Gordon Institute of Business Science
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The role of stakeholder engagement in the energy transition towards a more inclusive energy transition

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A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration.

04 November 2024

ABSTRACT

The mining industry's reliance on fossil fuel-generated energy significantly contributes to greenhouse gas emissions, thus highlighting the urgent need for cleaner energy sources as part of global climate change mitigation efforts. While the decarbonisation pressures intensify, a key challenge lies in understanding how the role of stakeholder engagement can effectively drive this energy transition towards an inclusive transition, particularly within South Africa's mining sector. Despite the investments by the mining companies, stakeholder engagement remains underexplored and underutilised, hence this study investigated its role in supporting a just energy transition.

The study's main objective was to explore how stakeholder engagement can promote a more inclusive and equitable energy transition within the mining industry. Through conducting interviews, it identified the opportunities, challenges, and gaps in the current practices while examining the role of various actors and stakeholders in the transition process. By addressing the constraints and power dynamics, as well as by assessing the potential of stakeholder mapping, the research study provided practical and theoretical insights into how effective stakeholder engagement can drive a sustainable energy transition in the mining sector.

The key findings revealed significant constraints, including but not limited to community exclusion, the misalignment between policy and implementation, and the potential of stakeholder mapping to improve engagement. The study concluded by proposing a framework for more inclusive and equitable stakeholder engagement, aiming to guide the mining industry towards a more sustainable and just energy transition.

KEYWORDS

Stakeholder engagement, energy transition, mining, inclusivity, climate change

DECLARATION

I declare that this research study is my own work. It is submitted in partial fulfillment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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4 November 2024

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ABBREVIATIONS

JET:	JUST ENERGY TRANSITION
DMRE:	DEPARTMENT OF MINERALS AND ENERGY
ANT:	ACTOR-NETWORK THEORY
DFIs:	DEVELOPMENT FINANCE INSTITUTIONS

CHAPTER 1: INTRODUCTION TO RESEARCH PROBLEM

1.1 Need and Purpose

The urgency to address climate change is at an all-time high, with the severity of its effects becoming increasingly evident. Greenhouse emissions are skyrocketing, surpassing all previous records (United Nations Climate Action, n.d). The United Nations Department of Economic and Social Affairs (n.d) reports that climate change-related disasters have increased fivefold in the past 50 years. The need for decarbonisation and a shift from fossil fuels to alternative energy sources is more pressing than ever. The global call for cleaner energy is driven by the goal to halve the emissions by 2030, a crucial step to limit global warming to 1.5 °C (United Nations Climate Action, n.d). To achieve the set goals, the realisation of cleaner energy will require contributions from all levels which include individuals, government, industries and corporations. However, it is essential to acknowledge that collaboration and engagement from different stakeholders will be required for organisations to embrace energy transitions within their business models. This collaboration is not just a necessity, but it is a powerful tool that can accelerate the transition process. It is through collective action and shared responsibility that climate change and transition can be effectively addressed to a sustainable energy future (Holechek et al., 2022). This engagement of different stakeholders is not just essential, but it is crucial within industries such as the mining sector, where the transition to low-carbon energy and, ultimately, cleaner energy can significantly play a role in reducing energy dependency from the energy generated from fossil fuels.

The energy transition journey is not a straightforward concept but a complex phenomenon that requires a multidimensional approach (Blazquez et al., 2020). A study by Marsden and Marsden (2021) indicates that by 2035, 50% of the electricity globally will be generated from cleaner energy sources. As efforts intensify to reduce carbon emissions and shift from fossil fuel-based electricity generation, understanding the diverse stakeholders and their respective roles in this arena becomes increasingly crucial. The global energy market is shifting, and this complexity, as well as the intricate web of factors, make the mining industry better suited to take advantage of this shift towards energy transition (Bruckner, 2023). Like many industries, the mining industries require reliable electricity to function optimally, and when that electricity is sourced from fossil fuels, the result is that the greenhouse gas emissions are massive. The geographical locations of most mines are ideal to

successfully transition to cleaner energy sources, given the remoteness and the landscape (Marsden & Marsden, 2021). This transition not only reduces the environmental impact, but it also opens up new opportunities for the industry (Heiligtag et al., 2019). However, such industries do not operate in isolation; they have employees, communities, and the environment around them that they must consider. These crucial stakeholders are at the core of the conversation and must participate in the transition journey to alternative energy sources, such as renewable energy sources. The commitment from most mining houses towards energy transition has been loud and visible, as observed from the investments made and the pledges outlined in their annual reports (AngloAmerican Climate Change Report, 2023). However, the different stakeholders' engagement levels are yet to be understood. The level of engagement from different stakeholders is critical to the success of such initiatives and projects.

The research sought to understand the role of stakeholder engagement in implementing an energy transition towards a more just energy transition. According to the National Business Initiative (n.d), the Just Energy Transition (JET) for South Africa aims to shift to a low-carbon economy in a manner that addresses the current and historical inequalities, generates employment, alleviates poverty, restores natural ecosystems for resilience, and ensures inclusivity for everyone. At the heart of this is the stakeholder engagement and its critical role. Like many other nations, South Africa is grappling with the dual goals of reducing greenhouse gas emissions and fostering economic development. However, this transition cannot be successful if it exacerbates the existing inequalities or creates new forms of social exclusion (Todd & McCauley, 2021). Therefore, it was essential to understand how stakeholder engagement can be leveraged to ensure that the energy transition is not only environmentally sustainable, benefiting a few, but that it is also socially just. This is the essence of this study.

According to Haegele et al. (2022), socio-economic effects have necessitated the need to ensure that such energy transitions are “just”. The purpose of this study was to investigate the stakeholder engagement mechanisms and practices that can support JET within the mining industry in South Africa. By examining how different stakeholders, ranging from private sectors and government agencies to local communities and non-governmental organisations, collaborate and contribute to the transition process (Todd & McCauley, 2021), the research was able to formulate

and identify the pathways for inclusive and equitable participation. This phenomenon is not yet fully understood and developed within the mining industry, hence the study. While there is a growing recognition of the importance of stakeholder engagement in various sectors, its application and impact within the mining context remain underexplored. This research sought to provide valuable insights into the stakeholder engagement processes that are both effective and “just”, thus contributing to the broader goal of achieving a sustainable and equitable energy transition.

The need for this research extended beyond the immediate environmental and economic imperatives, delving into the complex interplay between organisations and their stakeholders within the context of JET. Stakeholder engagement is commonly employed to explain the connection between an organisation and its stakeholders (Kujala et al., 2022). However, this engagement is not without its challenges and contradictions. While stakeholder engagement is often associated with moral considerations, Kujala et al. (2022) also acknowledge the emergence of its negative aspects. These negative aspects of stakeholder engagement may hinder the achievement of JET, which is a phenomenon critically examined in the study.

1.2 Context

The mining companies have recognised the need to invest in cleaner energy sources, which is apparent from a social license-to-operate point of view; however, for most, the need to do so is derived from the need to contribute towards a solution in reducing greenhouse emissions (Chipangamate et al., 2023). The history of the mining industry in most parts of the world can offer many lessons in establishing a much-needed requirement, which could be the case with bringing energy transition initiatives to mining operations, towns, and communities (Marais et al., 2018). Change and developments can have negative or positive outcomes, depending on how they are communicated and implemented to the intended audience. Expectations and perceptions can be evoked from different stakeholders, such as the government, the employees, and the host communities. Communities with bad previous relations with mining companies are likely to disengage (Moomen & Dewan, 2017). Stakeholder engagement is vital in getting buy-in and fostering good relations that align with the intent. Mining does not operate in perpetuity, and so does the energy transition projects on the mines; hence, continuous

engagements are critical to harness the skills, usage, and continuous benefits of the energy transition even after the closure of the mines (Marais et al., 2018).

Innovation and the quest for mining modernisation have taken up a significant drive to mine responsibly and sustainably (Chipangamate et al., 2023). However, Chipangamate et al. (2023) note that the uptake has been relatively slow given the drive for modernisation, and this has mainly been attributed to the stakeholder engagement's failure or slow pace. An inherent need is therefore identified to integrate stakeholder engagement as a fundamental principle to bring about modernisation, innovation, and transformation. The same could be highlighted for the success of transitioning to alternative energy sources. Innovation comes with new skills and new ways of doing things, which could be unsettling to policymakers, employees, and communities. Mzembe (2016) suggests that stakeholder engagement is one of the many strategic issues that mining companies must engage in, especially in developing countries where many of the stakeholders' voices might be suppressed. However, the less perceived powerful stakeholders, if not properly engaged, can equally pose a risk to the success of a project. Mzembe (2016) also highlights the difficulty of stakeholder engagement due to the varying degrees of power and influence of different stakeholders, which require a proper engagement plan and communication for the success of any project to be undertaken.

