January 2026. Lastly, the GRI Topic Standards guide companies on reporting their impact according to the applicable GRI 3 Material Topics.

Table 2.2 provides a summary of the GRI Sustainability Reporting Standards that should guide mining companies on reporting requirements to ensure transparency and accountability. These standards assist companies in clearly communicating their ESG impacts and commitment to sustainability.

Table 2.2: GRI Sustainability Reporting Standards

Standard	GRI code	Indicator	Description
Economic	201	Economic performance	Economic value generated and shares distributed, obligations under its defined benefit plan, funding from the government, and the cost of climate change.
	202	Market presence	The economic development contribution made to the local communities in which it operates.
	203	Indirect economic impacts	Monetary or non-monetary impacts on the well-being of communities and stakeholders, as well as long-term development, such as infrastructure investment and services supported, including public services.
	204	Procurement practices	Procurement from local suppliers, including vulnerable groups (women, youths, and people with disabilities).
	205	Anti-corruption	Corruption refers to fraud, bribery, and money laundering, which lead to increased poverty, environmental harm, and the abuse of human rights.
	206	Anti-competitive behaviour	Actions that limit market competition, including anti-trust and monopoly practices such as unjust commercial practices, exploitation of market dominance, collusion, anti-competitive acquisitions, and price manipulation.
	207	Tax	Taxes are a crucial source of government revenue that contribute to economic stability and support sustainable development. Organisations are expected to be tax-compliant and to share tax information to promote transparency, build trust, and encourage informed participation in tax policy.
Environmental	301	Materials	It can be either renewable or non-renewable materials (new or recycled) used to produce the company's products and services.
	302	Energy	Includes fuel, electricity, heating, cooling, or steam used to produce products and services. It can be self-generated from renewable or non-renewable sources or sourced from external providers.
	303	Water and effluents	Water use and wastewater management have a direct impact on local ecosystems and the communities that depend on them.
	304	Biodiversity	Protecting biodiversity is essential to ensure the survival of ecosystems that provide food security and support livelihoods, which are crucial for poverty reduction and sustainable development.
	305	Emissions	Include the emission of greenhouse gases, ozone-depleting substances, nitrogen oxides, and sulphur oxides, among others, into the air.

Standard	GRI code	Indicator	Description
	306	Effluents and waste	Waste refers to the spilling of chemicals, oils, fuels, and other substances that are harmful to soil, water, air, biodiversity, and human health, as well as the cost of clean-up and remediation of spills.
		Waste	Waste is created by the company itself or by those in the upstream and downstream value chain. Poor waste management has far-reaching effects on the environment and human health. Waste disposal methods such as incineration or landfilling accelerate the depletion of valuable resources. The UN emphasises responsible consumption and production and calls for the reuse and recycling of waste.
	308	Supplier environmental assessment	Organisations are expected to conduct due diligence to prevent, mitigate, and address actual and potential adverse environmental impacts related to energy, water, or emissions in their supply chains.
Social	401	Employment	An organisation's approach to hiring, employee retention, and employee compensation as required by legislation.
	402	Labour/management relations	An organisation's approach to communicating critical operational changes through consultation with employees and trade unions is aligned with international standards.
	403	Occupational health and safety	Health and safety are human rights and are regulated by international organisations, which refer to the protection of the physical and mental health of employees, employee involvement in identifying safety risks, training, incident investigation, and policy and programme development.
	404	Training and education	An organisation's approach to training, skills development, performance assessment, management of employability, and career transition.
	405	Diversity and equal opportunity	By promoting diversity and equality, the organisation has access to a larger pool of potential employees, which in turn promotes social stability and supports economic development.
	406	Non-discrimination	Discrimination refers to the unequal treatment of any person by imposing a burden or withholding benefits, which should be avoided at all times.
	407	Freedom of association and collective bargaining	Freedom of association is the right of organisations and their employees to form and manage their organisation without state interference. Collective bargaining is the right of employees or their trade unions to negotiate working conditions, terms of employment, and regulate employer-employee relations.
	408	Child labour	Child labour is work below the minimum wage that impairs children's development, education, and dignity and violates their human rights.
	409	Forced or compulsory labour	An organisation must abstain from demanding that anyone perform any tasks or duties under threat of punishment from individuals who did not willingly offer themselves to do so.

Standard	GRI code	Indicator	Description
	410	Security practices	This refers to how security personnel interact with the public; it should be done without excessive force and with respect for human rights and legality.
	411	Rights of Indigenous peoples	Indigenous peoples refer to groups of people who have their own social, cultural, and economic traits and who occupied an area before colonisation, maintaining their systems. Their collective and human rights must be upheld.
	413	Local communities	Organisations must avoid negative economic, social, cultural, and environmental impacts on local communities. Those adjacent to operations are particularly vulnerable.
	414	Supplier social assessment	Organisations should conduct due diligence to ensure that their supply chain, actions, and connections with suppliers related to their operations, products, or services do not have negative social impacts.
	415	Public policy	Organisations can contribute to shaping public policy by supporting political parties, politicians, or causes to promote a political process that benefits society; however, there are risks of corruption, bribery, and undue influence.
	416	Customer health and safety	Organisations should adhere to customer health and safety regulations and voluntary codes and address health and safety concerns throughout the product lifecycle.
	417	Marketing and labelling	Organisations should provide accurate and sufficient information on the economic, environmental, and social impact, both positive and negative, of their products and services to allow consumers to make informed choices.
	418	Customer privacy	Refers to non-compliance with regulations designed to protect customer privacy, including the loss of customer data and breaches of customer privacy.

Source: Compiled from the Consolidated Set of GRI Standards (2022)

2.7 SHORTCOMINGS IN SUSTAINABILITY REPORTING

Van Oorschot et al. (2024) emphasise a critical shortcoming in sustainability reporting: companies have control over what they report, which can be ***misleading when reports are overly optimistic***. This has led to the usefulness of such reports being questioned (Van Oorschot et al., 2024).

Zharfpeykan and Akroyd (2023) evaluated the effectiveness of sustainability reporting against the GRI Standards and found that ***disclosures lack quality***. They recommended that companies focus on the economic, social, and environmental impact of their operations and enforce such disclosures through regulation. According to Friske, Nikolov and Morgan (2024), larger listed companies are more likely to demonstrate compliance with the GRI Standards due to ***institutional pressures and their visibility*** on stock exchanges.

Companies find it challenging to identify the indicators that are relevant to their operations from the ***extensive list of key performance indicators***. According to Mougenot and Doussoulin (2024), companies tend to use the GRI Standards to promote their corporate image rather than to measure sustainability performance, which raises concerns about unethical business practices. Talbot and Barbat (2020) note a concern about greenwashing through selective disclosure of information and a resulting ***lack of transparency and reliability***.

Despite the shortcomings of the GRI Sustainability Reporting Framework, it provides comprehensive standards for organisations across industries to measure and report on their ESG progress and performance in the interest of their stakeholders. The global adoption of the GRI Standards is attributed to their high level of comparability and their stakeholder-centric approach. The ICMM promotes mining-specific principles to encourage ethical and sustainable practices in the industry, as opposed to the GRI, which applies across industries. Moreover, external verification and assurance are mandated by the ICMM to strengthen transparency and accountability in operations.

Goodland's (2012) eight principles for responsible mining enhance the GRI and ICMM frameworks and present ethical principles to direct and ensure sustainable mining practices. These principles emphasise human rights, community consent, and safe and sustainable development, which enhance the responsible mining practices framework. Table 2.3 illustrates the collective commitment to enhancing sustainability and accountability in the mining industry.

Table 2.3: Alignment of the GRI Standards with the ICMM's (2022) principles and Goodland's (2012) principles on responsible mining

Goodland's responsible mining principles	ICMM principles	GRI Standards
1. ESIA by a panel of experts	• Principle 2: Informed decision making, integrating sustainable development • Principle 6: Environmental performance • Principle 8: Responsible production	• GRI 203 (Indirect impacts) • GRI 302–306 (Environmental) • GRI 413 (Local communities)
2. Transparency (impacted stakeholders' participation)	• Principle 1: Ethical business • Principle 6: Environmental performance • Principle 10: Transparent stakeholder engagement	• GRI 201 (Economic performance) • GRI 207 (Tax) • GRI 305 (Emissions) • GRI 417 (Marketing and labelling)
3. Acceptance by stakeholders (FPIC)	• Principle 3: Human rights • Principle 8: Responsible production	• GRI 411 (Rights of Indigenous peoples) • GRI 413 (Local community engagement)
4. Food production trumps questionable mining (protection of scarce land or water)	• Principle 1: Ethical business • Principle 6: Environmental performance • Principle 10: Transparent stakeholder engagement	• GRI 203 (Indirect impacts) • GRI 303–306 (Environment) • GRI 411 (Rights of Indigenous peoples) • GRI 413 (Local community engagement)
5. Compliance with international standards (CSR)	• Principle 5: Health and safety • Principle 7: Conservation of biodiversity	• GRI 304 (Biodiversity) • GRI 305 (Emissions) • GRI 401 to 418 (Social)
6. Prequalification or certification of potential mining permit seekers (independent certification regime)	• Principle 2: Informed decision making, integrating sustainable development	• GRI 203 (Indirect impacts) • GRI 302–306 (Environmental) • GRI 413 (Local communities)
7. Insurance and performance bonds (compliance with contractual obligations)	• Principle 4: Risk management • Principle 9: Social performance	• GRI 204 (Procurement practices) • GRI 304 (Biodiversity) • GRI 306 (Effluents and waste) • GRI 413 (Local communities)
8. Royalties, taxes, and fees (cost-benefit analysis, no-go zones)	• Principle 3: Human rights • Principle 6: Environmental performance • Principle 7: Conservation of biodiversity	• GRI 201 (Economic performance) • GRI 205 (Anti-corruption) • GRI 207 (Tax) • GRI 304 (Biodiversity) • GRI 411 (Rights of Indigenous peoples) • GRI 413 (Local community engagement)

Source: Own construction from literature review

2.8 INTEGRATED REPORTING

Integrated reporting originated with the first King Report, which mandated that companies disclose both financial and non-financial performance to build public trust. The subsequent King II and King III reports expanded the requirements for comprehensive performance reporting by emphasising the integration of financial, social, and environmental factors. This trend is also evident in South Africa, where the obligation to provide both financial and non-financial information demonstrates how organisations can generate and sustain value over the short, medium, and long terms. This has led to the adoption of integrated reporting, particularly in the mining industry, due to its substantial economic, social, and environmental impact on the country (Iredele & Moloi, 2020).

Abeywardana, Azam and Teng (2022) identify several obstacles to integrated reporting faced by companies in developing countries, as well as the impact of integrated reporting on the sustainability of these organisations. These obstacles are categorised into three distinct groups: technical, external, and organisational. The combination of financial and non-financial data is complex and complicates the quantification of non-financial information. Furthermore, stakeholders' expectations and the availability and validation of data present significant challenges.

