# Assessing the strategy and performance of selected JSE-listed mining companies on their contribution to the United Nations' Sustainable Development Goals

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**ABSTRACT**

The Sustainable Development Goals (SDGs) are a vital part of the United Nations' (UN) 2030 Agenda for Sustainable Development, a far-reaching plan aimed at fostering a sustainable future for humanity, our planet, and economic prosperity. Acknowledging that the private sector plays a crucial role, the UN recognizes that the SDGs cannot be achieved without their active involvement. Among the key players capable of advancing the SDGs by 2030, the mining sector holds immense potential. This study aimed to examine the extent of corporate engagement with the SDGs of 10 selected mining companies in the Johannesburg Stock Exchange's (JSE) Top 100 listed firms in advancing the 2030 Agenda for Sustainable Development. The objectives of this study were based on the recontextualization of the five-step process presented in the SDG Compass, an international guideline designed to assist particularly large companies in engaging with the SDGs through integration, appraisal, and progress reporting on the SDGs. The selected companies' 2019 annual reports were used for secondary data collection, which was followed by semi-structured interviews with sustainability managers of the same mining companies. Content analysis and content rating were utilized for data analysis to determine the extent of corporate engagement with the SDGs. The results of the study show that only four of the ten mining companies have engaged more extensively with the SDGs, successfully integrating them into their core strategies and business models. Unfortunately, most mining companies failed to establish SMART (Specific, Measurable, Achievable, Relevant, and Time-bound) objectives to support their priority SDGs, leading to insufficient reporting of progress made in advancing the SDGs. Moreover, the study highlights a lack of active involvement by top management in certain mining companies, hindering their progress. Top management must fully embrace the SDGs and integrate them into their strategies and business models. By doing so, the mining sector can play a pivotal role in driving sustainable development and positively impacting society, the environment, and the economy.

**Keywords:** Sustainable Development Goals (SDGs); SDGs and Mining; Corporate sustainability; SMART objectives; Top management; SDG integration; SDG reporting

## 1 INTRODUCTION

The Sustainable Development Goals (SDGs) were adopted during the United Nations (UN) Summit on Sustainable Development in September 2015. They consist of 17 goals and 169 targets under resolution A/RES/70/1, 'Transforming our world: the 2030 Agenda for Sustainable Development.' This comprehensive agenda is aimed at addressing global challenges and promoting sustainable development until 2030, encompassing various aspects such as people, planet, peace, partnerships, and prosperity (UN 2015; Biermann, Kanie, and Kim 2017).

Welcomed as a transformative agenda, the SDGs are seen as 'integrated and indivisible', seeking to balance environmental sustainability, social inclusion, and inclusive and sustainable economic growth (UN 2015; CCSI et al. 2016; Moratis and Melissen 2019; de Jong and Vijge 2021). Building on the now-lapsed Millennium Development Goals (MDGs), the SDGs aim to achieve what the MDGs could not (UN 2015; Cole and Broadhurst 2021).

The achievement of the SDGs is recognized as ambitious and would rely heavily on the involvement of the private sector (Scheyvens, Banks, and Hughes 2016; Sullivan, Thomas, and Rosano 2018; Ike et al. 2019; Calabrese et al. 2021; Rashed and Shah 2021; Silva 2021). Among various industries, the mining sector is considered well-positioned to make a significant contribution to all the SDGs (CCSI et al. 2016; Yakovleva, Kotilainen, and Toivakka 2017; Fraser 2019; Cole and

Broadhurst 2021; Frederiksen and Banks 2023). However, despite this potential, empirical studies are scarce on corporate engagement with the SDGs, particularly in the mining sector (Ike et al. 2019; Buniamin et al. 2020; van der Waal and Thijssens 2020; Endl et al. 2021; Rashed and Shah 2021; van der Waal et al. 2021). Many companies still struggle to align their strategies with the SDGs, which affects their ability to measure, manage, and report on their impact (Pedersen 2018; Moratis and Melissen 2019).

To address these knowledge gaps, this study examined the extent of corporate engagement with the SDGs among selected mining companies listed on the Johannesburg Stock Exchange (JSE). The key objectives were to assess their extent of understanding and prioritization of the SDGs, goal-setting alignment, integration of the SDGs into their strategies and business models, and reporting practices on the SDGs among these mining companies. By shedding light on these aspects, the study aims to contribute to a better understanding of the mining sector's role in advancing the 2030 Agenda for Sustainable Development.