Furthermore, the integration of alternative energy sources within the mining sector presents both challenges and opportunities (Marsden & Marsden, 2021). On the one hand, transitioning to renewable energy can significantly reduce the environmental footprint of the mining operations and, on the other hand, it may contribute to broader sustainability goals. As Bruckner (2023) alludes, transitioning to alternative energy sources, such as renewable energy, should not neglect both the social and environmental impacts of the mining communities. On the other hand, transitioning to alternative energy sources would require new infrastructure, skills, and the adoption of new regulations, which could be daunting to many organisations. These changes can be disruptive if not managed properly. Stakeholder engagement can play a pivotal role in mitigating such disruptions by fostering a collaborative environment where stakeholders with different power levels are actively involved in shaping the transition process (Mzembe, 2016).

Effective stakeholder engagement to navigate such complexities is at the premise of the success of such transitions.

Within the mining context in South Africa, the imperative to modernise and innovate is further complicated by the sector's historical and socio-economic dynamics. Mining has long been a cornerstone of South Africa's economy, but it has also been a source of significant environmental degradation and social inequity (Marais et al., 2018). As the industry moves towards more sustainable practices, there is a pressing need to address these legacy issues through inclusive and effective stakeholder engagement (Presidential Climate Commission, 2022). This is especially true as the industry explores new technologies and methods that could disrupt traditional working methods and impact local communities. The transition to alternative energy sources within the mining sector exemplifies the need for this inclusive approach. The mining sector must, therefore, shift towards a more inclusive and participatory approach to stakeholder engagement, ensuring that all the voices, especially those of the historically marginalised, are heard and considered in the decision-making processes (Tladi et al., 2024).

1.3 Problem Statement

The significance of addressing climate change, is not a localised concern but rather it is a global need, which makes the transition to cleaner energy critical. Holechek et al. (2022) define climate change as an alteration in average weather conditions compared to historical norms. The mining industry is at an important point in contributing to the energy transition. In 2019, the mining industry's energy demand was 56% in South Africa (Department of Mineral Resource and Energy, 2022). The dependence on fossil fuels has adverse environmental consequences, and the transition to cleaner energy sources has never been this urgent (United Nations Climate Action, n.d). Holechek et al. (2022) define fossil fuels as finite, non-renewable natural resources which, for the most part, contribute to greenhouse gas emissions. Greenhouse emission relates to the gas that traps heat in the earth's atmosphere, thereby leading to an overall warming of the planet (De Oliveira Neto et al., 2018). The quest is for cleaner energy to mitigate this demise on the planet, and transitioning to alternative, cleaner energy sources will assist greatly. Cleaner energy refers to the sources of energy that produce significantly lower greenhouse gas emissions and pollutants compared to traditional fossil fuels such as coal, oil, and natural gas (United Nations Climate Action, n.d). The transition to cleaner

energy is driven by the need to address climate change, reduce air pollution, and promote sustainable development.

The mining industry requires significant energy to run its operations, and transitioning to alternative, cleaner energy sources will substantially reduce greenhouse emissions. However, achieving the energy transition call will require robust stakeholder engagements to navigate the complexities of the transition and its success (Rodrigues et al., 2022). Despite the recognised importance of stakeholder engagement in facilitating sustainable and just transitions, a significant gap remains in understanding how these engagement practices can be effectively implemented within the mining industry in South Africa.

Hence, this study aimed to gain insights into the role of stakeholder engagement in energy transition, with a view to a more inclusive energy transition.

While mining has shown commitment through investment initiatives and pledges, the stakeholder engagement's effectiveness remains critical, yet it is not fully utilised. There seem to be underlying challenges regarding stakeholder engagement that have yet to be explored, understood, and addressed. The slow adoption of modernisation and sustainable practices in the mining industry is primarily attributed to inadequate stakeholder engagement, which often fails to address the concerns and interests of all the involved parties (Chipangamate et al., 2023). The different stakeholders' needs, expectations, and power dynamics must be explored to encourage collaboration for the energy transition's success.

Therefore, this research aimed to investigate the role of stakeholder engagement as a facilitating vehicle that can support a JET within the mining industry. It considered the implications, challenges, and opportunities that may arise during the transition process that impact different stakeholders, with fostered stakeholder inclusiveness. This study aimed to fill these gaps by examining the interactions and collaborations between various stakeholders and identifying effective strategies for stakeholder engagement that can drive a JET in South Africa’s mining industry.

1.4 Research Objectives

The main objective of this study was to examine the role of stakeholder engagement in advancing energy transition within the mining industry towards a more inclusive and equitable energy shift. The study sought to investigate the opportunities, the challenges and the gaps related to stakeholder engagement as

well as the roles of different actors in advancing energy transition within the mining industry. This led to the main research question:

What should the role of stakeholder engagement be in the energy transition towards a more inclusive energy transition?

The following three sub-questions were utilised to answer the main research question.

Research Sub-Question 1: What constraints affect the stakeholder engagements during energy transition in the mining industry? (Freeman et al., 2020).

Research Sub-Question 2: What are the relations of the different actors and stakeholders during the energy transition in the mining industry? (Marcon Nora et al., 2023).

Research Sub-Question 3: Can stakeholder mapping be used to enable, and benefit improved stakeholder engagement in energy transition? (Chilvers et al., (2021).

The three sub-questions answered the main research question to achieve the objectives. The first sub-question examined the constraints affecting stakeholder engagement during energy transition, while the second sub-question explored the relations of different actors and stakeholders during energy transition. The third sub-question investigated if stakeholder mapping can enhance engagement and inclusivity during energy transition.

1.5 Rationale for the Study

The business and theoretical needs are provided below.

The study's rationale was that there is a need to address the gap in understanding the role of stakeholder engagement in driving the energy transition within the mining industry. The innate need to transition is crucial, while the effectiveness of that transition requires a significant role in stakeholder engagement. The mining industry is under increasing pressure to adopt sustainable practices to minimise the environmental impact and to comply with the global standards (Rodrigues et al., 2022). Effective stakeholder engagement is essential for identifying and implementing sustainability technologies and practices to enhance operational efficiencies and ensure long-term business viability (Chipangamate et al., 2023).

Energy transition presents challenges and opportunities for different stakeholders (De la Pena et al., 2022). This study aimed to understand these stakeholders and their inclusion in the energy transition within the mining context and to deduce the role that stakeholder engagement may play in energy transition. The mining sector encompasses a diverse collection of stakeholders with varying degrees of power, influence, and interests. The study aimed to contribute to the theoretical frameworks by exploring how these complex dynamics can be navigated to achieve equitable and inclusive engagement during energy transition.

The study was built on an existing body of knowledge related to this topic, as stakeholder theory and actor-network theory are the bases for this study.

Furthermore, the study considered stakeholder mapping (by interest, impact, and influence), which allowed for a better understanding of the different stakeholder groups in the energy transition. This should allow mining organisations to consult and engage with the right stakeholders for inclusivity.

1.6 Outline of the Study

The study is divided into chapters: Chapter One defines the problem; Chapter Two focuses on the literature review; Chapter Three formulates the problem statement and the research objective; Chapter Four proposes the research methodology; Chapter Five lays out the results; Chapter Six discusses the results; and Chapter Seven considers the conclusion and recommendations.

1.7 Conclusion

The study endeavoured to provide insights into the role of stakeholder engagement in the context of the energy transition within the mining industry towards a more just energy transition. The complexities and opportunities that may drive or impair engagement during energy transition were to be understood and discovered.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This section reviewed the existing literature to unpack the stakeholder-related concepts relevant to the topic. By critically analysing previous studies, this chapter aimed to identify the key concepts in the current knowledge, as well as highlight significant findings, and establish a solid foundation for this study. Firstly, the concept of energy transition was understood. Secondly, the concept of stakeholder theory was explored. Stakeholder engagement, the actor-network theory, value creation aligning with stakeholder theory and stakeholder inclusivity were considered.