Integrated reporting necessitates that companies report on ESG issues as determinants of the impact their operations have on the communities in which they function. ESG and CSR are of paramount importance for mining companies, as stakeholders are keenly interested in how these organisations exercise environmental accountability (Doni, Gasperini & Pavone, 2016). Environmental and social considerations in mining continue to pose key risks, with a social licence to operate consistently ranking among the top five risks in the annual Ernst & Young survey on the top 10 business risks and opportunities for the mining and metals industry. Consequently, mining companies must enhance their performance concerning ESG to meet stakeholder expectations and keep them informed through sustainability reports (Rathobei et al., 2024). A common shortcoming of many sustainability reports of large mining groups is that they often possess limited value, as impacts vary significantly by location (UNEP, 2020).

Environmental and social policies for mining operations are typically established at corporate headquarters but frequently fail to be effectively implemented at local sites. To ensure that the impact of mining on sustainable development is accurately reported, local site reporting is crucial for informing affected communities and stakeholders and for meeting the increasing demand for comprehensive information on both the positive and negative effects of mining, in alignment with the Sustainable Development Goals (SDGs). However, the absence of a consolidated framework that presents an integrated approach to sustainability assessments poses a risk of inconsistencies in reporting, which impedes interpretation. This issue is further complicated by the tendency of mining companies to not fully disclose site-specific social and environmental performance information (UNEP, 2020).

According to Liedtke (2024), several African mining companies have adopted the GRI framework for sustainability reporting, despite the stringent ESG standards and evolving sector regulations, such as the introduction of GRI 14, effective from 1 January 2026. The sustainability of operations is assessed through ESG disclosure concerning its impact on investment, regulatory compliance, and corporate transparency. The exemplary ESG standards established by the JSE motivate mining companies to implement rigorous environmental and risk management policies to attract investment for growth (Liedtke, 2024).

Several key factors emerged from the literature review that mining companies should consider when reporting on their socioeconomic impact. These include the method of community consultation and the extent to which community inputs are reflected in strategic planning and governance practices; direct and indirect job creation for host communities; skills development for employees and community members; infrastructure development and maintenance to improve community access to basic services; and corporate social investment expenditure, all while respecting Indigenous heritage and resolving conflicts. Furthermore, mines are expected to fully disclose economic contributions such as taxes, ESD, and preferential and local procurement expenditure. Continuous monitoring and evaluation are required to manage environmental impacts and ensure that sustainability standards are met, in order to foster transparency, public trust, and the retention of a social licence to operate.

Mining companies should therefore adopt a balanced approach to sustainability reporting that integrates economic growth, social equity, and environmental preservation. Although sustainability is a widely accepted concept, regulations dictate that mining companies must align themselves with the GRI Standards to uphold social and environmental responsibilities, particularly those operating in the Northern Cape, where the mining industry plays a significant role due to its comparative advantage.

CHAPTER 3:
SOCIOECONOMIC OVERVIEW

3.1 INTRODUCTION

The mining industry plays a significant role in the socioeconomic development of the Northern Cape, South Africa, and Africa as a whole. It exerts both positive and negative effects on various components of development, including employment, income, infrastructure, health, and social services. However, according to Egunyu and Boakye-Danquah (2024), host communities do not always benefit. Several regulations have thus been adopted, such as SLPs mandated by the MPRDA, to provide opportunities for employment, skills transfer, and local economic and community development.

In 2024, the Northern Cape recorded a total population of 1.38 million, or 2.2% of the total South African population, of which 64.4% were in the working-age group (25 to 44 years). It is projected that the population will grow at an average annual rate of 1.2%, reaching 1.47 million by 2029. In terms of human development, the province achieved a Human Development Index of 0.676, and grew at an average annual rate of 0.85%, which was greater than the national average of 0.57%. Income inequality is rising despite the growth in human development, with a reported Gini coefficient of 0.612. Similarly, there has been a significant increase of 59.23% in the number of people living in poverty, with 817 000 individuals in this category in 2024 (South Africa Regional eXplorer v2571, 2024). It is observed that, regardless of improvements in health and living standards, inequality and poverty remain persistent challenges for the province.

The province contributed 2.3% to South Africa's GDP, with an average annual growth rate of 0.6%. It is expected that the provincial economy will grow at an annual rate of 2.13% from 2024 to 2029, which is slightly lower than the anticipated national growth rate of 2.2%. The mining sector is the second-largest contributor to the total value added, accounting for 18.6% of the gross value added (GVA), with an average annual growth rate of 0.17% between 2014 and 2024. Growth in the mining sector peaked in 2021, achieving a growth rate of 16.4% after recovering from a -11.5% growth rate in 2020, which indicates volatility. Such volatility is expected to continue, with a projected

growth rate of 0.95% from 2024 to 2029. The mining sector is the fourth-largest employer in the province as it employs approximately 41 900 individuals.

The remainder of this section provides a socioeconomic overview of the regions in which the four mining companies operate, with the aim of understanding the current status and estimated growth of economic contributions and employment in the industry. The mining operations of Afrimat are located in the Gamagara Local Municipality, with one of the African Rainbow Minerals (ARM) mining sites in the same district in the Joe Morolong Local Municipality and the second site in the Tsantsabane Local Municipality. Kumba Iron Ore mining operations are also situated in the Gamagara Local Municipality, while South32 operates in the Joe Morolong Local Municipality.

In 2024, the GDP of the Joe Morolong Local Municipality reached R7.39 billion, which accounted for 4.43% of the Northern Cape province's GDP and 0.10% of South Africa's GDP, which was R7.34 trillion that year. The contributions of the Gamagara and Tsantsabane local municipalities are relatively smaller than that of the Joe Morolong Local Municipality, having contributed R6.6 billion and R6.5 billion, respectively, as indicated by Table 3.1.

Table 3.1: Gross domestic product (GDP), 2024 (R billions, current prices)

Region	GDP-R	Provincial GDP	National GDP	GDP-R as % of province	GDP-R as % of national
Joe Morolong	7.4	166.8	7 336.2	4.4%	0.10%
Gamagara	6.6	166.8	7 336.2	4.0%	0.09%
Tsantsabane	6.5	166.8	7 336.2	3.9%	0.09%

Source: IHS Markit Regional eXplorer v2607 (2025)

Looking ahead, it is projected that the local economy of the Joe Morolong Local Municipality will experience an average annual growth rate of 2.72% over the next five years, which represents a significantly higher average annual growth rate than observed previously. In contrast, the Gamagara Local Municipality is anticipated to achieve an even greater growth rate of 4.46%, markedly surpassing the average annual growth rate of -1.7% recorded from 2014 to 2024, thus rendering it the highest among the economies of the John Taolo Gaetsewe region during that timeframe. Conversely, the Tsantsabane Local Municipality's economy is projected to decline, with a negative growth rate of 1.17% from 2024 to 2029, as illustrated in Table 3.2.

Table 3.2: GDP average annual growth, 2014 to 2024 (constant 2010 prices)

Year	Joe Morolong	Gamagara	Tsantsabane	Province	National
2014 to 2024	0.96%	-1.71%	-0.99%	0.60%	0.66%
2024 to 2029	2.72%	4.46%	-1.17%	2.13%	2.20%

Source: IHS Markit Regional eXplorer v2607 (2025)

The mining sector was the largest contributor to all three local economies in 2024, and the industry is expected to maintain its status as the largest sector in 2029, with favourable average annual growth rates predicted, with the exception of the Tsantsabane Local Municipality, which is expected to experience negative growth of -4.07%. The regional economies have a significant comparative advantage in the mining sector; however, this sector is highly concentrated, which poses a risk to the economy should a mine closure occur, given the lack of diversification.

Table 3.3: Gross value added (GVA) by mining per region, 2024 and 2029 growth projections

Region	GVA (R millions, 2010 constant prices), 2024	Mining as % of the total GVA	Average annual growth rate	GVA (R millions, 2010 constant prices), 2029	Average annual growth rate
Joe Morolong	1 689.5	53.2%	0.29%	1 802.3	1.30%
Gamagara	2 431.2	79.8%	-0.40%	3 171.8	5.46%
Tsantsabane	1 969.5	63.9%	0.50%	1 600.3	-4.07%

Source: IHS Markit Regional eXplorer v2607 (2025)

In addition to the economic significance of mining, as illustrated in Table 3.3, the industry serves as the largest employer across the three regions. The Gamagara region possesses the smallest working-age population but exhibits the highest labour force participation rate among the regions; nevertheless, it reported the highest unemployment rate, standing at 28.5%.

Table 3.4: Labour force statistics, 2024

Indicator	Joe Morolong	Gamagara	Tsantsabane
Population 15 to 64 years	76 900	19 500	31 200
Labour force	12 000	14 200	22 400
Employed	9 860	10 150	16 540
Mining	6 130	3 630	7 140
Unemployed	2 140	4 050	5 860
Not economically active	64 900	5 280	8 740
Rates (%)			
Unemployment rate	17.9%	28.5%	26.1%
Labour force participation rate	15.5%	72.9%	72.0%
Mining as % of total employment	44.4%	34.2%	58.0%

Source: IHS Markit Regional eXplorer v2607 (2025)

Despite the positive contributions of mining in the regions, inequalities in income distribution and poverty remain prevalent. However, the Gamagara and Tsantsabane local municipalities reported decreases in the number of individuals living in poverty, while the Joe Morolong Local Municipality reported a 111.07% increase in poverty from 2014 to 2024. Overall, there has been no improvement in the depth of poverty in the regions, which indicates that the socioeconomic benefits of mining are not evenly distributed.

3.2 INTRODUCTION TO THE MINING COMPANIES

Efforts to address economic and ESG issues are evident in the reports published by the mining companies. Key areas affected by mining in the province include infrastructure development, water supply and wastewater management, health and community engagement, as well as effective corporate governance and transparency to maintain the trust of communities and stakeholders. This is supported by the literature, as highlighted by Dikgwatlhe and Mulenga (2023), which demonstrates that mining affects local communities, the province as a whole, and even the nation, as it directly and indirectly creates employment, generates revenue, tax income, and foreign exchange, while also having adverse environmental and social impacts.

The mining activities of the four JSE-listed companies in the Northern Cape are located in the ZF Mgcawu and John Taolo Gaetsewe districts. The minerals extracted from these operations include manganese and iron ore.

Afrimat operates three iron ore mines in the John Taolo Gaetsewe district, namely Demaneng, Jenkins, and Driehoekspan. The company's sustainability approach encompasses five key focus areas: the health and well-being of employees and communities, gender inclusivity, sustainable employment and economic development, equity and social inclusion, and regenerative communities (Afrimat Limited, 2024).

ARM is an international mining company with operations in South Africa and Malaysia. The South African operations are situated in the John Taolo Gaetsewe and ZF Mgcawu districts, with manganese mined at Black Rock Mine, north-west of Kuruman, and iron ore at the Beeshoek and Khumani mines, west of Postmasburg (ARM, 2025). The company prioritises sustainable development and supports the SDGs, particularly by safeguarding the health and well-being of the labour force and surrounding

communities, promoting water and sanitation stewardship, fostering sustainable development and decent work, and creating inclusive, secure, resilient, and environmentally sustainable communities, as well as mitigating climate change (ARM, 2024).