## 2 LITERATURE REVIEW

### 2.1 Corporate engagement with the SDGs: A focus on the mining sector

The mining sector has long played a significant role in global economic growth, supplying essential metals and minerals for technological advancement and societal development (CCSI et al. 2016; Frederiksen and Banks 2023). However, it is crucial to recognize that mining has also exacerbated some of the very issues the SDGs aim to address (CCSI et al. 2016; Fraser 2019; Frederiksen and Banks 2023). In this regard, the mining sector has been labeled a "pariah industry" due to its role in the degradation of environmental and social systems in host communities (Frederiksen and Banks 2023). Nonetheless, Fraser (2019) argues that the SDGs present an opportunity for the mining sector to redeem itself by contributing to the 2030 Agenda (Frederiksen and Banks 2023).

In this context, the 2016 publication 'Mapping Mining to the Sustainable Development Goals: An Atlas,' by the Columbia Center on Sustainable Investment (CCSI), Sustainable Development Solutions Network (SDSN), United Nations Development Programme (UNDP), and the World Economic Forum (WEF), highlights the potential role of the mining sector in addressing the SDGs. Importantly, the Atlas offers insight into the intersections between the SDGs and mining, with an emphasis that the mining sector has the potential to contribute positively to all 17 SDGs (CCSI et al. 2016). However, it falls short in providing guidance on reporting, which is essential for measuring and managing the impact of mining on achieving the SDGs.

Fraser (2019) contends that the mining sector needs a clear strategy to make a significant impact on the achievement of the SDGs by 2030. To effectively engage with the SDGs, the mining sector ought to adopt a deliberate and systematic approach (Barbier and Burgess 2017). While various guidelines exist on corporate engagement with the SDGs (Haywood and Boihang 2021), most of them focus on reporting on the SDGs rather than the overall process of engaging with the SDGs. One early and widely recognized guideline is the 'SDG Compass', published by the Global Reporting Initiative (GRI), the United Nations Global Compact (UNGC), and the World Business Council for Sustainable Development (WBCSD) in 2015. The SDG Compass offers a practical five-step process to guide particularly large companies on embedding the SDGs into their core strategies (GRI et al. 2015; Calabrese et al. 2021). García-Sánchez et al. (2020) note that the SDG Compass provides a comprehensive approach that is essential for the development, implementation, and communication of corporate strategies related to the SDGs. Thus, this study adopts the five-step process from the SDG Compass as the suitable theoretical framework for assessing corporate engagement with the SDGs. The five steps from the SDG Compass are outlined below in sections 2.1.1–2.1.5.

#### *2.1.1 Understanding the SDGs*

The first step in effectively engaging with the SDGs is to understand them (GRI et al. 2015; Beyne 2020). The SDGs call for a shift in corporate sustainability from an inside-out approach towards an outside-in approach, necessitating an understanding of the mining sector's influence in solving global challenges (Dyllick and Muff, 2016; Beyne, 2020). Through this approach, companies are able to contextualize their involvement in the SDGs, as well as recognize the risks and opportunities linked to global challenges, and then establish appropriate baseline responsibilities (Beyne, 2020). In this regard, the key baseline responsibilities include adhering to mining-related international standards, national and local regulations governing the mining sector (CCSI et al. 2016; Yakovleva, Kotilainen, and Toivakka 2017; Frederiksen and Banks, 2023). Additionally, understanding the business case for participating in the SDGs is crucial, as the SDGs offer a framework for long-term investment, which aligns with the mining sector's capital-intensive nature (Pederson, 2018; CCSI et al. 2016). To drive this understanding, top management must take the lead, which is essential to sensitize all stakeholders about sustainability issues related to mining and the SDGs (Kaffashi and Grayson 2022; Manes-Rossi and Nicolo' 2022).

### *2.1.2 Defining priority SDGs*

The UN's resolution on the 2030 Agenda for Sustainable Development emphasizes that the SDGs are 'integrated and indivisible' to ensure their effective adoption and implementation. However, many companies still struggle with prioritizing the SDGs due to a lack of empirical literature on the subject (Ike et al. 2019). Materiality analysis, a process used by most companies to identify significant sustainability issues based on stakeholder input, is commonly employed to define priority SDGs (Moratis and Melissen 2019). Yet, Moratis and Melissen (2019) caution that solely relying on materiality analysis for prioritization may lead to "SDG cherry-picking," where companies focus on the SDGs deemed material while neglecting those considered "immaterial."