2.2 Understanding Energy Transition

De la Pena et al. (2022) define energy transition as a process of shifting from fossil fuels to renewable alternative energy sources. Adopting energy transition processes can lead to achieving carbon neutrality that is parallel to addressing other global pressures, such as climate change and energy security, especially in developing countries (De la Pena et al., 2022). To accelerate the process, the drivers at the helm of energy transition success must be identified and understood, thus the significance of the different stakeholders in the mix. The transition to alternative energy sources has evolved from biomass to modern energy, including electricity to newer alternative renewable energy sources (Chen et al., 2019). The push is geared towards low to no carbon sources, which are ultimately cleaner energy transition alternatives.

The energy transition is not just a technological shift, but it is also a socio-economic transformation that involves various sectors and communities. Rauter (2022) defines energy transition not as a clear path to getting rid of old technologies to accommodate the new but as a representation in a marginal period exploring different competing energy alternatives. Amongst the countries that are exploring energy transition, most, if not all, are experiencing, in part, dilemmas associated with energy, such as high energy demand, concerns about climate change and the need to transition to cleaner energy alternatives to alleviate the reliance on fossil fuels (Rauter, 2022).

Some countries, including South Africa, have embarked on energy transition programmes. However, as Chilvers et al. (2021) highlight, the transition to low-

carbon alternatives will require meaningful engagement of different stakeholders. Stakeholder engagement is crucial in raising awareness, exploring support, shifting behaviour, and driving deeper insights and the urgency for transition (Chilvers et al., 2021). This emphasises the importance of the pivotal role public awareness and acceptance play in the success of energy transition. This comprehensive approach ensures that the shift to renewable energy sources is sustainable and resilient, thus contributing to long-term environmental and economic benefits. Chilvers et al. (2021) double down in their findings on the importance of transforming participation to alleviate the strains in the relations between different stakeholders that may arise during energy transition.

Building upon the multifaceted nature of energy transition, it becomes evident that successful implementation hinges on technological innovation and navigating complex sociopolitical landscapes (Moorthy et al., 2019). Furthermore, De la Pena et al. (2022) recognise that understanding the key drivers at the core of energy transition complexities will be essential for the transition and acceleration thereof. It is clear from the literature that energy transition adoption and progress are encountered with barriers, which was worth unpacking in trying to understand the level of their influence in rolling out energy transition (Moorthy et al., 2019).

2.2.1 Energy Transition in Mining

The response by mining companies is taking shape, and the adoption of cleaner energy alternatives provides an opportunity to reduce greenhouse gas emissions (Marsden & Marsden, 2021). The energy transition within the mining industry presents a unique set of challenges and opportunities, as the sector is traditionally known for its high energy consumption and reliance on fossil fuels. Furnaro (2020) states that the political economy cannot be divorced from the role of the fossil fuel industry in energy crises and the need to lower greenhouse emissions. Hanto et al. (2022) highlight the driving dominance of fossil fuel (coal) in South Africa as being both political and economic. According to Baker (2015), the political economy highlights the importance of power and politics as enablers or distractions in advancing change within the energy sector. Energy crises, as much as the need for cleaner energy, have prompted a response to energy transition for many countries. According to Baker et al. (2014), crises create opportunities and necessitate change. However, handling such a change will require responsive care for the recognition of political, economic, and social contexts (Baker et al., 2014).

Globally, the mining industry is the biggest contributor to the greenhouse emissions and a significant consumer of energy (Aramendia et al., 2023). The demand for commodities and the need for minerals in the renewable sector is on the rise, as is the need for energy (Marsden & Marsden, 2021). The mining industry in South Africa takes 10% of the energy demand (Department of Minerals and Energy, 2022). Energy is key for the mining industry to operate and perform efficiently. The high cost of energy, as well as the energy crises and the need to lower carbon emissions, have provided an opportunity as well as challenges to transition to alternative energy sources. Energy transition requires substantial investments in infrastructure, innovation in energy storage and distribution, and the development of new policies and regulatory frameworks that support cleaner energy alternatives, which could be daunting to many mining companies (An et al., 2023). However, most mining companies have embarked on this challenge, increasingly exploring and implementing renewable energy sources to power their operations (AngloAmerican Climate Change Report, 2023).

Expanding the discourse on the energy transition within the mining sector reveals a dynamic landscape where the traditional extraction methods are increasingly giving way to innovative and sustainable practices. Chipangamate et al. (2023) recognise a slow uptake in modernisation and digital transformation in the mining industry. Furthermore, the authors acknowledge that stakeholder engagement should be effective from the diverse mix of stakeholders to drive innovation and advance modernisation in the mining industry. However, mining companies can learn from the previous modernisation initiatives on the importance of engaging different stakeholders who are either impacted or affected in driving mining projects and initiatives (Moomen & Dewan, 2017).

2.2.2 Impacts of Energy Transition

According to Carley and Konisky (2020), transitioning to cleaner alternative energy sources will ultimately result in winners and losers. The winners will benefit from the opportunities brought about by the cleaner energy sources, while the losers will be left out of the transition's opportunities and benefits (Carley & Konisky, 2020). Change as a result of energy transition is massive. The shift in technological, economic, political and environmental behaviour, as well as perceptions, which will require a different mindset in the quest for energy transition success (Rauter, 2022). According to Rauter (2022), to navigate these complex relations, it is

imperative to recognise the role each stakeholder plays in the energy transition journey.

Whilst some impacts might be positive, some may be negative. Environmentally, the shift to cleaner alternative energy sources will significantly reduce greenhouse emissions and air pollution while contributing to climate change mitigations (Moorthy et al., 2019). Economically, the transition stimulates job creation in the alternative energy sector, fosters innovation, and can lead to energy cost savings in the long term despite the high initial investment (Moorthy et al., 2019). However, it also poses challenges for industries such as mining, especially in regions that are highly dependent on fossil fuels for energy and economic benefits (Johnsson et al., 2019). Socially, the energy transition has the potential to improve overall public health through reduced pollution and create more resilient communities with sustainable energy access (Tladi et al.,2024). It is required that the process is handled with caution to ensure that the benefits are equitably distributed and that vulnerable populations are supported during the transition period (Tladi et al., 2024).

2.2.3 Just Energy Transition

The term “just transition” was first introduced by the global trade unions in the 1980s (McCauley & Heffron, 2018). It evolved into a rallying term to advocate for green jobs as an essential part of the transition away from the fossil fuels (Abraham, 2017). The literature embodies the term “just transition” between the aspects of energy transition and energy justice (Carley & Konisky, 2020). The term, however, has been criticised as it alludes to a comparison of jobs in relation to the environment or climate change (McCauley & Heffron, 2018). However, McCauley and Heffron (2018) argue that it could unite climate, energy, and environmental justice, thereby providing a more thorough framework to analyse and promote fairness and equity in the shift away from the fossil fuels. The consideration of justice and inclusivity is critical to the distribution and benefits aspects of the energy transition (Carley & Konisky, 2020). Just transition embraces the importance of equity and justice in all processes that are geared towards energy transition. This involves ensuring that the benefits of the transition, such as the access to clean energy, the jobs created from the transition and improved environmental quality, are equally distributed whilst mitigating the climate change, challenges such as energy shortage and other social needs (Presidential Climate Commission, 2022).

McCauley and Heffron (2018) highlight two phenomena that identify the inequalities associated with energy transition: distributional and procedural justice. Haegele et al. (2022) define distributional justice as a principle to examine the origins of injustices when they emerge; while procedural justice examines the accessibility of decision-making processes and the level of engagement between the decision-makers and the other stakeholders, thereby emphasising the mobilisation of local knowledge, information disclosure and improved institutional representation. Haegele et al. (2022) also identify recognition-based justice, which considers which segments of society are overlooked or misrepresented in the decision-making process. By harnessing these principles around just transition, the just energy transition should build a more resilient and equitable society. This transition is not just about addressing climate change, but it is also about advancing people's lives for the better (Newell & Mulvaney, 2013). It is about creating a society where everyone has access to clean energy, jobs are created, the environment is improved, and the challenges of energy shortages and other social needs are mitigated (Newell & Mulvaney, 2013).

It is important to address both the social and environmental impacts that arise during the transition to determine whether it is just (Tladi et al., 2024). The energy sector is at the forefront of the root causes towards greenhouse emissions, yet the just outcome of the energy transition is under-explored (Heffron, 2022). For a transition to be just, it must create an environment that motivates businesses, employees, investors, communities, and consumers to champion and advance the shift towards ecologically sustainable and inclusive economies as well as societies (Just Transition Centre, 2017; Presidential Climate Commission, 2022). While there is widespread agreement on the just transition in South Africa, a unified policy framework encompassing vision, principles, and the interventions supported by all social partners has not yet been established (Presidential Climate Commission, 2022). Consequently, the various efforts by the social partners to address the transition are disjointed and lack coordination (Presidential Climate Commission, 2022). The Presidential Climate Commission (2022) has since formulated a Just Transition framework intended for all the social partners in South Africa, spanning every sector. The framework does not directly address climate mitigation and adaptation policies (Presidential Climate Commission, 2022). Instead, it concentrates on managing the social and economic impacts of these policies, with a central focus on the human development concerns in decision-making

(Presidential Climate Commission, 2022). Its aim is to foster communication and dialogue among all the stakeholders impacted and affected by the initiatives.