Kumba Iron Ore is part of the Anglo American Group, with two open-pit mines, Sishen and Kolomela, in Kathu (John Taolo Gaetsewe district). The material matters prioritised by the company align with three global sustainability pillars, namely a healthy environment, thriving communities, and trusted corporate industry leadership. To protect the natural environment, matters included in the sustainable mining plan encompass (1) environmental management, (2) climate change and energy management, (3) mineral waste management, (4) water, (5) mine closure, rehabilitation, and biodiversity, (6) air quality, and (7) non-mineral waste management. Social matters aimed at creating flourishing communities include (1) employee safety, (2) employee and community health and well-being, (3) talent and leadership, (4) inclusion and diversity, (5) inclusive procurement and local supply chains, (6) supplier and enterprise development, (7) skills and education development, (8) social investment, (9) accommodation and living conditions, (10) economic value added, and (11) payments to government. Corporate governance to establish trust among stakeholders includes (1) local accountability, (2) national and international accountability, (3) policy advocacy, and (4) ethical value chains (Kumba Iron Ore Limited, 2025).

South32 has two mining operations in South Africa, namely Hotazel Manganese Mines, which is located in the Kalahari Basin, in the John Taolo Gaetsewe district, and Hillside Aluminium in KwaZulu-Natal. According to its annual report, during the 2024 financial year, the company applied its social investment impact measurement framework to the economic development plans of the Hotazel Manganese Mines, focusing on skills development and ESD as fundamental to economic transformation. Expenditure on this initiative amounted to US$10 million, which exceeded the initial target of US$3.48 million (South32, 2024a).

An independent consultant identified the following sustainability topics through extensive research and stakeholder consultation, broadly grouped into five sustainability pillars: (1) protecting and respecting our people, (2) delivering value to

society, (3) managing our environmental impact, (4) operating ethically and responsibly, and (5) addressing climate change. The assessment found that energy and climate change, health and safety, and communities and social impact remain top priorities, with environmental factors such as biodiversity, water, and waste management also increasing in importance, alongside workforce talent recruitment, development, and retention. Human rights, however, received lower attention from stakeholders (South32, 2024b).

CHAPTER 4:
DATA ANALYSIS AND INTERPRETATION

4.1 INTRODUCTION

This chapter presents the analysis and interpretation of the data collected in relation to the study's established objectives, with the aim of deriving insights into the reporting practices of mining companies. A directed content analysis approach was employed to identify the fundamental sustainability concepts in the coding frame derived from the existing literature discussed in Chapter 2. Subsequently, the codes were applied to the annual reports of the mining companies, as obtained from their publicly accessible domains.

Figure 4.1: Steps of the data-analysis process

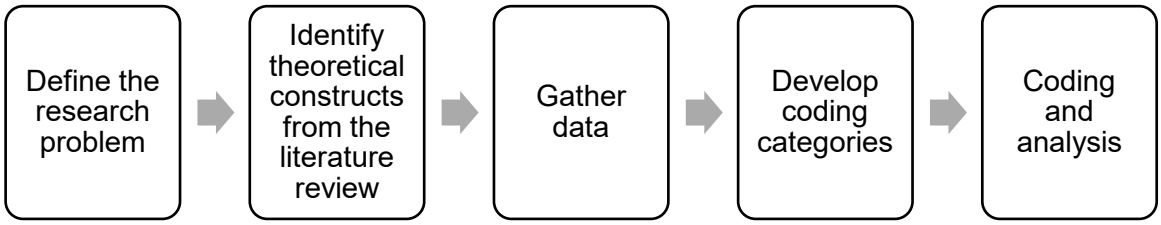


Figure 4.1 delineates the steps undertaken in the data-analysis process. The initial step involved the articulation of the research problem, which was subsequently followed by the identification of theoretical constructs derived from the literature review (Step 2). Data were acquired (Step 3) from the annual integrated reports of the four JSE-listed mining companies introduced in Section 3.2. In alignment with the study's aim to ascertain the socioeconomic impact of mining activities and to evaluate the sustainability reporting of the selected mining companies against the GRI expectations, the themes in the coding frame (Step 4) focused on reporting standards, economic and social factors, as well as cross-cutting issues. Environmental factors were deliberately excluded from the scope of analysis, despite their recognition as a crucial dimension of sustainability. The final step (Step 5) involved coding the data and interpreting the findings.

Table 4.1: Coding frame

Code groups	Alignment with standards	Codes
Economic	Anti-corruption (GRI 205)	Anti-corruption
	Market presence (GRI 202)	Diversification
		Expansion
		Exploration
	Economic performance (GRI 201)	Employee benefits
		Executive benefits
		Revenue
	Indirect economic impacts (GRI 203)	ESD
		Economic transformation
		Infrastructure development
	Tax (GRI 207)	Taxes
	Procurement practices (GRI 204)	Local procurement
		Preferential procurement
Social	Diversity and equal opportunity (GRI 405)	Board and executive diversity
		Employment equity
	Local communities (GRI 413)	Community development
		Community empowerment
		Community engagement
		Community ownership
		Community well-being
		Corporate social investment
		Food security
	Employment (GRI 401)	Employee consultation
		Employee empowerment
		Employee well-being
		Employee compensation
		Executive compensation
		Job security
		Succession planning
	Occupational health and safety (GRI 403)	Health and safety
	Non-discrimination (GRI 406)	Human rights
	Labour/management relations (GRI 402)	Labour relations
	Freedom of association and collective bargaining (GRI 407)	Labour unions
	Training and education (GRI 404)	Skills development and training
	Rights of Indigenous peoples (GRI 411)	Traditional/cultural leaders
Cross-cutting issues	ICMM Principle 4	Risk mitigation
		Challenges
	ICMM Principle 6	Closure provision
	ICMM Principle 4	Risk management
		Socioeconomic impact
	ICMM Principles 2 and 9	Sustainable development
	ICMM Principle 10	Transparency
	ICMM Principles 1, 6 and 10	Stakeholder relations
	ICMM Principle 1	Ethical business

Source: Own construction from literature review

4.2 PRESENTATION OF RESULTS

The 2024 annual reports of the mining companies were imported into ATLAS.ti 25 (ATLAS.ti Scientific Software Development GmbH, 2025) for the purposes of coding and thematic analysis. The project consisted of four documents, specifically the integrated annual reports of the mining companies for the 2024 financial year, from which a codebook that comprised 52 thematic codes was developed and applied to 899 quotations throughout the dataset. The coding results indicate that the categories under the economic theme were referenced more frequently than those under the social theme. The frequency of economic impact was notably higher in the reports of ARM, Kumba Iron Ore, and South32, whereas Afrimat's reporting exhibited a more balanced approach, as demonstrated in Table 4.2. The figures indicate the number of text segments coded under each theme for each company.

Table 4.2: Theme frequency

Theme	Afrimat Integrated Annual Report 2024 Gr=235	ARM Integrated Annual Report 2024 Gr=201	South32 Annual Integrated Report 2024 Gr=222	Kumba Iron Ore Integrated Report 2024 Gr=241	Totals
Economic impact Gr[2]=559; GS[3]=16	150	134	139	136	559
Social impact Gr=478; GS=20	157	106	102	113	478
Totals	**307**	**240**	**241**	**249**	**1 037**

Note: Chart generated from researcher's coding of company integrated reports using ATLAS.ti (Version 25).

The most frequently cited code under the economic theme was *Revenue* (134), which underscores the significance of financial performance in the integrated annual reports, as mandated by the Companies Act and JSE requirements for the publication of audited annual financial statements in compliance with the IFRS and King IV code. This is followed by *Economic Transformation* (98) and *Employee Benefits* (76), which reflect a focus on the economic and social impact of the mining sector. Economic transformation manifests through sustainability and corporate social investment (CSI) initiatives that address economic development, inclusivity, and community

[2] Gr: Groundedness of codes (number of quotations coded by a code) or documents (quotations created for a document).
[3] GS: Number of documents in a document group or number of codes in a code group.

development by contributing economically to local suppliers, creating jobs, and fostering skills development, as well as promoting diversity and inclusion in employment in accordance with the Codes of Good Practice and the B-BBEE Act (No. 53 of 2003). Employee benefits refer to advantages such as pension fund contributions, physical and psychological health and safety initiatives, profit sharing, training and development, as well as communication and feedback mechanisms through surveys and focus groups aimed at enhancing workplace culture to holistically benefit employees.

Infrastructure Development (63) encompasses the development of renewable energy projects at mines, alongside investments in community infrastructure as part of local economic development (LED) initiatives. Infrastructure development is indirectly regulated by the MPRDA of 2002 through the requirement for SLPs. During the 2024 financial year, Afrimat co-funded a bulk water infrastructure project in Olifantshoek that benefitted approximately 14 994 residents. The first phase involved the drilling and equipping of six boreholes and the construction of pump houses, which were funded by the Gamagara Local Municipality. Afrimat and Assmang Khumani Mine financed the second phase, which entailed the construction of the bulk link line from three boreholes to the 7ML reservoir. Afrimat subsequently funded the third phase of the project, which involved the drilling and equipping of two boreholes and the construction of the bulk link line from these boreholes to the 7ML reservoir.

Expansion (59), as referenced in the annual reports, includes reinvestment in the mines, new applications for mining rights, the expansion of current operations in terms of production, and diversification of minerals. *Executive Benefits* (51) encompass share schemes, such as employee ownership share plans and forfeitable share plans, which are tied to performance and results achieved in relation to climate-related targets and safety achievements. The payment of *Taxes* (39) is regarded as a facet of good corporate citizenship and pertains to amounts remitted in compliance with legislative requirements for corporate income tax and value-added tax, which are often reported alongside royalties. *Exploration* (38) refers to investments by mining companies in both brownfield and greenfield exploration that centre on sustainability and innovation. South32 exhibited the highest frequency of exploration, as it engaged in greenfield exploration in partnership with six prospective countries. *Diversification* (32) includes diversification into international markets, the manufacturing of value-

added products, and the diversification of asset and commodity portfolios, with the objective of aligning with the global imperative to reduce carbon footprints. Reporting on exploration, expansion, and diversification of mining activities can be interpreted as a signal of long-term investment sustainability from a shareholder perspective.

Enterprise and Supplier Development (27) is a pivotal component of the B-BBEE Act of 2003 and the 2018 Mining Charter. This development takes the form of procurement from local, B-BBEE-compliant, and women- and youth-owned suppliers to create market access for local small, medium, and micro enterprises (SMMEs) and to foster partnerships with local SMMEs to generate jobs and develop entrepreneurial skills. Afrimat established an SMME Clinic that provides continuous business development support, networking opportunities, access to partnership programmes to enhance supply chain capacity, as well as grants and working capital funding to qualifying enterprises. The other three mining companies did not provide such detailed information regarding their ESD programmes.

Local Procurement (25) and *Preferential Procurement* (19) are often used interchangeably; however, local procurement pertains to resources that are sourced locally, while preferential procurement refers to sourcing from suppliers classified as previously disadvantaged. These concepts co-occurred 12 times in the analysis and were least referenced by ARM, which notably only mentioned local procurement once and instead focused on preferential procurement in compliance with the Mining Charter.

Anti-corruption (19) refers to efforts to combat corruption, which manifests as fraud, bribery, and illegal activities, as mandated by the Prevention and Combating of Corrupt Activities Act (No. 12 of 2004) and JSE listings requirements. South32 was silent on this issue, and provided only one statement indicating that no political donations were made during the year under review. No references were made to any whistleblowing programmes or training on anti-corruption matters, in contrast to the other mining companies.