The SDG Compass recommends that companies map their entire value chains in consultation with internal and external stakeholders to determine priority SDGs (GRI et al. 2015). This process should carefully assess the impacts of mining companies on the SDGs and vice versa, considering both positive and negative impacts along the value chain (GRI et al. 2015; CCSI et al. 2016; Dyllick and Muff 2016; Beyne 2020). By doing so, mining companies would be able to set strategic priorities that address their significant risks and opportunities in the context of the SDGs and thereby contribute to solving global challenges (GRI et al. 2015; Dyllick and Muff 2016; Beyne 2020).

However, studies have shown that some multinational enterprises (MNEs) among the Financial Times Global 500 companies prioritize SDGs that are internally actionable, leading to limited engagement with SDGs perceived as outside their sphere of influence (van Zanten and van Tulder 2018). This practice has resulted in a category of "orphan SDGs" that are considered immaterial (Kaffashi and Grayson 2022). Moreover, according to research by CCSI and the Responsible Mining Forum (RMF) (2020), most mining companies have prioritized the SDGs by retrofitting them to existing materiality analyses. This practice perpetuates business-as-usual through superficial engagement with the SDGs, which hinders their transformative potential (CSSI and RMF, 2020).

### *2.1.3 Goal setting for priority SDGs*

The 2030 Agenda emphasizes the setting of ambitious goals by all role players (UN 2015). In corporate sustainability, goal setting contributes to the effective implementation of strategic priorities (GRI et al. 2015). In this regard, mining companies must embed priority SDGs in their strategic objectives to ensure successful implementation. Moreover, the SMART principle must be applied in setting objectives for priority SDGs to ensure that they are specific, measurable, attainable, realistic, and time-bound (Blasco, King, and Jayaram 2018). Concurrently, mining companies are further advised to set short-term, medium-term, and long-term objectives with clear baselines, and relevant key performance indicators (KPIs) aligned with the UN targets for the SDGs, which would enable measuring and monitoring progress (Blasco, King, and Jayaram 2018; GRI et al. 2015; CCSI and RMF 2020). This is essential for collecting accurate data for continual improvement toward the 2030 deadline for achieving the SDGs (GRI et al. 2015; Blasco, King, and Jayaram 2018; CCSI and RMF 2020).

### *2.1.4 Integration of priority SDGs*

The 2030 Agenda calls on all stakeholders, including the private sector, to adopt sustainability approaches for advancing sustainable development (UN 2015). As a result, there is a legitimate expectation from stakeholders that the mining sector should engage with the SDGs (Silva 2021). The integration of the SDGs into organizations necessitates a significant shift in corporate sustainability and value creation, requiring alignment of purpose, values, business models, and strategies with the 2030 Agenda (Fleming et al. 2017; Moratis and Melissen 2019; Haywood and Boihang 2021). In this regard, there is consensus among sustainability scholars that sustainability considerations should be embedded across strategies, operations, governance, management processes, organizational structures, culture, and reporting systems (Dyllick and Muff 2016). Furthermore, to achieve this integration, the mining sector needs to move away from short-term profit-focused approaches toward sustainable, long-term value creation (Izzo, Ciaburri, and Tiscini 2020). Therefore, top management must lead the integration of the SDGs, aligning strategic priorities, commitments, actions, and programs across all functions (Manes-Rossi and Nicolo' 2022).

Despite the private sector's involvement in the formulation of the SDGs, a study by Haywood and Boihang (2021) on South Africa's top 100 JSE-listed companies revealed slow progress in the integration of the SDGs into their strategies. This sluggish uptake could hinder the successful realization of the SDGs by 2030.

#### *2.1.5 Reporting on priority SDGs*

The UN has called on the private sector to integrate sustainability information into corporate performance reporting to advance the 2030 Agenda (UN 2015). The SDGs provide a universal language, which mining companies can use to communicate their progress in advancing the 2030 Agenda (GRI et al. 2015; CCSI et al. 2016). This would require a transformation of traditional sustainability reporting practices by including disclosures on SDGs. SDG reporting involves publicly addressing commitment and progress on the SDGs, which demonstrate accountability, and transparency to stakeholders (Rosati and Faria 2019; Calabrese et al. 2021). By reporting on the SDGs, mining companies can review their sustainability objectives and assess their effectiveness in contributing to the goals (Rosati and Faria 2019; CCSI and RMF 2020; Calabrese et al., 2021). However, companies without clear objectives, baselines, and KPIs may resort to greenwashing or SDG-rainbow washing, providing misleading information about their SDG contributions (Izzo, Ciaburri, and Tiscini 2020; Beyne 2020).