2.3 Stakeholder Theory

Recognising the stakeholders in stakeholder engagement is pivotal to understanding and appreciating the stakeholder theory (Mahajan et al., 2023). Harrison et al. (2019) define the stakeholders as a make-up of groups or individuals with interests in the undertakings and intentions towards the outcome of an organisation. The stakeholders may directly or indirectly influence an organisation (Mahajan et al., 2023). Harrison et al. (2019) highlight that the interest between the stakeholders is not necessarily mutual. This sometimes is the cause of tension between the different stakeholders if not managed well. This then gives rise to the stakeholder theory. The stakeholder theory is commonly used in business to institute ethical behaviour and within the management of organisations (Schaltegger et al., 2019). The theory's origin dates back to the 1960s at the Stanford Research Institute (Freeman, 1984). The stakeholder theory thrives from the assertion that organisations that look after their stakeholders are likely to thrive and create value (Freeman et al., 2004).

The legitimacy of the merits of the stakeholders in an organisation might not be universally defined, but the stakeholders who hold important resources and power might have more influence than those who do not have these resources and power. However, Harrison et al. (2019) recognise that those who might not have power might be important in situations requiring urgent intervention or change. Hence, a distinction can be made between the primary and secondary stakeholders. Fairness is pivotal in determining which stakeholders should be the primary recipients (Harrison et al., 2019). The primary stakeholders have been associated with those at an organisation's core, such as the employees, the suppliers, the customers, and the host communities. The secondary stakeholders, such as the government, media, non-governmental groups, and competitors, can influence an organisation even though they are not part of the core business (Harrison et al., 2019). Freeman et al. (2020) acknowledge that ethics, values, and norms play a critical role in the stakeholder theory. To the latter, principles are ideal and necessary when engaging the stakeholders.

The stakeholder theory advocates for equal footing within an organisation from a moral standing and ethical connotations. However, it does not argue that all the

stakeholders are equal in an organisation (Harrison et al., 2019). Fairness could suggest that more weight be allocated to those close to the core of an organisation and contributing to the value creation of the business (Freeman et al., 2004). Therefore, it is paramount to recognise that stakeholder treatment is vital for any organisation to thrive. The literature might not have a common understanding or definition towards that treatment, but ethical thinking should dictate the moral ground to define that treatment. The inclusion of ethical behaviour within the stakeholder theory is essential as business and ethics cannot be divorced in their practicality in real life (Schaltegger et al., 2019). The literature on the stakeholder theory has been on the justification of the stakeholder viewpoint with economic justification associated with it. However, it is recognised that there is an opportunity to revisit the capitalist element of value creation for the intended stakeholders while identifying the best stakeholder engagement approaches (Freeman et al., 2020).

2.4 Stakeholder Theory and Actor-Network Theory

Vallecha and Bhola (2019) define the Actor-Network Theory (ANT) as a widely used social approach for analysing the impact of surrounding human and non-human factors on a particular system. It is, therefore, worth acknowledging that the stakeholders are made up of different actors. Marcon Nora et al. (2023) recognise that there are multiple actors with different and conflicting interests during energy transition. The authors illustrate the link between the stakeholder theory and the ANT, which highlights the engagement of the different stakeholders during the energy transition. The ANT offers diverse interpretations of project complexity by considering not only the evolving human relationships within the project but also the numerous interactions involving the non-human elements (Sage et al., 2011). Marcon Nora et al. (2023) state that the different actors with different interests must be recognised during the implementation of the energy transition and that not all the actors must be regarded as stakeholders. The ANT, in essence, rallies for the recognition of different players with different roles and activities.

Marcon Nora et al. (2023) highlight that the stakeholder theory rallies behind human participants, and the ANT recognises both human and non-human actors, which is important to note during the energy transition. Aka (2019) further recognises the importance of the actor-network theory in sustainability innovation and that the sustainability innovation in question must be technically sound and socially acceptable for it to succeed. It is also crucial, as Child and Marcoux (1999)

highlight, that the stakeholder representatives might sometimes not necessarily act in the best interest of the stakeholder group, which could be the case in implementing the sustainable innovations. Missonier and Loufrani (2014) also suggest that recognising the actor-network theory in projects does improve stakeholder engagement in that the relations are channelled appropriately. The approach demonstrates the nature of the relationships between the different actors and the role each one plays. According to Missonier and Loufrani (2014), the stakeholder relations co-evolve throughout the trajectory of the project and understanding those relations throughout the journey is key for stakeholder engagement in driving the initiatives and projects.

It is apparent that both the stakeholder theory and the actor-network theory provide valuable frameworks for stakeholder participation, a key driver in the energy transition. The stakeholder theory emphasises the importance of involving all the relevant stakeholders, including but not limited to the businesses, governments, communities and individuals, in the decision-making processes to ensure that diverse interests and concerns are addressed (Mahajan et al., 2023). Similarly, the ANT extends its engagement by recognising the interconnected roles of both human and non-human actors, such as technologies, regulations and environmental factors (Marcon Nora et al., 2023). By integrating these theories, a comprehensive understanding of the complex dynamics at play in the energy transition can be achieved.

2.5 Stakeholder Theory and Value Creation

Freeman et al. (2004) define stakeholder theory as the inherent sense the managers have to create value for an organisation and to bring alignment to its core stakeholders. Freeman et al. (2021) further highlight the importance of the managers paying attention to how their stakeholders are treated in an attempt to avoid a trade-off scenario between the stakeholders. Freudenreich et al. (2020) do recognise that the business models are designed to create value for their shareholders. The shareholders are essential, but according to Freeman et al. (2021), their interests should not be prioritised over those of the other stakeholders. This is if the stakeholder theory is to be upheld within the organisations. However, Freudenreich et al. (2020) note that recently, companies have been on the quest to extend their business models towards the other value-added creations, which underpins bringing the sustainability components into their business models.

Freudenreich et al. (2020) developed a stakeholder value creation framework to align the stakeholder theory and value creation to outline the relationship between the organisations and the stakeholders as a bonding tool for the business models. Harrison et al. (2019) recognise that value is created within an organisation when it provides benefits to the different stakeholders. Attanasio et al. (2022) have identified the need for the different stakeholders' contributions to the value flow of the business models geared for sustainability within an organisation. Attanasio et al. (2022) further recognise the importance of the stakeholder value flow as the significant aspect of the relationship between the stakeholders and its significance in stakeholder engagement for the sustainability processes. It is clear from the literature that the stakeholder theory and value creation are closely related as they both advocate for stakeholder engagement, more so in the context of the study of energy transition. Value creation compliments the stakeholder theory by focusing on how these engagements can generate mutual benefits and long-term value for all the stakeholders (Freeman et al., 2004). By integrating the stakeholder theory and value creation, a collaborative environment can be cultivated where the stakeholders are not only heard but they are also active participants.

2.6 Stakeholder Engagement

Stakeholder engagement is a concept that is often referred to within the organisations. Okazaki et al. (2021) define stakeholder engagement as a practice that is often adopted by organisations to carry out activities with a positive approach. Kujala et al. (2022) refer to the moral undertone of the concept as applied within organisations, which is that the organisation's intent towards stakeholder engagement is for the good of all the stakeholders and that the relationship between the parties involved is voluntary. According to Kujala et al. (2022), stakeholder engagement has three components: moral, strategic and pragmatic. The moral aspect speaks to humanity, the strategic component refers to realising the decisions taken, and the pragmatic aspect speaks to the communication and collaboration between the stakeholders (Kujala et al., 2022). According to Kujala et al. (2022), the essence of stakeholder engagement recognises moral conduct to encourage inclusivity, the strategic components to align economic advantages to address the need for all parties involved and the pragmatic components to come up with practical solutions to improve people's lives.