Table 4.3: Economic theme and code frequencies per mining company

Theme	Afrimat Integrated Annual Report 2024 Gr=235	ARM Integrated Annual Report 2024 Gr=201	South32 Integrated Annual Report 2024 Gr=222	Kumba Iron Ore Integrated Annual Report 2024 Gr=241	Totals
Anti-corruption Gr=19	11	3	1	4	19
Diversification Gr=32	9	6	12	5	32
Economic Transformation Gr=98	43	28	14	13	98
Employee Benefits Gr=76	25	21	6	24	76
Enterprise and Supplier Development Gr=27	8	11	5	3	27
Executive Benefits Gr=51	5	7	18	21	51
Expansion Gr=59	4	10	29	16	59
Exploration Gr=38	5	2	22	9	38
Infrastructure Development Gr=63	15	14	18	16	63
Local Procurement Gr=25	5	0	8	12	25
Preferential Procurement Gr=19	5	3	4	7	19
Revenue Gr=134	25	30	46	33	134
Taxes Gr=39	4	12	12	11	39
Totals	**164**	**147**	**195**	**174**	**680**

Note: Table generated from researcher's coding of company integrated reports using ATLAS.ti (Version 25).

Employee Well-being (190) pertains to organisational initiatives aimed at enhancing the physical, mental, and social health of employees. This encompasses programmes focused on safety improvement, training and development, health, organisational culture, and operational performance. Afrimat established an AfriCare programme, in partnership with Netcare 911, to ensure that employees have prompt access to medical assistance in work-related emergencies. ARM prioritises employee well-being through a wellness programme that provides access to an on-site psychologist and a

toll-free helpline. ARM also implements critical control management to ensure the health and safety of employees and has invested R1.4 billion in the training of employees, which includes offering adult education and training to 233 individuals. Kumba Iron Ore developed the WeCare well-being and livelihoods support programme that focuses on physical and mental health. This programme includes partnerships with health establishments and initiatives to combat gender-based and other forms of domestic violence to address the needs of local communities. The Safety Improvement Programme is a key focus area for South32 and extends beyond its employees to include contractors and the communities in which they operate. Although employee well-being programmes are not legislatively mandated, regulatory frameworks, such as the Occupational Health and Safety Act (No. 85 of 1993), stipulate the health and safety of employees. *Health and Safety* (175) is integral to employee well-being, as evidenced by its co-occurrence of 113 times in the coding results.

Community Well-being (128) is a critical factor in the sustainability of mining operations and in enhancing the social licence to operate. The code applies to the efforts of companies to ensure that their operations have a minimal adverse impact on local communities. These efforts include donations to charities and non-governmental organisations, community engagements to understand the needs of the populace, investments in local development projects, skills training and development, and bursaries, and compliance with environmental regulations and performance. Community well-being is indirectly mandated by SLP commitments under the MPRDA, the National Environmental Management Act (No. 107 of 1998), and CSI regulations, similar to community development initiatives.

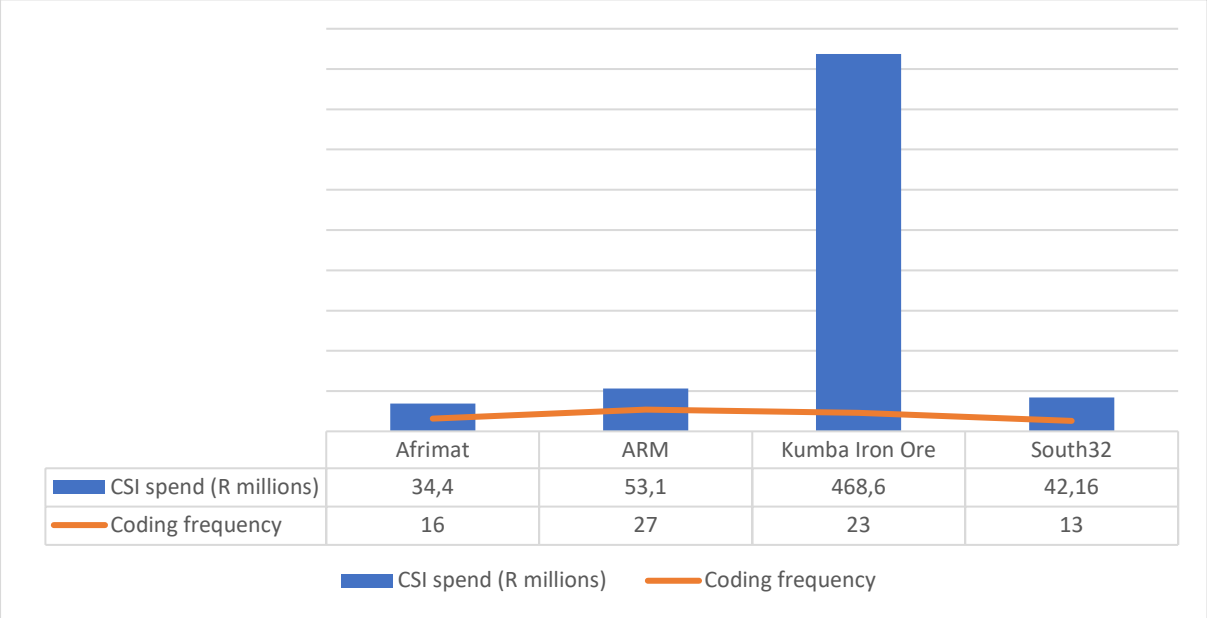
Community Development (123) co-occurred with community engagement 72 times in the text segments. Community development by the mining companies manifests through skills development and training, infrastructure support, local employment, umbrella trusts, ESD, and local procurement. These initiatives are often reported as LED and/or CSI initiatives. During the 2024 financial year, Afrimat implemented two projects in the province: a bulk water infrastructure project in Olifantshoek that benefitted approximately 14 994 residents, and a youth skills programme on trackless mobile machinery operation for unemployed young people from Deben, Olifantshoek, Mapoteng, and Siyathemba. ARM’s contribution to community development in the

2024 financial year included an investment of R189 million in community development projects across its operations. Projects in the province encompassed improvements to water supply and sanitation infrastructure, urban stormwater drainage, and waste management systems, as well as social infrastructure, including classrooms and health facilities. Black Rock Mine also concluded a three-year health screening and education programme at 29 local schools. Kumba Iron Ore and South32 did not report operation-specific community development initiatives in the Northern Cape.

Community Engagement (117) co-occurred 80 times with community development. Afrimat and ARM explicitly referenced community engagement forums, while Kumba Iron Ore referred to a stakeholder engagement plan as part of its Social Way Policy, which mandates that each mining site develop and implement a stakeholder engagement plan and review it annually. South32 also reported having an active stakeholder engagement programme. *Skills Development and Training* (110) is conceptualised as education and skill training provided for employees and communities. It encompasses safety training, as well as training in human rights and ethics. Afrimat established Skills Development and Employment Equity Consultative Committees for each of its mines to address the skills capacity of its employees and has allocated 7.2% of its CSI spend towards skills development. ARM invested R1.4 billion in the training and skills development of employees, including extending training to 683 community members in entrepreneurial and business-specific skills. Kumba Iron Ore operates training centres at Kathu and Kolomela, which provide training to 1 389 community members in technical and vocational trades, such as welding, plumbing, and carpentry. Skills development and training are key to *Community Empowerment* (82), as they enhance capabilities and facilitates more equitable opportunities for employment and economic participation. Community empowerment is derived from *Corporate Social Investment* (80) initiatives instituted by the mining companies, which encompass sourcing local labour, health and well-being, education, community infrastructure development, economic participation, enterprise development, and environmental sustainability. Figure 4.2 presents the CSI spend in South Africa in relation to the number of text segments coded. The frequency of reporting reflects the extent to which CSI is communicated, while expenditure data reveal the actual scale of investment. Figure 4.2 illustrates a discrepancy between disclosure and practice, which indicates that the frequency of coding should not be

assumed to represent spending priorities. Notably, the CSI expenditure of Kumba Iron Ore was disproportionately larger than that of the other mining companies.

Figure 4.2: Corporate social investment (CSI): Expenditure versus frequency of reporting per company



Source: Own construction developed from the mines' integrated annual reports

Employee Empowerment (75) refers to the investment made by mining companies in their employees to enhance skill capabilities, with a specific focus on previously disadvantaged and targeted groups to promote inclusivity, employee feedback, health, safety, and well-being initiatives, as well as performance recognition through incentives and succession planning. Although the term is not explicitly articulated in legislation, organisations are required to empower employees through training, equitable opportunities, and participation in decision making.

Employee Compensation (69) and *Executive Compensation* (47) are integral components of the remuneration frameworks that are overseen by remuneration committees and are reviewed regularly to ensure alignment with market-related practices. Afrimat provides basic salaries and benefits, which include pension, provident funds, healthcare, and vehicle allowances. Additionally, the company offers a short-term incentive (STI) scheme that awards individual annual performance bonuses, as well as long-term incentives (LTIs) in the form of a Share Appreciation Right scheme and a Forfeitable Share Plan for key personnel, including the group

chief executive officer and executives. ARM's integrated annual report only reports on its total annual package before STI and LTI schemes; for further information, readers are referred to the ESG report, which is available on the company's website. Kumba Iron Ore offers a Total Guaranteed Package for employees, which comprises a basic salary and benefits such as pension fund contributions, medical aid contributions, life and disability insurance, housing allowances, and study assistance. Furthermore, conditional benefits are provided based on skill scarcity and job requirements. The fixed and variable (cash and equity) components of remuneration for executive directors and prescribed officers are aligned with strategic goals and shareholder value and are dependent on performance. South32's remuneration consists of fixed pay, STIs, and LTIs. The fixed pay includes pension and other cash and non-monetary benefits. STIs include both cash and deferred rights based on the company's performance, while vested LTIs are contingent upon performance and service conditions.

Employee Consultation (62) aims to ensure transparency and job satisfaction through one-on-one discussions, surveys, feedback sessions, awareness campaigns, counselling, and training on company policies and relevant legislation. Afrimat conducts annual culture climate surveys, one-on-one discussions, and weekly "toolbox talks". ARM reported employee awareness training in terms of Section 22 of the Mining Health and Safety Act (No. 29 of 1996) and counselling offered to employees affected by the fatal injury of a team leader at Bokoni Platinum Mine in Limpopo. Kumba Iron Ore consulted employees and trade unions, facilitated by the Commission for Conciliation, Mediation and Arbitration (CCMA), regarding the resizing of operations and also engaged extensively with employees on the company's Stop for Safety programme. Furthermore, ongoing communication is promoted through established channels, such as the Engage mobile application, forums, regular meetings between managers and teams, surveys, and employee presentations. Updates are also shared via the intranet, newsletters, and electronic notice boards. South32 conducts an annual Your Voice employee survey to assess employee perceptions of safety, leadership, employee engagement, employee experience, and workplace conduct. The result for employee engagement was reported as 81%. Employee consultation is considered a best practice of corporate governance and is

legally mandated in South Africa through the Labour Relations Act (No. 66 of 1995) and other relevant regulations.