In reporting on the SDGs by mining companies, research by the RMF (2020) found that there was no balanced reporting, with emphasis on positive impacts and omission of negative impacts. This practice conceals the challenges faced by mining companies regarding engaging with the SDGs and perpetuates SDG-washing (RMF 2020).

## 3 RESEARCH METHODOLOGY

This study was based on a qualitative design, taking an exploratory approach due to the scarcity of scholarly research on the phenomenon of corporate engagement with the SDGs. The collection of data included both content analyses of annual reports and semi-structured interviews. The population for the study considered only mining companies listed in the top 100 of the JSE in 2019. At the time of the study, only nineteen mining companies were listed in the top 100 JSE-listed companies, of which ten were selected using purposive sampling. The study initially focused on the 2019 annual integrated and sustainability reports of the ten selected companies. In this regard, the annual reports of these companies were downloaded and assessed for any reference to the SDGs in accordance with each company's corporate strategy (Buniamin et al. 2020; Izzo, Ciaburri, and Tiscini 2020; Haywood and Boihang 2021). Attention was paid to keywords such as "strategic objectives", "company goals/ priorities/ commitments", "programs", "initiatives", "business models", "action plans", "key performance indicators", and "top management" (CEO/Chairperson of the Board and executive management). Any reference to 2019 performance/ reporting on the SDGs, and SDG disclosure were also included (as per Izzo, Ciaburri, and Tiscini 2020; Haywood and Boihang 2021).

Once the reports were assessed, semi-structured interviews were conducted with senior sustainability professionals of each of the selected companies using an interview guide for fairness and consistency (ethics approval was granted by the University of the Witwatersrand, protocol number HA2001). The interview guide was sent with each invitation to provide participants with ample opportunity to prepare accordingly. All ten interviews were conducted virtually between June 2020 and October 2020 using either telephone, Skype, Zoom, Microsoft Teams, or WhatsApp video calls. The following key questions were asked to all participants using an interview guide, that is aligned with the five categories recontextualized from the SDG Compass (GRI et al. 2015):

- **Category 1 (Understanding of the SDGs):** “What is your company’s understanding of the SDGs?” (Additionally, elaborate on the business case for the SDGs, the responsibilities, and the opportunities the SDGs present to your company).
- **Category 2 (Defining priority SDGs):** “Does your company have priority SDGs? (If yes, what methodology did you employ in defining priority SDGs?).”
- **Category 3 (Goal setting):** “What are your company’s short-term, medium-term, and long-term objectives for your priority SDGs?” (Also, elaborate on your baselines and KPIs).
- **Category 4 (Integration of the priority SDGs):** “What commitments and actions has your company embarked on to embed the SDGs into your business strategy and business model?”
- **Category 5 (Reporting on priority SDGs):** “Is your company reporting on the SDGs?” (If yes, can you describe your company’s progress on your priority SDGs?).

All interviews were recorded with the participant’s permission to allow maximum engagement between the interviewer and the participants. The recordings of the interviews were transcribed, and afterward, transcripts were dispatched to each respective participant to ensure that his/her views were captured correctly.

### 3.1 Data analysis

The study employed content analyses for both documents and interview transcripts. The analytical framework used in this study was recontextualized from the five-step process of the SDG Compass into five categories listed in Table 1. Embedded into Table 1 is a rating scale of zero to three, which was applied for scoring each company on the five categories; details of each rating are given in the table’s footnote. These criteria were applied to score the selected mining companies on both the annual reports and interviews for each category.