Kujala et al. (2022) also recognise the negative side of stakeholder engagement, which stems from the stakeholders having conflicting views on the intent and outcome of the purpose. This negative side is not so much highlighted in the literature, yet it can be a casing point for the success of an initiative or project. Furthermore, Funder et al. (2021) highlight a need for insights into the identification of opportunities and constraints that may shape the community engagements during the energy transition. This is based on the premise that the role of engagement from the community perspective is not well defined. Mitchell et al. (2022) further allude in their research that stakeholder engagement can be used as a vessel to reduce the knowledge problems between the managers and the stakeholders, thus creating grounds for ethically resolving issues. Mitchell et al. (2022) have conceptualised the term knowledge problem to assert the aspects of uncertainty that may come about in an organisation. These knowledge problems bring about unique issues for both the managers and stakeholders, thus highlighting a need for engagement (Mitchell et al., 2022). The latter can be said to refer to the change brought about by energy transition within an organisation.

2.6.1 Role of Stakeholder Engagement

The stakeholder theory clearly shows that stakeholder engagement plays a pivotal role in fostering inclusive and effective decision-making processes across various sectors. It also underpins the importance of the two components: engaging with stakeholders and engaging the stakeholders themselves (Civera et al., 2019). The role of stakeholder engagement requires the organisations to engage with their stakeholders in the quest to find out their interests and expectations for the benefit of value creation for all the concerned stakeholders (Civera et al., 2019). Furthermore, engaging stakeholders should be visible and it must be felt, with each stakeholder feeling valued and being part of the decision-making process (Civera et al., 2019). The role of stakeholder engagement, therefore, creates relations that aim for collaboration and a sense of belonging without dominance and without one stakeholder overpowering the other (Civera & Freeman, 2019).

The collaborative approach enhances the transparency and legitimacy of decisions, as well as promoting accountability, and builds trust among the different stakeholders (Civera & Freeman, 2019). The role of stakeholder engagement goes beyond the desire for the organisations to get buy-in. As Civera and Freeman (2019) state, the focus should be on identifying the processes that benefit all the

stakeholders. The stakeholders' rights and responsibilities, if the stakeholder theory indeed is to hold, should be visible and go beyond the tick box exercise of mere sanctification but necessitate long-term, meaningful interests and relations (Manetti, 2011). The role of stakeholder engagement can further be used as a tool to alter the behaviours and shift mindsets to align with the new business ventures and models by the organisations (Salvioni & Almici, 2020). At the core of adopting the sustainability initiatives and projects is the role of stakeholder engagement (Salvioni & Almici, 2020). The stakeholders do not just want to be told and dictated to by the organisation, but they want their concerns to be listened to and addressed. This culture shift creates welcoming conditions for the adoption of sustainability initiatives that allow economic, environmental and social dimensions (Salvioni & Almici, 2020). Ultimately, the role of stakeholder engagement is essential in driving initiatives within an organisation, thereby allowing the organisations to remain responsive to the stakeholders' needs and evolving conditions.

The role of stakeholder engagement is an important channel to communicate and drive consultation processes that underpin successful organisational initiatives (Herremans et al., 2016). Effective communication ensures that the stakeholders are well-informed about the project’s objectives, progress and potential impacts (Bucata & Rizescu, 2017). Consulting and engaging stakeholders allows for the inclusion of diverse perspectives and expertise, thus leading to more comprehensive decision-making that values the opinions of all the stakeholders (Herremans et al., 2016). Showing empathy towards the stakeholder’s concerns and aspirations not only helps to build strong relationships but it also helps to maintain trust. By understanding and addressing the stakeholders’ needs, the organisations can manage expectations, reduce resistance and gain essential buy-in and support (Haroon & Malik, 2018). This, in turn, enhances the likelihood of project success and long-term sustainability.

Moreover, stakeholder engagement plays a key role in risk management and plan execution (Attanasio et al., 2022). By involving the stakeholders early on and throughout the project lifecycle, the organisations can identify and mitigate the risks that might be apparent immediately (Salvioni & Almici, 2020). The engaged stakeholders are more likely to support and champion initiatives, which is crucial for managing and enabling projects (Civera et al., 2019). Providing regular feedback to the stakeholders keeps them informed and involved, thereby ensuring that their

needs and concerns are addressed timeously (Herremans et al., 2016). This iterative process not only satisfies the stakeholders but it also fosters a culture of continuous improvement. Ultimately, the role of stakeholder engagement, if utilised properly, could be a driving force in managing risks, achieving project goals and sustaining positive relationships (Salvioni & Almici, 2020).

2.6.2 Benefits of Stakeholder Engagement

Engaging the stakeholders brings numerous benefits to governance and real stakeholders alike. The impacts of stakeholder engagement are perceived to be more positive than negative. They typically empower, enhance competitive advantage, and improve the social well-being of the participating and affected stakeholders (Kujala et al., 2022). The literature advocates for stakeholder engagement to promote a sense of ownership and accountability among the involved parties, with an intent leading to greater commitment to the success of projects and initiatives (Civera & Freeman, 2019). When the stakeholders are actively involved in the planning and execution stages, they are more likely to support and champion the outcomes, thus reducing resistance and enhancing the likelihood of achieving the objectives (Tladi et al., 2024).

Additionally, stakeholder engagement can lead to the identification and leveraging of local knowledge and resources, which can improve the relevance and effectiveness of interventions (Mzembe, 2016). By creating a collaborative environment, the organisations can foster innovation and adaptability as the stakeholders contribute diverse ideas and expertise (Civera & Freeman, 2019). This collaborative approach also enhances conflict resolution, as the open communication channels allow for the timely addressing of concerns and grievances (Civera & Freeman, 2019). Ultimately, the benefits of stakeholder engagement extend beyond the immediate project goals, which promote long-term partnerships and contribute to the overall benefit and resilience of the organisation and the stakeholders (Freeman et al., 2021).

2.6.3 Risks of Poor Stakeholder Engagement

The way the stakeholders are treated is key to the stakeholder theory, let alone how they are engaged (Harrison et al., 2019). The organisations, for the longest time, have viewed the stakeholders as passive entities, by engaging them only when the needs arise. According to Manetti (2011), the stakeholders are important groups or individuals who, through various channels and initiatives, want to engage

proactively. They want to engage the organisations on matters that they feel will raise business awareness about social, economic and environmental issues to each stakeholder group (Manetti, 2011). According to Dmytriyev et al. (2021), people cannot be considered as stakeholders solely because they face problems. However, the moral connotation of the stakeholder theory should be upheld to infer the level of engagement.

Insufficient stakeholder engagement can lead to a range of negative consequences for the organisations and stakeholders. Stakeholder engagement that does not consider the strategic benefits can be detrimental from a license-to-operate perspective for the organisations (Herremans et al., 2016). It is of this view that without adequate involvement, the stakeholders may feel ignored or undervalued, thereby resulting in diminished trust and damaged relationships. This lack of trust is likely to escalate into active resistance or opposition to projects, thus causing delays, increased costs, and potential project failures (Dmytriyev et al., 2021). Furthermore, the decisions taken without effectively engaging the stakeholders are likely to overlook critical knowledge that, if known prior, would have assisted in leading to practical solutions and to the added advantage of the project. Civera and Freeman (2019) underscore the importance of the collaboration between the different stakeholders. Collaboration acts as a deterrent for poor stakeholder engagement, making each stakeholder feel included and part of a larger community. Additionally, poor stakeholder engagement could result in missed opportunities, as diverse perspectives and ideas may not be adequately considered. Ultimately, failing to engage effectively can undermine the overall success of the projects with a severe impact on the organisation and the broader community it aims to serve.

2.6.4 Stakeholder Engagement Implications for Mining

Stakeholder engagement has significant implications for the mining industry, thus influencing operational success, sustainability and community relations. Innovation and modernisation have arguably been seen as effective tools for the mining companies to mine sustainably to improve people's lives while responding to a call to mitigate climate change (Chipangamate et al., 2023). Effective engagement ensures that the concerns and needs of the local communities, environmental groups, government bodies, and the other stakeholders are acknowledged and addressed, thereby encouraging trust and cooperation (Tladi et al., 2024). This

collaborative approach can help the mining companies to anticipate and mitigate potential conflicts, streamline regulatory approvals, and enhance their social license to operate (Rodrigues et al., 2022).