Employment Equity (58) refers to an inclusive and diverse workforce. Afrimat has an employment equity policy that promotes equality and inclusive recruitment practices that consider skills, experience, race, age, and gender in alignment with the Codes of Good Practice of the B-BBEE Act and the JSE listings requirements. The workforce representation of historically disadvantaged South Africans (HDSAs) is reported at 84.3%. ARM's commitment to diversity and inclusivity is reflected in the fact that 73% of management positions across all levels are held by HDSAs. Kumba Iron Ore reported an improvement in diversity, with a 2% increase in the percentage of HDSAs in management, increasing from 78% in 2023 to 80% in 2024, and 27% of the workforce comprising females. South32 also reported improved female representation, which increased from 20.2% in the previous year to 20.6% in 2024; however, it failed to achieve the target of 23.5%. The workforce representation of HDSAs exceeded the target of 85%, with 88.4% reported; however, HDSA representation in management declined and remained below the target of 60%, with only 51.8% represented.

Board and Executive Management Diversity (45) is indirectly mandated by legislation and corporate governance principles. Afrimat's board composition comprises 33% historically disadvantaged members and has female representation of 17%, which indicates an imbalance in gender representation. ARM exhibited a similar gender representation imbalance, with 79% of THE board members being male and only 21% female, which fell short of the 25% female representation target. Notwithstanding, the historically disadvantaged representation on the board exceeded the 50% target, with 57% inclusion. The Kumba Iron Ore board had 50% female and 67% HDSA representation. South32 reported that it met the diversity and inclusion targets of the Financial Conduct Authority with 50% female representation and one historically disadvantaged board member. It is noted that the diversity considerations of Kumba Iron Ore and South32 are much broader than those of the other mining companies, encompassing culture, age, area of expertise, skills and experience, ethnicity, competencies, philosophies, achievements, and religion.

All South African employees possess the right to organise, engage in collective bargaining, and consult labour unions, as stipulated by the Labour Relations Act of 1995. In relation to the text segments, *Labour Relations* (30) signifies adherence to employment regulations, with emphasis on the elimination of coerced labour, the rights to industrial negotiations, non-discrimination, equitable and market-related remuneration practices, and the establishment of an ethical work environment. There is a significant thematic correlation between labour relations and *Labour Unions* (19), which overlapped 16 times in the text segments and a resultant a co-occurrence coefficient[4] of 0.48. Labour unions were identified in the coding of three mining companies, with the exception of South32.

Succession Planning (27) was most frequently addressed in the integrated annual report of Afrimat, which prioritises succession planning as a risk mitigation strategy to ensure the retention of key employees. Similarly, Kumba Iron Ore has conducted a review of its succession planning for executive and senior management to guarantee the retention of critical skills. Although ARM and South32 did not explicitly reference succession planning, they recognised the importance of retaining talented employees in crucial roles.

Human Rights (25) are primarily protected under Chapter 2 of the Constitution of South Africa (1996) and other relevant legislation. The commitment to human rights featured most prominently in the Afrimat report, which highlighted the company's dedication to upholding human rights through its pledge to support the UN's Global Compact Principles. South32 has introduced human rights training and regularly conducts human rights impact assessments to manage human rights risks across its operations. Kumba Iron Ore directs readers to its Sustainability Report for discussions on security, human rights, and Indigenous peoples, while ARM acknowledges human rights as a social aspect in managing stakeholder relationships.

Job Security (22) was most frequently coded in the text segments of Kumba Iron Ore, which was attributed to organisational restructuring resulting from the limitations associated with the reliability of Transnet's rail services. Downsizing and the effects of the Fourth Industrial Revolution pose threats to job security, which underscores the

[4] The co-occurrence coefficient measures the frequency with which two codes appear together in the same segment, quotation, or document, relative to their individual occurrences.

importance of upskilling employees to ensure that they possess the necessary skills for the future. Afrimat has implemented a restricted automation policy, with 92% of its workforce employed on a permanent basis, while the remainder is on fixed-term contracts. The proportions of permanent employment at ARM and Kumba Iron Ore differ significantly, with approximately 58% and 41% of employees being permanent, respectively, and the remainder being on fixed contracts. South32 does not differentiate between permanent and contractual employees. Although job security is not explicitly legislated, it is promoted through labour legislation that prohibits unfair dismissal or retrenchment.

Food Security (10) in the context of these text segments refers to the direct and indirect contributions to SDG 2, which addresses ending hunger and promoting food security. Kumba Iron Ore contributes to food security through its land management programme and facilitates job creation in the agricultural sector. Afrimat has a greenfield project in Limpopo, South Africa, that produces superphosphate for fertiliser products, which contributes to food security. ARM only reported indirect contributions to food security, while such references were absent in the South32 document.

Engagement with *Traditional/Cultural Leaders* (8) and respect for the rights of Indigenous peoples were relatively infrequent in the text segments. It occurred most frequently in the text segment of South32 (5), which can be attributed to the location of operations in the Joe Morolong Local Municipality, where approximately 80% of the geographical area is under the management of traditional leaders (Department of Cooperative Governance and Traditional Affairs, 2022). According to Leonard (2019), traditional leaders may prohibit inclusive community engagement, which leads to the exclusion of community concerns and inhibits transparency in decision making. The silence of mining companies may suggest a deliberate strategy to control the narrative and evade criticism for potentially sidelining community interests.

Community Ownership (4) was the lowest-frequency theme regarding the social aspects of sustainable mining. Afrimat stated its intention to establish an umbrella trust to comply with the 2018 Mining Charter concerning host community ownership. The local community owns 8.5% of the ARM Platinum Modikwa Mine in Limpopo, and it was indicated that a 5% shareholding in the ARM Bokoni Mine Consortium (also in

Limpopo) would be granted to local communities. Community ownership was absent from the disclosures of Kumba Iron Ore and South32.

Table 4.4: Social theme and code frequency per mining company

Theme	Afrimat Integrated Annual Report 2024 Gr=235	ARM Integrated Annual Report 2024 Gr=201	South32 Integrated Annual Report 2024 Gr=222	Kumba Iron Ore Integrated Annual Report 2024 Gr=241	Totals
Board and Executive Management Diversity Gr=45	13	8	10	14	45
Community Development Gr=123	39	38	24	22	123
Community Empowerment Gr=82	31	31	10	10	82
Community Engagement Gr=117	31	35	29	22	117
Community Ownership Gr=4	1	3	0	0	4
Community Well-being Gr=128	30	44	24	30	128
Corporate Social Investment Gr=80	16	27	23	14	80
Employee Compensation Gr=69	23	18	7	21	69
Employee Consultation Gr=62	16	9	19	18	62
Employee Empowerment Gr=75	29	18	18	10	75
Employee Well-being Gr=190	56	40	50	44	190
Employment Equity Gr=58	22	10	16	10	58
Executive Compensation Gr=47	9	8	20	10	47
Food Security Gr=10	4	1	0	5	10
Health and Safety Gr=175	45	31	55	44	175
Human Rights Gr=25	15	3	5	2	25
Job Security Gr=22	5	6	3	8	22
Labour Relations Gr=30	12	5	2	11	30

Theme	Afrimat Integrated Annual Report 2024 Gr=235	ARM Integrated Annual Report 2024 Gr=201	South32 Integrated Annual Report 2024 Gr=222	Kumba Iron Ore Integrated Annual Report 2024 Gr=241	Totals
Labour Unions Gr=19	6	4	0	9	19
Skills Development and Training Gr=110	47	20	18	25	110
Succession Planning Gr=27	14	4	2	7	27
Traditional/Cultural Leaders Gr=8	1	1	5	1	8
Totals	**465**	**364**	**340**	**337**	**1 506**

Note: Table generated from researcher's coding of company integrated reports using ATLAS.ti (Version 25).

During the process of identifying theoretical constructs, several cross-cutting themes emerged that particularly aligned with the ICMM (2022) principles discussed in Chapter 2. These transversal themes are indicated in Table 4.5.

Table 4.5: Cross-cutting themes aligned to the ICMM (2022) principles

Theme	Afrimat Integrated Annual Report 2024 Gr=235	ARM Integrated Annual Report 2024 Gr=201	South32 Integrated Annual Report 2024 Gr=222	Kumba Iron Ore Integrated Annual Report 2024 Gr=241	Totals
Challenges Gr=152	8	37	39	68	152
Closure Provision Gr=15	5	1	4	5	15
Ethical Business Gr=90	36	15	20	19	90
Risk Management Gr=249	55	51	74	69	249
Risk Mitigation Gr=98	20	9	32	37	98
Socioeconomic Impact Gr=106	35	38	19	14	106
Sustainable Development Gr=230	55	66	57	52	230
Transparency Gr=195	57	61	46	31	195
Totals	**271**	**278**	**291**	**295**	**1 135**

Note: Table generated from researcher's coding of company integrated reports using ATLAS.ti (Version 25).

Risk Management (249) pertains to the issue of financial resilience in light of the challenges posed by economic volatility, operational efficiency, safety, and alignment with ESG principles, specifically concerning greenhouse gas emissions, water and waste management, stakeholder engagement, regulatory compliance, and the impact of geopolitical tensions. This perspective aligns with the ICMM principle regarding the implementation of risk management strategies to address environmental and social risks and their potential impact on the health, safety, and human rights of employees, communities, and stakeholders. The risk management frameworks employed by mining companies incorporate mitigating responses; the observed co-occurrence coefficient (0.34) of *Risk Mitigation* (98) and risk management codes thus reflects its structural embeddedness within the same conceptual framework.

Sustainable Development (230) was the second most frequently coded theme, following risk management. An analysis of code co-occurrence indicated that sustainable development was thematically associated with ESG reporting. It appeared in the same text segments 131 times, which yielded a co-occurrence coefficient of 0.45. This association was anticipated, given the objective of ESG reporting to function as a mechanism for evaluating and enhancing sustainability performance. ARM, Kumba Iron Ore, and South32 are constituents of the FTSE4Good Index Series[5], with ESG scores of 4.5, 4.3, and 3.8 respectively.

Transparency (195) is legally mandated by the Companies Act of 2008 and is embedded in Goodland's (2012) principles of responsible mining, the ICMM mining principles, and the GRI Standards. The integrated reports provided transparent disclosures regarding financial performance, employment equity, board diversity, safety performance, remuneration policies, environmental and social impacts, and stakeholder engagements, which were independently verified by external assurance providers.

Challenges (152) faced by the mining companies included managing production outputs, increasing operating costs, lower commodity prices, market volatility, logistical constraints, the effects of climate change, supply chain issues, and the

[5] The FTSE4Good Index Series measures the ESG performance of companies against clearly defined criteria to assess sustainable investment portfolios (https://www.lseg.com/en/ftse-russell/indices/ftse4good).

simultaneous need to improve community relations while upholding environmental responsibilities amidst unrealistic expectations of host communities.

An analysis of code co-occurrence indicated that *Socioeconomic Impact* (106) was thematically associated with community development, which appeared in the same text segments 75 times and yielded a co-occurrence coefficient of 0.48. The socioeconomic impact of mining companies is facilitated through the creation of direct and indirect jobs, infrastructure development, tax and royalty obligations, skills development and training for employees, community members, and local suppliers, as well as the development of secondary industries to diversify the local economy.