**Table 1: Criteria for evaluating the extent of corporate engagement with the SDGs**

| | **RATING SCALE FOR ASSESSING CORPORATE ENGAGEMENT WITH THE SDGS** | | | |
|---|---|---|---|---|
| **CATEGORIES** | **0= Poor** | **1= Inadequate** | **2= Good** | **3= Excellent** |
| **1. Understanding of the SDGs** | The interview/ Annual report provided no information to demonstrate an understanding of the SDGs. | The interview/ Annual report provided insufficient information on:<br>a) Comprehension of the SDGs.<br>b) The business case for the SDGs.<br>c) The responsibilities and opportunities the SDGs present for the company. | The interview/ Annual report provided adequate information on:<br>a) Comprehension of the SDGs.<br>b) The business case for the SDGs.<br>b) The responsibilities and opportunities the SDGs present for the company. | The interview/ Annual report provided in-depth and clear information on:<br>a) Comprehension of the SDGs.<br>b) The business case for the SDGs.<br>c) The responsibilities and opportunities the SDGs present for the company. |
| **2. Defining priority SDGs** | The interview/ Annual report provided no information on priority SDGs. | The interview/ Annual report provided insufficient information on:<br>a) Priority SDGs.<br>b) The methodology for defining priority SDGs. | The interview/ Annual report provided adequate information on:<br>a) Priority SDGs.<br>b) The methodology for defining priority SDGs. | The interview/ Annual report provided in-depth and clear information on:<br>a) Priority SDGs.<br>b) The methodology for defining priority SDGs. |
| **3. Goal setting for priority SDGs** | The interview/ Annual report provided no information on goal setting. | The interview/ Annual report provided insufficient information on goal setting due to:<br>a) Limited and unclear scope of goals.<br>b) inadequate targets and KPIs for priority SDGs. | The interview/ Annual report provided adequate information on:<br>a) The scope of goals including short-term, medium-term, and long-term objectives aligned with the SMART principle.<br>b) Alignment with the UN targets. | The interview/ Annual report provided in-depth and clear information on:<br>a) The scope of goals including short-term, medium-term, and long-term objectives aligned with the SMART principle.<br>b) Alignment with the UN targets. |

| | RATING SCALE FOR ASSESSING CORPORATE ENGAGEMENT WITH THE SDGS | | | |
|---|---|---|---|---|
| **CATEGORIES** | **0= Poor** | **1= Inadequate** | **2= Good** | **3= Excellent** |
| **4. Integration of priority SDGs** | The interview/ Annual report provided no information on the integration of the SDGs into strategy and business model. | The interview/ Annual report provided insufficient information on integration due to inadequate information on:<br>a) Commitments and actions on the SDGs.<br>b) Description of embedding the SDGs into strategy, business model, priorities, and programs. | The interview/ Annual report provided adequate information on integration including:<br>a) Commitments and actions on the SDGs.<br>b) Description of embedding the SDGs into strategy, business model, priorities, and programs. | The interview/ Annual report provided in-depth and clear information on integration including:<br>a) Commitments and actions on SDGs from top management.<br>b) Description of embedding the SDGs into strategy, business model, priorities, and programs. |
| **5. Reporting on priority SDGs** | The interview/ Annual report provided no information on the company's performance on the SDGs. | The interview/ Annual report provided insufficient information on:<br>a) Performance on short-term, medium-term, and long-term targets with baselines.<br>b) Balanced reporting on SDG performance. | The interview/ Annual report provided adequate information on:<br>a) Performance on short-term, medium-term, and long-term targets with baselines.<br>b) Balanced reporting on SDG performance. | The interview/ Annual report provided in-depth information on:<br>a) Performance on short-term, medium-term, and long-term targets with baselines.<br>b) Balanced reporting on SDG performance. |

**Poor (0)** **No information was presented for the corresponding category.**
**Inadequate (1)** **Insufficient/limited information was presented against the category evaluated.**
**Good (2)** **Adequate presentation of information against the category evaluated.**
**Excellent (3)** **Comprehensive presentation of information against the category evaluated.**

The extent of corporate engagement with the SDGs was summarized based on scores from both annual reports and interviews across five categories for each mining company. Scores could range from a minimum of 0 to a maximum of 3 per category, with a total minimum score of 0 and a maximum of 15 for all five categories. Ultimately, four levels of engagement with the SDGs were assigned, each corresponding to specific score ranges: poor (0–3.74), inadequate (3.75-7.44), good (7.5–11.24), and excellent (11.25–15).

To ensure validity and reliability, primary data was meticulously collected through interviews, and member checking was applied for accuracy. Furthermore, the study applied the criteria outlined in Table 1 to minimize any bias in the analyses of both primary and secondary data. Triangulating data from both sources to identify alignments and misalignments enhanced the credibility of the findings, strengthening the study's results.

## 4 RESULTS

The results of the study show that most of the selected mining companies (1, 4, 7, 9, and 10) have a good understanding of the SDGs, with four of ten mining companies (2, 3, 6, and 8) rated as 'excellent'. It must be noted that interviews provided further insight into the selected mining companies' understanding of the SDGs, which was lacking in some of the annual reports assessed. Only Company 5 was rated 'inadequate' as there was insufficient information provided on both the annual report and interview.