Ultimately, robust stakeholder engagement is essential for achieving long-term operational stability, improving reputation, and for ensuring that the mining activities contribute positively to the broader community and environment. However, the stakeholders with reference to the communities that have no history or had bad previous relations are likely to resist new initiatives (Moomen & Dewan, 2017). According to Moomen and Dewan (2017), resistance could be driven by perception, uncertainty, and the lack of knowledge. Additionally, stakeholder engagement promotes transparency and accountability, thus encouraging responsible mining practices that minimise environmental impact and prioritise social well-being (Matikainen, 2020). By involving the stakeholders in decision-making processes, the mining companies can also benefit from diverse perspectives and local knowledge, which leads to more innovative and effective solutions for the success of projects (Moomen & Dewan, 2017).

2.6.5 Stakeholder Mapping to Enable Improved Stakeholder Engagement

Herremans et al. (2016) recognise that organisations form various relationships with different stakeholders who, in turn, use their discretion to assess the likelihood of maintaining those relationships long-term. Okazaki et al. (2021) highlight the importance of mapping an organisation's stakeholders to define effective paths for stakeholder engagement. Furthermore, Walker et al. (2008) indicate that the identification of power, influence and interest that the stakeholders hold can lead to a better understanding of the type and level of engagement to be adopted for the different stakeholders. It is the view then from literature that stakeholder mapping can be defined as a strategic process that involves identifying and categorising individuals, groups, or organisations that have an interest in or are affected by the outcome of the project or initiative.

In essence, by systematically analysing the stakeholders based on their influence, interest, and impact, the organisations can prioritise the engagement efforts and tailor communication strategies to address specific needs and concerns (Walker et al., 2008). This comprehensive understanding promotes more effective collaboration, mitigates potential conflicts, and enhances the support for the project. Ultimately, stakeholder mapping ensures that all the relevant parties are adequately

considered and involved, thus leading to more informed decision-making and successful project implementation (Chilvers et al., 2021). Mapping organisations may be key in facilitating the right level of engagement. The distinction between primary and secondary stakeholders comes about as a result (Herremans et al., 2016). According to Herremans et al. (2016), the primary stakeholders are those who hold the key to the survival of the project and are directly linked to the transaction; while the secondary stakeholders are those who may be affected or influenced because of the transaction. The degree of relations between the different stakeholders and the organisation plays a significant role in the determination of the level of engagement.

2.7 Stakeholder Inclusivity

According to Slabbert (2016), stakeholder inclusivity requires the organisations to give the stakeholders an opportunity to be heard, with stakeholder engagement at the core of stakeholder inclusivity. Stakeholder inclusivity, essentially, involves a wide range of stakeholders actively in the decision-making process of an organisation's projects. For the organisations to uphold fairness, Slabbert (2016) suggests that they should encourage and accommodate the stakeholders, whether they be employees or communities, to be part of and to be active participants in the decision-making process within the organisational initiatives. It is the view of Goodson et al. (2022) that, in reality, not all the views of all the stakeholders could be represented in the decision-making process. However, it is possible to acknowledge and hear the views of all the represented stakeholders.

By ensuring that different voices from different backgrounds, perspectives and levels of influence are heard and considered, stakeholder inclusivity encourages a more comprehensive and balanced approach to addressing challenges and opportunities (Slabbert, 2016; Goodson et al., 2022). Campos et al. (2022) highlight the concern of the stakeholders within the context of energy transition on the level of inclusivity, transparency, and participation in becoming valuable contributors. Stakeholder inclusivity in the organisation's initiatives can not only enhance the quality of decisions by incorporating various insights but also builds trust and strengthens the relationships among the stakeholders (Campos et al., 2022).

Furthermore, stakeholder inclusivity is essential in harnessing the importance of the different stakeholders in the decision-making process. By actively involving a diverse range of stakeholders, the organisations can ensure that various

perspectives and interests are considered (Slabbert, 2016). This inclusivity not only enhances the richness of insights and ideas but also promotes equity and fairness, as all voices are heard and valued (Civera et al., 2019). Inclusive stakeholder engagement can further help in identifying potential challenges and opportunities that might be overlooked in a more isolated approach, thus leading to more robust and effective strategies (Civera & Freeman, 2019). Moreover, it builds stronger relationships and trust, as the stakeholders feel respected and as if they are integral to the organisation's success (Civera et al., 2019).

2.8 Analysis and Summary

In conclusion, the analysis and summary of the existing literature on the role of stakeholder engagement in the energy transition towards a more inclusive energy transition revealed a nuanced understanding of the following key elements: energy transition, stakeholder theory, actor-network theory, stakeholder engagement and stakeholder inclusivity in the field of study. This review has identified significant contributions and foundational theories while also highlighting the gaps and areas for further exploration. The insights gained from this literature review provided a solid foundation for the empirical investigation, thus guiding the research questions, the methodology and the analysis that followed. The key elements with associated findings and relevancy to the study are outlined below, driving the research questions for the study (Table 1).

Table 1: Literature Review Summary

Key Element	Reference	Main Findings/Concepts	Relevance to Study
Energy transition	Marcon Nora et al. (2023)	Energy transition involves multiple actors with different interests; the integration of stakeholder theory and the actor-network theory is necessary.	Provides a theoretical framework for understanding complex relationships during the energy transition.
	Schaltegger et al. (2019)	The business case for sustainability recognises the importance of value creation for all the stakeholders.	Highlights the need to incorporate sustainability into the business models relevant to energy transition.
	McCauley & Heffron (2018)	Just transition ensures that the benefits and burdens of transitioning to sustainable energy are distributed fairly among all the stakeholders.	Provides a lens to evaluate the fairness and equity of the energy transition policies and practices.
Stakeholder theory	Freeman et al. (2020)	Creating value for all the stakeholders requires understanding the connections and political processes within the organisations.	Provides a theoretical basis for analysing stakeholder interactions and their impact on value creation.
	Kujala et al. (2022)	Identifies impediments to stakeholder engagement, including the negative aspects.	Helps to identify the challenges in stakeholder engagement during the energy transition.
Actor-Network Theory (ANT)	Vallecha and Bhola (2019)	ANT is a social approach used to analyse the impact of surrounding human and non-human factors on a particular system. The stakeholders are made up of different actors.	It highlights the necessity of including both human and non-human factors in the analysis and decision-making processes of the energy transition, ensuring a comprehensive understanding of the influences at play.
	Marcon Nora et al. (2023)	Recognition of different actors. During the energy transition, different actors with different interests must be recognised, and not all the actors must be regarded as stakeholders.	Emphasises the importance of identifying various actors beyond traditional stakeholders, thus ensuring a holistic approach to the energy transition that considers all the relevant participants.

Stakeholder engagement	Attanasio et al. (2022)	Outlines the stakeholder value flow within the business models geared towards the sustainability solutions.	Useful for mapping stakeholder engagement processes in the mining industry.
	Schaltegger et al. (2019)	Measuring value creation for all stakeholders is a challenge in sustainability contexts.	Highlights the difficulty in assessing stakeholder engagement effectiveness in the energy transition.
Stakeholder inclusivity	Chilvers et al. (2021)	Defines mapping the participation and engagement of different stakeholders during energy transition.	Provides a method for analysing and improving stakeholder inclusivity in the energy transition process.
	Marcon Nora et al. (2023)	The relationships between different actors are crucial for sustainability solutions.	Emphasises the importance of inclusive engagement for successful energy transition initiatives.

CHAPTER 3: RESEARCH QUESTIONS

The urgency to address climate change is at its all-time high, requiring a rapid shift towards alternative, cleaner energy sources. The mining industry, with its substantial energy needs and one of the industries with high greenhouse gas emissions, stands in a better position to pivot to energy transition. However, given the history of transitioning to other innovative initiatives, the energy transition's success in the mining industries hinges on the effectiveness of stakeholder engagement. It is widely acknowledged that stakeholder engagement is the cornerstone of every organisation. However, its role in the energy transition initiatives within the mining sector remained inadequately understood. Marcon Nora et al. (2023) highlight that energy transition involves multiple actors with different interests, hence the need to incorporate stakeholder theory with the actor-network theory. The relations of the different actors are pivotal to the understanding of stakeholder engagement during the energy transition.

The literature on stakeholder theory and stakeholder engagement was reviewed within the context of implementing sustainable innovations. Schaltergger et al. (2019) highlight that the business case for sustainability should recognise the importance of value creation for all the stakeholders seeking to address a sustainability issue. Attanasio et al. (2022) have outlined the stakeholder value flow, which can be incorporated within the business models for the value creation geared towards the sustainability solutions. The challenge acknowledged would be measuring the value creation for all the stakeholders that are involved in the sustainability context (Schaltergger et al., 2019). The challenge stems from the lack of understanding of the role of different stakeholders in sustainable innovations.