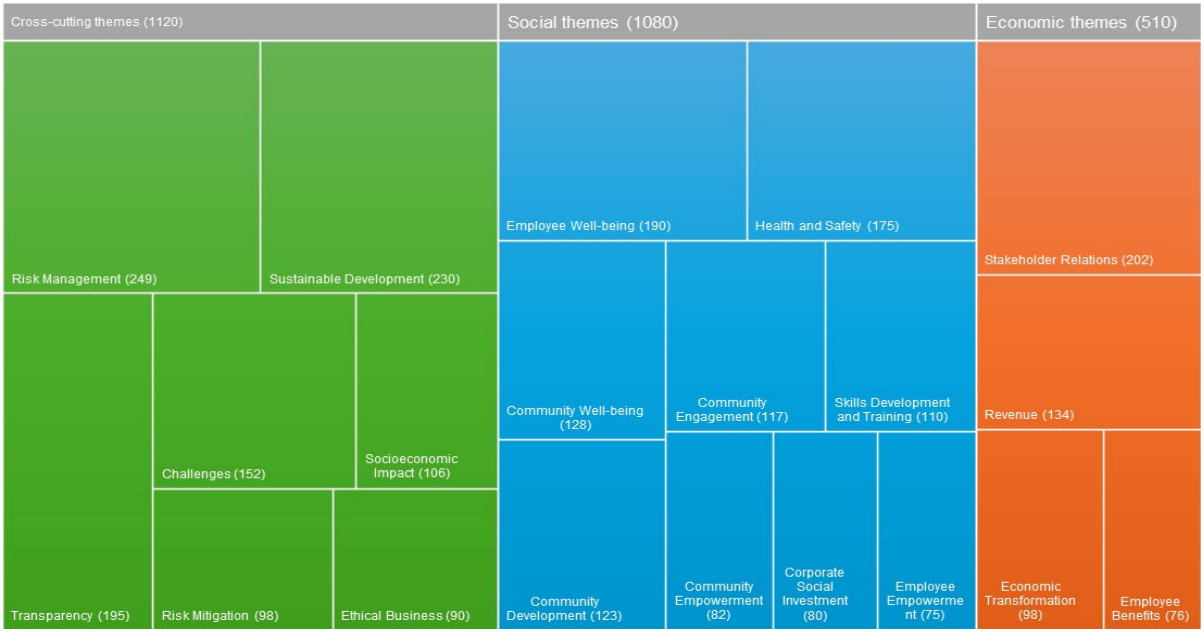
Ethical Business (90), as defined by the ICMM principle, encompasses compliance with legislation, anti-corruption measures, the institutionalisation of sustainable development policies, leadership accountability for sustainability performance, and financial disclosure. The mining companies adhered to legislative requirements, implemented anti-corruption frameworks, reported on ESG matters, and included sustainability performance in leadership evaluations, with audited annual financial statements published alongside external assurance.

Closure Provision (15) is one of the ICMM principles aimed at minimising the negative impacts associated with the cessation of mining operations. Mining companies make financial provisions for mine closure and rehabilitation costs, which are re-evaluated annually. Kumba Iron Ore was the only mining company that reported a comprehensive mine rehabilitation programme.

4.3 INTERPRETATION OF FINDINGS

The analysis presented in Figures 4.3 and 4.4 focuses on economic, social, and cross-cutting themes. They illustrate the most and least frequently coded segments for each theme across companies to identify disclosure patterns.

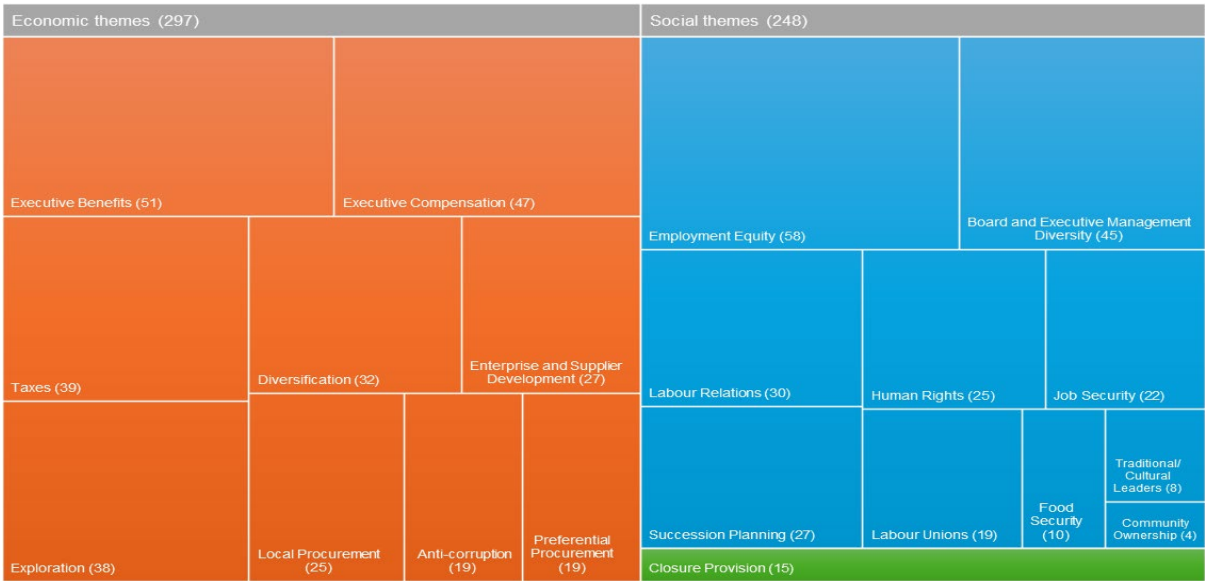
Figure 4.3: Most frequently coded themes



Note: Chart generated from researcher's coding of company integrated reports using ATLAS.ti (Version 25).

The social theme exhibited the highest frequency, encompassing nine codes, followed by the cross-cutting theme with seven codes, and the economic theme with four codes. The substantial frequency of the social theme underscores its significant relevance to the dataset. However, the values associated with the themes reveal that cross-cutting codes occurred most frequently, with a total of 1 120 coded segments, followed closely by social codes, which accounted for 1 080 coded segments. This pattern indicates a broader range of disclosure across various contexts.

Figure 4.4: Least frequently coded themes

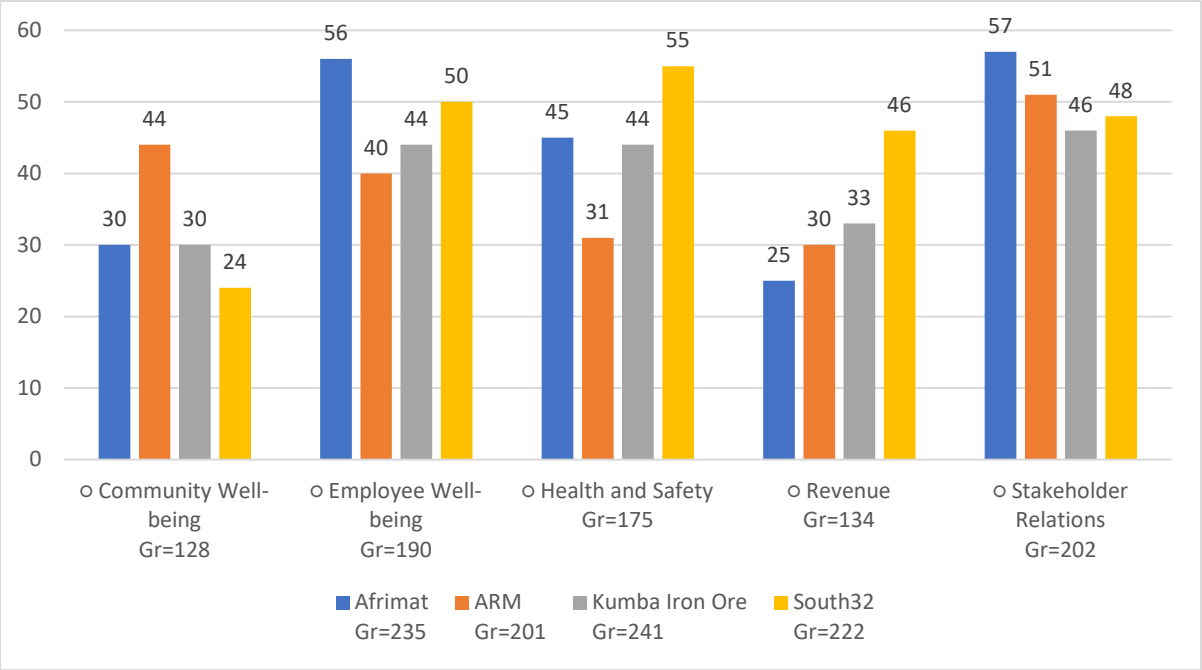


Note: Chart generated from researcher's coding of company integrated reports using ATLAS.ti (Version 25).

The analysis of the least frequently coded segments for each theme across the companies indicates that the social theme exhibited the highest frequency, comprising 10 codes, followed by the economic theme with nine codes, and the cross-cutting theme, which contained only one code, namely *Closure Provision* (15). Furthermore, the values in the themes differed, as observed in the case of the most frequently coded themes; economic codes were recorded more frequently (297 coded segments), followed by social codes (248 coded segments).

Significant variations were evident in the frequencies of the top five most coded themes across the four companies, as illustrated by Figure 4.5.

Figure 4.5: Top five coded themes



Note: Chart generated from researcher's coding of company integrated reports using ATLAS.ti (Version 25).

Stakeholder Relations were most frequently coded in the text segments of Afrimat (57), which recognises the importance of stakeholder relations as pivotal to business sustainability, with emphasis on practical, consistent, and transparent communication with both employees and external stakeholders. ARM (51) manages stakeholder relations through collaboration and responsible mining practices to ensure positive impacts on local communities and competitive returns to shareholders. Similarly, South32 (48) works towards creating sustainable value for all stakeholders throughout the mining lifecycle while minimising environmental impact. Kumba Iron Ore (46)

conducts regular consultations with key stakeholders to recognise and respond to environmental concerns in a timely manner, as part of its comprehensive stakeholder engagement strategy and framework. Although there was a slight variation in frequency among the companies, stakeholder relations was a prominent theme across the sector.

Employee Well-being was consistently reported, although there were notable variations in emphasis between the companies. Afrimat (56) prides itself on being a people-led company, with a strong focus on fostering an entrepreneurial culture, continuous employee development through skills development and training, succession planning, and actively engaged leadership, all of which contribute to the well-being of the employees. South32 (50) holistically addresses the health, safety, and well-being of its employees through its Safety Improvement Programme; a culture based on care, trust, togetherness, and excellence; and a pluralistic workforce. Similarly, Kumba Iron Ore (44) has adopted a holistic approach to safety, health, and employee well-being through skills development, benefits, and a commitment to diversity. ARM (40) acknowledges employee well-being across both personal and professional dimensions.