The data further show that most of the selected mining companies have set priority SDGs. Four of the ten mining companies (2, 3, 6, and 8) were rated 'excellent'. All four mining companies clearly indicated their priority SDGs in their annual reports. Interview data from these four mining companies corroborated these findings. Of the remaining six mining companies, three (1, 4, and 10) were rated as 'good', two (7 and 9) were rated 'inadequate', while Company 5 was rated 'poor'.

SDG 3 emerged as the most prioritized goal, with seven of the ten (70%) mining companies including it in their priority SDGs. SDG 4 and SDG 8 were the second most prioritized SDG with six of the ten (60%) mining companies including them in their priority SDGs. SDG 5 and SDG 13 were prioritized by five of the ten (50%) mining companies, followed by SDG 1 and SDG 12, prioritized by four of the ten (40%) mining companies, whilst SDG (2, 6, 7, 9, 10, 11, 14 15 and 16) were the least prioritized goals. Below is Figure 1 which clearly depicts the frequency of prioritization of the 17 SDGs by the selected mining companies.

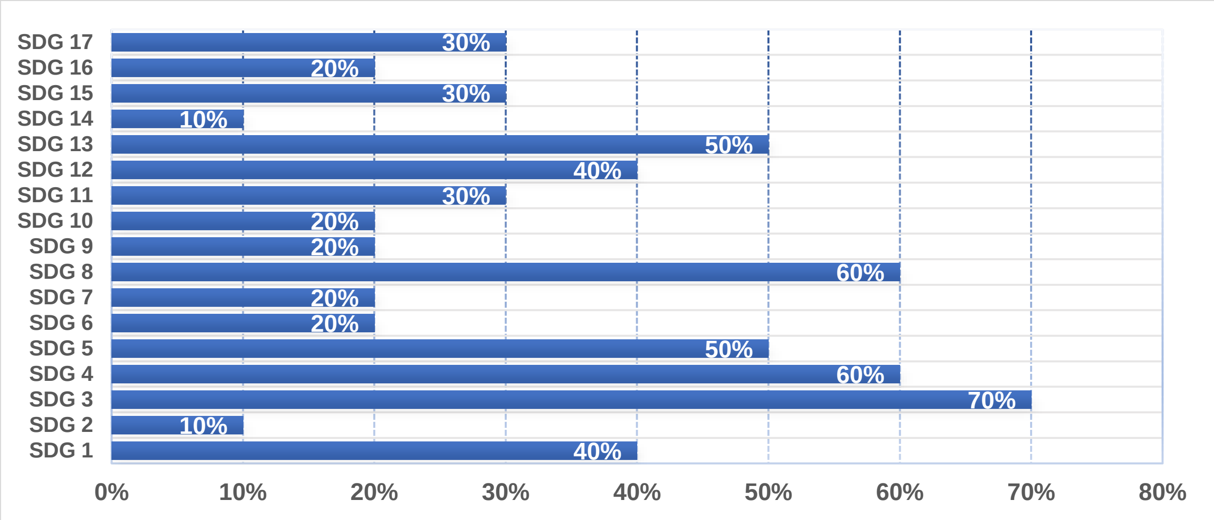


**Figure 1: Frequency of prioritization of the 17 SDGs by selected mining companies in 2019**

Goal setting for the prioritized SDGs was found to be inadequate for most companies. None of the mining companies received an ‘excellent’ rating on goal setting. Only three of the ten mining companies (2, 3, and 6) were given a ‘good’ rating. Most mining companies presented limited information on their scope of priority SDGs. This was due to inadequate information on their objectives for priority SDGs. Additionally, most mining companies failed to align their priority SDGs with the SMART principles and the UN targets, which adversely affected their efforts in setting KPIs.

Only two of the ten selected mining companies (3 and 6) were rated ‘excellent’ for strategic integration of priority SDGs. Moreover, two mining companies (2 and 8) were rated ‘good’, while six of the ten selected mining companies (1, 4, 5, 7, 9, and 10) were rated ‘inadequate’ due to insufficient information. A key finding for these companies is the lack of information on the commitment of top management to advance the SDGs.

Reporting performance on the SDGs in line with the set criteria proved challenging for most mining companies. None of the ten selected mining companies were rated ‘excellent' for reporting on the SDGs. This was due to shortcomings in providing clear information regarding performance on objectives for contributing to the accomplishment of the SDGs by 2030. Only three of the ten mining companies (2, 3, and 6) were rated ‘good’ for reporting on the SDGs. All others (7 of 10) presented insufficient information, including Company 5, which presented no information on the SDGs.

The overall scores on the five categories evaluated for each mining company are shown in Figure 2 for both the annual reports and the interviews, respectively.