The primary objective of this study was to understand the role of stakeholder engagement in facilitating energy transition within the mining industry towards a more inclusive and just transition. By exploring the implications, the challenges and the opportunities associated with stakeholder engagement during the energy transition, the research wanted to provide insights that can inform effective ways to encourage meaningful engagement and collaboration amongst the different stakeholders. Also, the study sought to identify the gaps in the current understanding of stakeholder engagement and the roles of various actors involved in the energy transition process within the mining sector. This involved a thorough examination of the existing literature on energy transition, stakeholder theory, actor-

network theory and stakeholder engagement, thus focusing on the interplay between these concepts and their relevance to the energy transition.

To achieve these objectives, the research addressed the main question through three sub-questions. The main question examined the role of stakeholder engagement in the energy transition towards a more inclusive process, with the first and second sub-questions focusing on the constraints affecting stakeholder engagement in the mining industry and the relationships between the different actors and stakeholders during the energy transition. The third sub-question explored the potential of stakeholder mapping to improve engagement and inclusivity during energy transition. By analysing the participation, the impact and the influence of various stakeholders, the study aimed to ultimately develop a framework for better stakeholder engagement and inclusivity in the mining industry. This comprehensive approach contributed to a deeper understanding of how to effectively engage the stakeholders in the energy transition and create value for all the parties involved.

This then led to the following research questions:

Research question: What should the role of stakeholder engagement be in the energy transition towards a more inclusive energy transition?

The three sub-questions that were used to answer the main research question were prompted by the literature review.

Research Sub-Question 1: What constraints affect the stakeholder engagements during energy transition in the mining industry?

Kujala et al. (2022) highlight the impediments that speak to the negative side of stakeholder engagement. This was integrated into the study to understand the negativity aspect fully. This is the other side of stakeholder engagement, which much of the literature had not thoroughly investigated. Freeman et al. (2020) recognise that creating value for all the stakeholders should, in part, investigate the connection between the stakeholders and the other actors. Freeman et al. (2020) pose a question: Are the current political processes within the organisations welcoming to facilitate value creation for all the stakeholders involved?

Research Sub-Question 2: What are the relations of the different actors and stakeholders during the energy transition in the mining industry?

Marcon Nora et al. (2023) highlight the need to understand the relationship between the different actors and stakeholders during the energy transition. The relationships which most pieces of literature had not fully understood for sustainability initiatives.

Research Sub-Question 3: Can stakeholder mapping be used to enable, and benefit improved stakeholder engagement in energy transition?

Chilvers et al. (2021) define mapping as the participation and engagement of different stakeholders during energy transition into who participates, what they participate in, and how they participate. The mapping for the study, looked into the interest, the impact, as well as the influence of the participants, and it sought to clarify the intent of participation and define the level of engagement during energy transition within the mining context. This, in essence, could provide the mining houses with better groupings of stakeholders for better engagement and inclusivity.

In conclusion, this chapter laid the foundation for understanding the role of stakeholder engagement in the energy transition within the mining industry, framed around the central research question: *What should the role of stakeholder engagement be in the energy transition towards a more inclusive process?* The sub-questions guiding this research examined the constraints on stakeholder engagement, the relationships between different actors and stakeholders, and the potential of stakeholder mapping to provide a structured approach to addressing the main question (Appendix 1).

The research sub-questions explored how factors such as stakeholder dynamics, actor relationships, and stakeholder mapping contribute to or hinder a more inclusive energy transition. By addressing these sub-questions, the study aimed to uncover the insights that could lead to more effective strategies for engaging stakeholders, ultimately contributing to a just and sustainable energy transition in the mining sector.

CHAPTER 4: RESEARCH METHODOLOGY

4.1 Introduction

The research methodology chapter outlined the systematic approach to investigate the role of the stakeholders in the energy transition towards a more inclusive energy transition. This chapter provided a detailed explanation of the research design, the data collection methods, and the analytical techniques used to achieve the study's objectives. The chosen methodology was justified based on its suitability to address the research question and objectives, thereby ensuring that the findings are robust and reliable. In addition, this chapter discussed the ethical considerations and the limitations that are inherent in the research process, thus providing a comprehensive approach for subsequent analysis and discussion.

The research questions comprehensively sought to understand the role of stakeholder engagement in the energy transition towards a more inclusive energy transition. The studies on stakeholder engagement within the sustainability innovations follow a qualitative approach, as this stems from the premise that stakeholder engagement was following a new area of research within the sustainability perspective (Kujala et al., 2022). Kujala et al. (2022) also deduced from the research on stakeholder engagement from different articles the lack of inclusion of the negative side of stakeholder engagement and its incorporated view on stakeholder engagement. This was amongst some new phenomena relevant within the study context that warrant the understanding and deep insights as part of the research questions. Addressing such gaps was essential for developing a more holistic view of stakeholder engagement. This study intended to incorporate these underexplored dimensions, thereby providing a more nuanced understanding of how stakeholder engagement can either facilitate or hinder the energy transition process within the mining industry. A qualitative approach was utilised to understand the underpinning role of stakeholder engagement in energy transition within the mining industry context in South Africa towards enabling a more inclusive energy transition.

4.2 Choice of Research Methodology and Design

A qualitative research methodology design was suitable as it was adopted to explore the role of stakeholder engagement during the energy transition. The complexities around the role of stakeholder engagement and the in-depth level of

relations between the different stakeholders during the energy transition within the mining industry were not fully understood; hence, qualitative research methodology was best suited for this research (Marais et al., 2018). The researcher has recognised through the literature review that different components of stakeholder engagement must be understood through the interrogation of just energy transition, stakeholder engagement, stakeholder theory, actor-network theory, and value creation within the context of mining. The stakeholder theory provides a lens through which to analyse the interests and relationships of the different stakeholders (Harrison et al., 2019), while the ANT helps to explain the interactions and connections between the various actors involved in the energy transition within the mining industry (Marcon Nora et al., 2023). Organisations have business models focused on creating value for their stakeholders; however, embracing sustainability in the business models is crucial in modern times (Freudenreich et al., 2020). The research carried out an exploratory qualitative study to understand the role of stakeholder engagement in the implementation of energy transition and how it can be improved for a more inclusive energy transition. The study was suited for exploratory study as it intended to find valuable insights and wished for clarity to understand the role of stakeholder engagement during energy transition (Saunders et al., 2009).

4.2.1 Qualitative Research Philosophy

Qualitative research through the interpretivism philosophy was ideal for this study. The social and political reality of a given time and circumstance may shape an individual's perspective (Saunders et al., 2009). The social aspect aimed to understand the stakeholders' different views, the lived experiences and the interactions during the implementation of the energy transition, which was crucial in answering the research questions. The reality and experiences were subjective and varied from stakeholder to stakeholder. The selected approach was inductive, thus imposing the reflective reasoning formulated in the existing theories and literature (Bucher, 2021). The researcher believes this approach was ideal for gathering insights on the subject matter and exploring the research topic in depth.

4.2.2 Qualitative Research Strategy

To address the posed research questions, a phenomenology strategy was used through the conducting of interviews, as it was suggested that it was the most common strategy for data collection for qualitative research (DiCicco-Bloom &

Crabtree, 2006). According to Merriam (2002), phenomenological study focuses on the importance and the makeup of the experience. The researcher made use of semi-structured interviews to gain more insights into the topic (Saunders & Lewis, 2018). The semi-structured interviews allowed for the researcher to seek deeper insights and views during the interview. The research was conducted within a cross-sectional time of the research period. The researcher only collected data at one point in time during the research due to the duration of the research, which would be a snapshot at a particular time (Saunders et al., 2009).

4.3 Population

Saunders and Lewis (2018) describe the population as a set of group members who are not likely always to be available. As the researcher did not have access to the whole population due to the time limitations of this study, including the fact that it was not feasible to collect data from the whole population, sample data was used. This research was based on sample data, which was from a sub-group of the whole population (Saunders & Lewis, 2018). The sample data used in this research have a wealth of knowledge in energy transition.

The energy transition is an essential yet complicated concept. Its makeup comprises different stakeholders playing different roles. Some are key stakeholders, while others are sometimes omitted from the conversation. The South African energy transition conversation towards an alternative energy mix is taking shape. In the mining industry context, the energy transition entanglement must recognise multiple stakeholders: mining corporations, labour unions, host communities, environmental organisations, and the government.