In addition to the *Health and Safety* of employees, South32 (46) also contributes 20% of its CSI to the health and well-being of the communities in which its mines operate. Kumba Iron Ore (33) reported that a portion of its CSI was directed towards community health initiatives. Occupational health and safety risks are managed in accordance with the company's safety, health, and environment policy; moreover, Sishen and Kolomela are certified according to the International Organization for Standardization (ISO) 45001 standard for occupational health and safety management. ARM Ferrous (30) prioritises the health and well-being of employees and communities, with wellness centres at most of the mines and partnerships with the Northern Cape Department of Health to address tuberculosis, HIV/AIDS, and chronic diseases. The strict compliance of Afrimat (25) with occupational health and safety regulations, including the Mining Health and Safety Act, resulted in an improved lost time injury frequency rate of 0.29 (2023: 0.34).

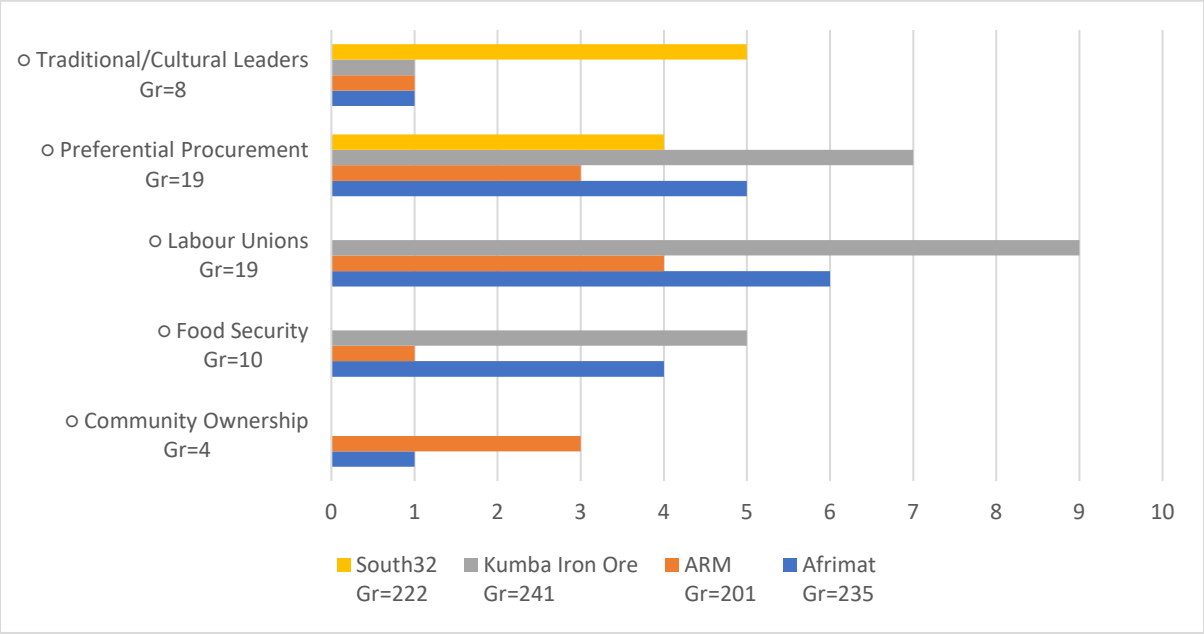
As previously stated, *Revenue* emerged as the most frequently coded theme under the economic category, which reflects the prominence of financial performance as an

integral component of the integrated annual reports. The text segments that impacted revenue were also taken into consideration, including references to volatile market conditions and risks associated with energy efficiency and logistical challenges, such as the limited capacity of Transnet.

Community Well-being occurred most frequently in the text segments of ARM (44). It recognises the importance of a social licence to operate and address community needs and well-being through CSI in community education, health, infrastructure development, and water and sanitation. During the 2024 financial year, ARM, Afrimat (30), and other mining companies in the region collaborated with the Vaal Central Water Board and the Department of Water and Sanitation to address critical water supply issues by maintaining the Vaal Gamagara pipeline, which supplies mines, livestock farmers, and surrounding communities. Afrimat also implemented the Unemployed Youth Skills Programme, which trains young people in the operation of trackless mobile machinery. Kumba Iron Ore (30) contributed to community well-being through local procurement, employment of local communities, CSI, skills training, and education. With increasing water scarcity, competition for water resources, and dilapidated infrastructure in the Northern Cape, South32 (24) identified a sustainable community project to ensure access to clean water for the Wessels mine, Mamatwan mine, and Hotazel town. This project involved the installation of solar-powered pumps to extract water from the local aquifer through existing boreholes. By the end of the 2024 financial year, engineering designs for the solar pumps were initiated, with installation and pumping scheduled to commence in the 2025 financial year (South32, 2024).

Despite the positive socioeconomic contributions reported by the mining companies, some principles of responsible mining and sustainable standards were addressed superficially or not explicitly discussed in the reports. Figure 4.6 illustrates the codes that occurred least frequently in the text segments across the company reports.

Figure 4.6: Top five least coded themes



Note: Chart generated from researcher's coding of company integrated reports using ATLAS.ti (Version 25).

There was limited disclosure of *Community Ownership*, with only two companies addressing this aspect and at a low frequency. ARM (3) disclosed that 8.5% of the ARM Platinum Modikwa Mine in Limpopo was held by the local community and that there were plans to allocate 5% of the ARM Bokoni Mine Consortium (also in Limpopo) to local communities. Similarly, Afrimat intended to establish an umbrella trust to facilitate host community ownership, as required by the 2018 Mining Charter. In contrast, Kumba Iron Ore and South32 were silent on the issue of community ownership.

The analysis indicates limited disclosure regarding *Traditional/Cultural Leaders*, with South32 (5) exhibiting the highest frequency, which may be attributed to the location of its mining operations in a region where the majority of the land is under the management of traditional leaders. The relevant code was minimally represented across the reports of the other three mining companies.

Kumba Iron Ore (5) supports *Food Security* through the creation of agricultural jobs and the implementation of its land management programme, which includes cattle farming, conservation of native game species, lodging, and sustainable agriculture. Glenover, a greenfield project of Afrimat (4) located in Limpopo, produces

superphosphate (fertiliser), which contributes to food security. ARM (1) reported only an indirect contribution to food security, while South32 was largely silent on the matter.

The frequency of *Labour Unions* was the highest in the integrated annual report of Kumba Iron Ore (9). The restructuring of operations, necessitated by Transnet's logistics performance, contributed to the higher frequency as the mine entered into discussions with the affected employees, unions, and the CCMA. Afrimat (6) attributed the absence of labour actions to its compliance with legislation and bargaining agreements, as well as transparent engagement with unions and employees. It is also noted that there was no single union with majority representation. ARM (4) reported a good relationship with labour unions; however, it will only recognise agreements with unions when the required representation levels are achieved. South32 did not discuss this matter.

Preferential Procurement is not only one of the GRI Standards but also a legislative requirement of the Companies Act. Kumba Iron Ore (7) referenced local preferential procurement with R17.3 billion spent on B-BBEE businesses, inclusive of R3.9 billion spent on over 300 host community suppliers. Afrimat (5) achieved a higher preferential procurement B-BBEE score of 75.1% in 2023 (2022: 63.4%), which was verified by a South African National Accreditation System (SANAS)-accredited B-BBEE rating agency. Preferential procurement was insufficiently articulated in the disclosures of South32 (4) and ARM (4), both noting procurement initiatives aimed at empowering local and historically disadvantaged suppliers.

CHAPTER 5:
FINDINGS AND RECOMMENDATIONS

5.1 INTRODUCTION

The GRI serves as a framework against which to evaluate ESG performance in sustainability reporting by providing standards and tools that enable companies to enhance their sustainability efforts, where the latter contributes to the long-term significance of the local communities and environments in which they operate. Since the inception of the King III codes, JSE-listed companies are mandated to publish integrated reports that consolidate their financial and sustainability disclosures. Consequently, South Africa is recognised as a leader in sustainability reporting, although some companies continue to produce separate sustainability reports (KPMG, GRI & UNEP, 2013), as evidenced by the four mining companies assessed in this study.

The Northern Cape is a mineral-rich province. This is supported by statistical data that indicate that mining is the largest contributor to the GDP (IHS Markit Regional eXplorer v2607, 2025). However, it could be argued that the actual contribution of mining is significantly greater than reported, as the majority of mining companies operating in the Northern Cape report under head offices located outside the province. According to Ramantswana (2019), there is a concentration of corporate headquarters in major cities of South Africa, which have access to integrated infrastructure systems, services, and professional expertise. Despite the mining industry being the largest contributor to the economy, its impact on employment is relatively small in comparison. The emphasis on skills transfer and the development of the PGDP are therefore of paramount importance.

5.2 KEY FINDINGS AND RECOMMENDATIONS

Chapter 1 provided the background to the study, outlined the research aims and objectives, and explained the research methodology employed. Chapter 2 reviewed literature on the impacts of mining, sustainability, and reporting practices. Chapter 3 presented an overview of the socioeconomic status of the Northern Cape province, introduced the four JSE-listed mining companies that were analysed in this study, and

reported on the data analysis and interpretation. This chapter highlights the key findings from the analysis and provides recommendations on how the mining companies can enhance their reporting and more effectively communicate their socioeconomic contributions and challenges.

Table 5.1 highlights the key findings derived from the analysis of the four mining companies' integrated annual reports concerning the socioeconomic impact of these companies, which was assessed against the eight principles of responsible mining as articulated by Goodland (2012) and aligned with the ICMM's (2022) responsible mining principles and the GRI Standards for sustainability and associated recommendations.

Table 5.1: Alignment of reporting practices against Goodland's (2012) responsible mining principles, ICMM (2022) principles, and GRI Standards

Goodland's responsible mining principles	ICMM principles	GRI Standards	Findings	Recommendations
ESIA by a panel of experts	• Principle 2: Informed decision making, integrating sustainable development • Principle 6: Environmental performance • Principle 8: Responsible production	• GRI 203: Indirect impacts • GRI 302–306: Environmental • GRI 413: Local communities	ESD, which has indirect socioeconomic impacts on mining communities, was comprehensively reported only by Afrimat, while the other companies failed to provide detailed information. This disparity may indicate a gap in transparency and raises questions regarding the sustainability of such initiatives and their contribution to economic transformation. The communities benefitted from infrastructure development projects, particularly in relation to bulk water infrastructure. The frequency analysis revealed varied emphasis among community-related themes, with the highest representation being for community well-being (128) and the lowest for community ownership (4). This raises concerns regarding the insufficient emphasis on community ownership, which is a priority of the PGDP to promote the equitable distribution of mining-derived wealth. The low and inconsistent frequency of food security highlights a concerning lack of commitment across the industry, which could adversely affect the livelihoods of communities and impede overall progress towards sustainable development.	The mining companies should provide comprehensive disclosure on ESD initiatives, including stating the scope, financial investments, the number and nature of supported businesses, measurable socioeconomic outcomes, and the sustainability of these initiatives. Moreover, community ownership should be prioritised, accompanied by detailed disclosures on shared equity models and their alignment with provincial priorities to enhance transparency. Additionally, initiatives aimed at food security and community livelihoods should be prioritised.