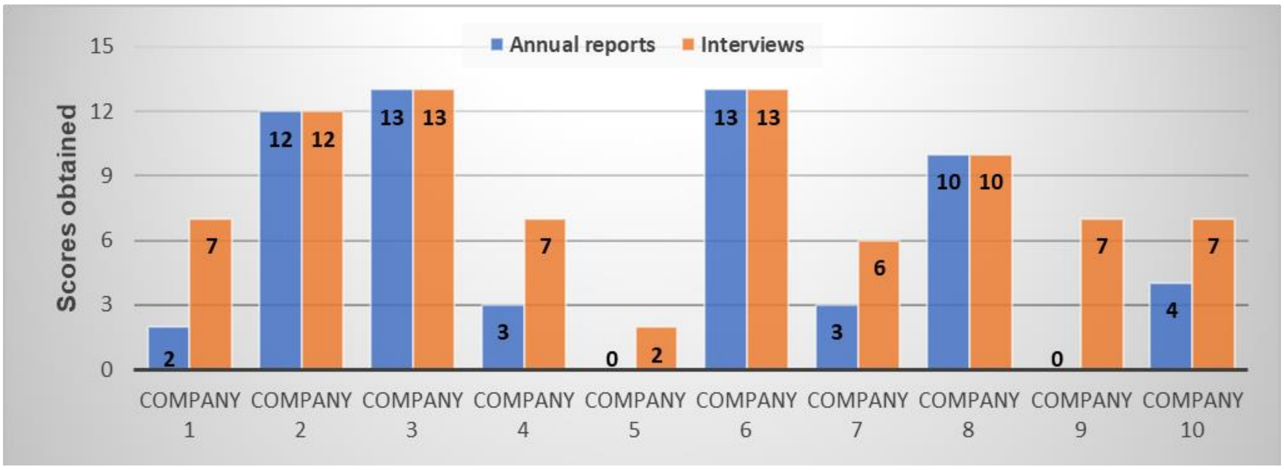


**Figure 2: Summary of engagement with the SDGs by selected JSE-listed mining companies (2019)**

Only three of the ten selected mining companies (2, 3, and 6) were rated as ‘excellent’, while only company 8 was rated ‘good’. Most mining companies failed to demonstrate effective engagement with the SDGs. Company 5 was the worst-performing company, hence receiving a ‘poor’ rating. Company 9 scored zero on annual reports while scoring seven on interviews, which is concerning regarding its communication strategy on engagement with the SDGs in annual reports. The overall performance suggests that four of the ten mining companies are effectively engaging with the SDGs, which are companies 2, 3, 6, and 8.

## 5 DISCUSSION

The study indicates that most mining companies demonstrated good comprehension of the SDGs in their annual reports, aligning with prior research (Izzo, Ciaburri, and Tiscini 2020). However, when considering the interviews, only four out of ten companies earned an 'excellent' rating in their SDG reporting. Interviews shed light on the business case, responsibilities, and opportunities related to the SDGs, which were lacking in some annual reports. Therefore, mining companies need to improve their communication in their annual reports to show a comprehensive understanding of the SDGs.

The SDG Compass recommends that companies map value chains with input from internal and external stakeholders to identify significant positive and negative impacts on the SDGs (GRI et al. 2015). Despite most companies prioritizing the SDGs through materiality assessments, value chain mapping was overlooked, leading to superficial engagement (CCSI and RMF 2020). Although annual reports often follow the GRI and Integrated Reporting Frameworks that focus on materiality, this does not absolve mining companies from undertaking value chain mapping.

SDG 3 emerged as a top priority for most mining companies with most of the interviewed participants citing the importance of conforming to the 'zero harm' industry standard. Moreover, any fatalities emanating from mining activities could have significant legal and financial repercussions as well as reputational damage, which could jeopardize the ‘social license to operate’ of mining companies in host communities (Fraser 2019; Haywood and Boihang 2021; Frederiksen and Banks, 2023). SDG 4 and SDG 8 were the second most prioritized SDGs, included by six of the ten mining companies in their priority SDGs. Most of the interviewed participants stated that one of the main reasons for prioritizing SDG 4 is that most of their operations are in rural communities where access to quality education is a serious challenge. With regards to SDG 8, most participants stated that they prioritized SDG 8 due to the expectation of creating employment in host communities. However, some scholars argue that SDG 4 and SDG 8 address issues that have long been in the domain of sustainability reporting, which makes it easier for mining companies to cherry-pick and retrofit them to previously conducted materiality analyses (CCSI and RMF, 2020; Heras-Saizarbitoria et al. 2021; Silva 2021).

SDG 13 was listed as a priority by five of the ten selected mining companies, while it was expected that most mining companies would regard it as a high priority and thus outline decisive measures to deal with climate change-related impacts. SDGs 2, 6, 7, 9, 10, 14, and 16 emerged as the least prioritized goals. These goals fall within the category of SDGs called ‘orphan SDGs’ as they are deemed immaterial (Kaffashi and Grayson, 2022). An emerging argument on the least prioritization of these goals by mining companies is that their achievement depends on collaboration and factors that are outside their control (van Zanten and van Tulder, 2018; Kaffashi and Grayson, 2022).

Goal setting emerged as one of the major challenges toward effective engagement with the SDGs as only three out of ten companies provided adequate information on their goal setting, revealing that more work needs to be done in this aspect. Most companies failed to define appropriate baselines, objectives, and KPIs for their prioritized SDGs, consistent with previous research (Haywood and Boihang 2021; Izzo, Ciaburri, and Tiscini 2020). This misalignment with SMART principles hinders the transformative SDG progress. Furthermore, six of the ten mining companies showed ineffective integration of the SDGs into their core strategy due to insufficient communication on integration efforts, corroborating earlier findings (CCSI and RMF 2020; Izzo, Ciaburri, and Tiscini 2020). Lack of clear commitment to the SDGs from top management further hindered effective integration.

SDG reporting offers a platform for mining companies to communicate their progress in contributing to the SDGs, promoting transparency and accountability to stakeholders (CCSI and RMF, 2020). In this regard, the SDGs provide a common language for companies to advance the 2030 Agenda (GRI et al. 2015; CCSI et al. 2016; CISL 2017), encouraging responsible and sustainable mining practices. However, most companies struggled with effective reporting, with only three rated 'good.' This stemmed from inadequate communication on short, medium, and long-term progress toward the SDGs, often due to the lack of SMART objectives (CCSI and RMF 2020). Some companies were rated 'inadequate' for merely attaching SDG symbols to reports without providing any context. Concurrently, the same mining companies resorted to biased reporting toward positive impacts, thus perpetuating the practice of SDG-washing (Beyne 2020; Heras-Saizarbitoria et al. 2021). In essence, stakeholders with an interest in how mining companies are advancing the SDGs cannot fully rely on their SDG disclosures for decision-making (van der Waal and Thijssens 2020). Mining companies must improve reporting practices, integrate SDGs into core strategies, and set SMART objectives to effectively contribute to the 2030 Agenda.

## 5.1 Conclusions

The study revealed that most mining companies demonstrated a good understanding of the SDGs, which is crucial for meaningful engagement with them. However, in practice, these companies chose to prioritize only a few SDGs, using the materiality analysis approach without mapping their entire value chains. This retrofitted approach limited the integration and reporting on the SDGs, and most companies failed to set SMART objectives, leading to inadequate disclosures of their contributions to the SDGs. Transparency in reporting is essential to showcase true progress and foster responsible and sustainable mining practices. The overall performance of the selected mining companies on corporate engagement with the SDGs indicated that only four out of ten made considerable progress in integrating the SDGs into their core strategies, business models, and reporting. The lack of top management involvement was a notable factor in the underperformance of some companies, as top management plays a critical role in driving SDG-related priorities across all company operations.

Adopting an approach that includes value chain mapping and setting SMART objectives will enhance mining companies’ contributions to the SDGs as well as reduce the risk of resorting to SDG-washing. Moreover, increased top management involvement is vital in driving the successful integration and implementation of SDGs throughout the organization.

## 5.2 Limitations to the study

The study's timeline was affected by the Covid-19 lockdown in South Africa in March 2020, leading to rescheduling and shifting of interviews to virtual platforms. The research also only focused on 10 mining companies within the Top 100 JSE-listed firms by the end of 2019, excluding others. Finally, while qualitative research has its limitations in terms of generalizability, the study provides a snapshot of corporate engagement with the SDGs by the selected mining companies in 2019 and may not represent all JSE-listed mining companies.

## 5.3 Recommendations for further studies

It would be valuable to conduct a follow-up study in the near future to determine whether any material improvement occurred in the level of engagement with the SDGs by the selected JSE-listed mining companies. Additionally, while the prominent dimensions of sustainable development have been environment, society, and economy, it would be instructive to research the governance aspect in order to comprehend the approach of top management to engaging with the SDGs.

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