Goodland's responsible mining principles	ICMM principles	GRI Standards	Findings	Recommendations
Transparency (impacted stakeholders' participation)	• Principle 1: Ethical business • Principle 6: Environmental performance • Principle 10: Transparent stakeholder engagement	• GRI 201: Economic performance • GRI 207: Tax • GRI 305: Emissions • GRI 417: Marketing and labelling	The integrated reports exhibited transparency regarding both financial and non-financial performance, in accordance with the stipulations of the Companies Act, and were subjected to independent verification by external assurance providers.	Although transparency in financial and non-financial performance is acknowledged, this study excluded environmental aspects. Consequently, future research should incorporate environmental dimensions by analysing disclosures related to energy efficiency, water use, land rehabilitation, and greenhouse gas emissions to provide a more comprehensive assessment of sustainability performance.
Acceptance by stakeholders (FPIC)	• Principle 3: Human rights • Principle 8: Responsible production	• GRI 411: Rights of Indigenous peoples • GRI 413: Local community engagement	The low prevalence of recognition and explicit engagement with traditional and cultural leaders raises concerns regarding inclusive decision making.	The mining companies should enhance explicit consultation with Indigenous leaders to foster greater community trust and promote inclusive decision making. This process should include formal documentation and disclosure of such engagements.
Food production trumps questionable mining (protection of scarce land or water)	• Principle 1: Ethical business • Principle 6: Environmental performance • Principle 10: Transparent stakeholder engagement	• GRI 203: Indirect impacts • GRI 303–306: Environment • GRI 411: Rights of Indigenous peoples • GRI 413: Local community engagement	The mining companies document their contributions to community development through initiatives such as skills training, infrastructure support, local employment opportunities, and supplier development, which are categorised under LED and CSI. LED and CSI initiatives are detailed in the mines' SLPs, which are formulated based on engagement with communities to identify their needs. The water infrastructure projects undertaken by	The disclosure of infrastructure and other developmental projects should be quantitatively assessed in relation to their local economic and social impact. This assessment should include indicators such as the number of households or individuals benefitting, the local employment generated during the construction phase, and the provisions made for

Goodland's responsible mining principles	ICMM principles	GRI Standards	Findings	Recommendations
			Afrimat, ARM, and South32 effectively addressed water scarcity and enhanced the well-being of the surrounding communities.	the ongoing maintenance of such projects.
Compliance with international standards (CSI)	• Principle 5: Health and safety • Principle 7: Conservation of biodiversity	• GRI 304: Biodiversity • GRI 305: Emissions • GRI 401–418: Social	Although environmental factors are recognised as a key dimension of sustainability, they were intentionally excluded from the scope of this analysis. Nonetheless, the companies complied with the legislative, regulatory, and sustainability frameworks that necessitate the inclusion of environmental matters in integrated reporting. The integrated annual reports omitted detailed disclosures regarding social investment projects; however, supplementary reports and company websites provided additional information. Selective disclosure of information poses the risk of greenwashing and a lack of accountability.	To enhance accountability and mitigate potential perceptions of greenwashing, reports should incorporate comprehensive and quantifiable disclosures of social investment.
Prequalification or certification of potential mining permit seekers (independent certification regime)	• Principle 2: Informed decision making, integrating sustainable development	• GRI 203: Indirect impacts • GRI 302–306: Environmental • GRI 413: Local communities	The variability and inconsistency in the disclosures of closure provisions among the mining companies raise concerns regarding the adequacy of regulatory compliance and the sufficiency of financial provisioning for mine closure and rehabilitation.	The mining companies should provide comprehensive disclosure regarding closure provisions, extending beyond financial provisions to encompass progress in the implementation of rehabilitation programmes and strategies aimed at enhancing community resilience in the post-closure transition.

Goodland's responsible mining principles	ICMM principles	GRI Standards	Findings	Recommendations
Insurance and performance bonds (compliance with contractual obligations)	• Principle 4: Risk management • Principle 9: Social performance	• GRI 204: Procurement practices • GRI 304: Biodiversity • GRI 306: Effluents and waste • GRI 413: Local communities	Risk management encompasses financial, operational, environmental, social, and geopolitical uncertainties. The extensive range of risks can result in selective reporting, which can lead to information gaps for stakeholders regarding critical exposures. The inconsistency in the disclosure of procurement practices among the companies limits comparability and raises concerns about the equitable distribution of benefits.	In the realm of procurement practices, comprehensive disclosure, including trend analysis, could enhance comparability for the assessment of economic transformation.
Royalties, taxes and fees (cost-benefit analysis, no-go zones)	• Principle 3: Human rights • Principle 6: Environmental performance • Principle 7: Conservation of biodiversity	• GRI 201: Economic performance • GRI 205: Anti-corruption • GRI 207: Tax • GRI 304: Biodiversity • GRI 411: Rights of Indigenous peoples • GRI 413: Local community engagement	The limited disclosure of anti-corruption initiatives, particularly by South32, raises significant concerns regarding ethical governance and indicates a potential lack of full compliance, which may foster perceptions of greenwashing.	Reporting practices should be enhanced through comprehensive disclosure of anti-corruption initiatives, which include progress, challenges, and measurable impacts, to promote greater transparency and accountability for both internal and external stakeholders.

Source: Researcher's own construction

The significance of impact assessments during project initiation is underscored in the literature. These ensure that decisions are grounded in environmental and social sustainability, which supports responsible production and managing community impacts. This is further substantiated by the GRI Standards, which mandate the disclosure of indirect socioeconomic impacts and initiatives that promote community well-being. However, the outcomes of the analysis revealed a gap in the comprehensive disclosure of information pertaining to ESD, as well as community ownership, which indicates a partial integration of sustainable reporting principles that undermines systems of accountability. Enhanced reporting practices are necessary to reinforce alignment with sustainability principles and the developmental priorities of the province.

Transparency is both mandated by regulation and a fundamental principle of responsible mining through continuous engagement with all stakeholders to facilitate informed decision making and ethical business to enhance accountability. The mining companies adhere to transparency by reporting independently verified financial statements alongside non-financial performance metrics. It is recommended that future research address the gap that arises from the explicit omission of the environmental dimensions of sustainability in this study.

Mining companies secure a social licence to operate by fostering trust with host communities, which is facilitated by respecting human rights and Indigenous cultures in accordance with the principles set forth by Goodland (2012) and the ICMM (2022). The analysis indicated limited disclosures regarding engagements with traditional and cultural leaders, which suggests that FPIC remains a conceptual commitment rather than a practical reality. This raises concerns regarding the inclusivity and validity of decision-making processes. Consequently, companies should establish formal consultations with traditional leadership structures and disclose these engagements to bolster community trust and align with sustainability standards.

The literature highlights the prioritisation of agricultural livelihoods and environmental protection through ethical business practices and transparent consultation with affected communities, which align with the GRI Standards. The analysis identified community contributions through skills development and infrastructure support, particularly in water supply. Although these projects are consistent with sustainability

principles, they are categorised as CSI and LED initiatives and lack disclosure of broader socioeconomic impacts, which suggests a compliance-driven rather than a sustainability-driven approach to reporting. Reporting should thus quantify social and economic effects by disclosing the number of beneficiaries, local job creation during construction, and provisions for the maintenance of infrastructure projects.

Goodland (2012) and the ICMM (2022) emphasise adherence to international standards, which, according to the analysis, the mining companies generally complied with. However, there was a lack of comprehensive disclosure regarding social investment in the integrated annual reports, with supplementary reports and websites providing additional details. This selective reporting raises the risk of stakeholder perceptions of greenwashing and negligence, which necessitates more comprehensive and measurable disclosure of social investment.

Furthermore, the literature advocates for independent certification and pre-emptive sustainability assessments as responsible mining practices to ensure community well-being and resilience following mine closure. The analysis revealed inconsistencies among the annual reports, particularly concerning financial provisions for the decommissioning of mines. It is therefore recommended that the mining companies enhance their information disclosure through an inclusive approach to the rehabilitation process, which would align with sustainable standards.

Risk management plays a critical role in minimising environmental impact, as well as social and health risks, while ensuring stakeholder safety and respect for human rights. Another aspect of risk management is inclusive supply chain management; however, the analysis indicates significant inconsistencies in the methods employed for procurement disclosure. Consequently, it is recommended that mining companies incorporate trend analysis as a tool to improve comparability regarding the impact of economic transformation.

The reviewed literature underscores the importance of transparency concerning royalties, fees, and taxes. Enhanced transparency will facilitate alignment with industry-required ethical governance and anti-corruption measures, which would benefit the economic contributions of the mines. The research findings indicate that some companies disclosed only minimal information regarding their anti-corruption initiatives. South32 is of particular concern, as little information was available

regarding its ethical compliance. It is therefore recommended that mining companies provide comprehensive reports that detail their anti-corruption initiatives, progress, and outcomes, which will foster stronger ethical governance and accountability.

Overall, the research findings demonstrated the significance of quantifying the socioeconomic impact of mining projects. These projects should be inclusive from the initial stages of the decision-making process to ensure that community members are consulted to guarantee sustainability. Accountability, public confidence in mines, and their reputational integrity can be enhanced when mining companies exhibit greater transparency and accountability through comprehensive disclosure reports. To ensure alignment with sustainable reporting principles, it is necessary for mines to be intentional regarding indirect local employment, long-term skills development, food security projects, and community ownership.

A limitation of this study pertains to the coding analysis, which was based on integrated annual reports rather than the GRI content index, as required by the Global Sustainability Standards Board. Although Kumba Iron Ore included the content index in its Sustainability Report and ARM issued a separate content index, the researcher was unable to make proper comparisons based on the GRI content index due to the failure of Afrimat and South32 to publish the index, despite claiming compliance with GRI Standards. Consequently, certain sections may not be complete or comparable due to omissions by the mining companies.

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ANNEXURES

ANNEXURE A: ETHICAL CLEARANCE

UNIVERSITY OF THE
FREE STATE
UNIVERSITEIT VAN DIE
VRYSTAAT
YUNIVESITHI YA
FREISTATA

UFS

GENERAL/HUMAN RESEARCH ETHICS COMMITTEE (GHREC)

Registration Number: REC-112922-058

14-May-2025

Dear Miss Anelle Niemand

Waiver Approved

Research Project Title:
Evaluation of the Socioeconomic Impact of Five Northern Cape Mines

Ethical Clearance number:
UFS-HSD2025/0524

The GHREC confirms a waiver of the requirement for ethics clearance of this study that does not involve human participation outside the study team, and does not involve collection or processing of data other than data in the public domain.

Thank you for submitting your proposal. We wish you success with your research.

Yours sincerely

Dr Alison Stander
Vice-Chairperson: General/Human Research Ethics Committee



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ANNEXURE B: EDITING LETTER

GRAMMAR GUARDIANS

11 November 2025

To whom it may concern

Re: Proofreading and academic editing: Ms A. Niemand

I, Ms Jeanne-Louise van Aswegen, hereby confirm proofreading and academic editing of the master's mini-dissertation entitled *Evaluation of the Socioeconomic Impact of Four Northern Cape Mines* by Anèlle Niemand (student number 2007124031) in November 2025. The editor is not liable for post-editing changes made by the researcher (date of document release: 11 November 2025).

Please contact me on 082 811 6857 or at jeanne@grammarguardians.co.za regarding any queries that may arise.

Kind regards,

J.L. van Aswegen

Grammar Guardians

ANNEXURE C: TURNITIN REPORT

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