Thus, the population for this study was the participants who had some key involvement during the energy transition in the mining industry, hence the need for stakeholder engagement. This population included multifaceted stakeholders, encompassing the individuals directly or indirectly affected or involved in the energy transition initiatives. The qualitative research method delved into the different stakeholders' perceptions, experiences, and perspectives regarding their engagement in the energy transition journey in the mining industry. This study essentially included a population consisting of the individuals whose insights and experiences were crucial in understanding the role of stakeholder engagement within a specific mining context where JET is of focus.

4.4 Unit of Analysis

The unit of analysis is an integral part of the research methodology. The unit of analysis comprised of the individuals involved in energy transition initiatives within a specific mining context where JET has been of focus. Each stakeholder, be it government entities, corporations, environmental organisations, labour unions, and host communities, constituted a unit of analysis. The unit of analysis provided an understanding of the viewpoints, and the contributions of the different stakeholders involved in the energy transition initiatives and their implementation within the mining industry. Information-rich participants were selected, and they included: a JET senior manager, representatives of the mine labour unions, environmental managers on the mine, stakeholder relations managers, and host community representatives. The participants also included government and regulator representatives and the relevant environmental organisations. This defined the unit analysis for this research.

4.5 Sampling Method and Sample Size

Sampling is selecting a sample within a population, with characters representing the population (Obilor, 2023). The study adopted a purposive sampling method, which is a non-probability sampling technique. Qualitative research often adopts this technique to gain insights into a specific subject matter (Obilor, 2023; Collingridge & Gantt, 2019). The researcher selected stakeholders who are essential in providing the insights required for the role stakeholder engagement plays during the energy transition. The knowledge and experiences were critical in providing the insights into the engagements during the energy transition. The identified stakeholders have the knowledge and lived experiences in energy transition, varying in the degree of their know-how and impact on decision-making. Sim et al. (2018) recognise that the determination of the sampling size priori is complex and problematic in a study geared for inductive and exploratory research. Whatever size is decided upon, it should be adaptive in line with the participants reaching saturation (Sim et al., 2018). A decision on the sampling size was guided by which paradigm the research was being conducted. The researcher opted for a qualitative research methodology with an interpretivism paradigm.

A guided sample of 14 participants, with one or two individuals from each stakeholder segment, were interviewed to answer the research questions. The

sample was from within a specific mining context where energy transition has been of focus, as illustrated in Table 2.

Table 2: Table of Stakeholders

Government and government nominated power producer	Mine	Community
Minerals and energy government representative (rep) (1)	JET senior manager (1)	Community members (2)
Power producer representative (1)	Trade union members (2)	Community leader (1)
Presidential Climate Commission rep (1)	Mine stakeholder relations managers (2)	Environmental company rep (1)
	Mine environmental managers (2)	

4.6 Measurement and Data Collection Tool

The measurement tool was administered through the interviews with the identified stakeholders within a specific mining context. This was a systematic means of collecting empirical data to address the research question and the objectives of the study. Semi-structured interviews were conducted, and according to DiCicco-Bloom and Crabtree (2006), this is the most widely used interviewing format for qualitative research. The interviews allowed the respondents to express nuanced viewpoints, as well as elaborate on their experiences, and offer qualitative insights towards their perceptions of stakeholder engagement during the energy transition. The choice of measurement tool encouraged the respondents to provide explanations, examples, and suggestions related to the stakeholder engagement dynamics during the energy transition.

The research is grounded in a qualitative study utilising semi-structured interviews. Data collection was done using an interview questionnaire (Appendix 4) that the researcher drafted. This guide was developed and aligned with the literature review

to address the research questions. It was used to ensure consistency and reliability throughout the interview process.

4.7 Data Gathering Process and Collection Tool

According to DiCicco-Bloom and Crabtree (2006), selecting participants for in-depth interviews is done carefully, by aiming to maximise the insights from the participants to answer the research questions. An identified government energy power producer stakeholder was interviewed, and a senior manager from the Minerals and Energy Department was also interviewed. A representative from the Presidential Climate Commission was interviewed. A multi-commodity mining company with its headquarters in Gauteng was the identified corporation stakeholder, and relevant managers were identified for the interviews. The interviews with the labour unions from the mining company site were conducted, and an environmental organisation was identified for the interviews. A tribal council member and two community members from the local mine community were identified and interviewed. A total of 14 participants were interviewed.

The following steps were used as a guide for data collection: The interviews were conducted face-to-face or, where it was not possible, they were done online. The interviews were audio recorded and transcribed verbatim. The researcher also used written notes. The results from the interviews were analysed and synthesised for insights and admissibility. The interviews were adjusted as the need arose and as was deemed fit as new concepts and perspectives started to emerge and started coding results for commonality and trends. Before conducting the interviews, both the researcher and the participants signed the participant consent forms. A company consent form was signed to consent to the study within the company.

Appendix 4 provides the interview questions used to probe deeper into the topic. The company consent form was signed to obtain permission from the mining company involved in this study (Appendix 3). The participants also signed a consent form, which gave permission from the individual participants to participate in this study (Appendix 2).

4.8 Ethics, Validity, Reliability

Quality research takes time, and as such, it requires enormous effort. The inherent bias through the application of the research methodology was acknowledged. The triangulation phenomenon was applied to test the credibility and the validity of the quality of qualitative research. Triangulation can be viewed as an amalgamation of information from other sources to test the credibility and validity of qualitative research (Triangulation, 2014). Theory triangulation was utilised in the study to affirm the validity of the data. Theory frameworks such as the stakeholder theory and the actor-network theory were best suited for this study. Triangulation (2014) defines the theory type of triangulation as that which uses different theories to guide and help the researcher to support or challenge their findings. Turner and Turner (2009) highlight that by the use of triangulation and thus by the default of inclusion of other sources of data, bias is then mitigated.

Research can be contaminated by the researcher's bias (Saunders & Lewis, 2018), which, in this case, could be due to their background and experience in the mining industry. Thus, the use of triangulation as a principle of being able to corroborate and confirm the events, descriptions or facts that have been represented in the study (Yin, 2011). Using the stakeholder theory and the actor-network theory enhanced the credibility and validity of this qualitative research by cross-validating the findings from different perspectives and addressing the complexity of stakeholder engagement during the energy transition.

Before interviewing the respondents, the researcher obtained ethical clearance from the research ethics committee. After the committee approved the ethical clearance application, the researcher then collected the data. The objective of the ethical clearance is to ensure that the research is conducted appropriately and that both parties' rights are preserved throughout the process.

Every respondent was asked to participate in an interview and sign a consent form**,** which was received as proof of consent before the interview could commence. The interviews were administered in English since it is recognised as the business language in South Africa. Anonymity was maintained for all the participants and for the firms in the study, and all the respondents were assured of confidentiality, and they were advised that all the data that was collected during the interviews would be kept anonymous. Upon the completion of the interviews, data was stored without identifiers.

4.9 Data Analysis Approach

Castleberry and Nolen (2018) outline the data analysis in qualitative research in five steps: compiling, dissembling, reassembling, interpreting, and drawing a conclusion. DiCicco-Bloom and Crabtree (2006) note that the data analysis in qualitative research runs parallel with data collection, as understanding and perspectives are observed whilst in the process. The data transcription from the audio recordings allowed the reader to synthesise the data. Once the data was organised and compiled, the researcher then disassembled the data. Disassembling the data is coding or forming groupings of data (Castleberry & Nolen, 2018). This allowed the researcher to identify the patterns, trends, and the similarities to formulate a perspective from the participants. The researcher compiled the data obtained from the interviews into a usable format. The software programme Atlas.ti was used to facilitate and further streamline the data analysis. Post-data coding, the data was then reassembled as mapped concepts to form themes and sub-themes (Castleberry & Nolen, 2018). In essence, the themes are the tools that are designed to narrow qualitative data to inform logic, structure and patterns (Castleberry & Nolen, 2018). The researcher then interpreted the data deduced from the codes and themes to make an analysis and then drew a conclusion.

4.10 Research Limitations

The researcher biases were recognised as the experience in the mining industry likely did spike some worldview and personal views towards the research questions. To address this limitation, diverse stakeholders in the mining industry were interviewed. The time horizon was a limitation as the study was conducted within a cross-sectional time. The assumption was that the role of stakeholders might vary depending on the journey during the energy transition, which might not be fully understood within the provided time to conduct the research. The role of stakeholder engagement might change over time, and the views might also change. The researcher did not have the ability to revisit the views of the participants if and when they might have changed over time. Gender bias was also recognised as a limitation, more so by the community respondents. The cultural dynamics seem to recognise males more than females, and the leadership is predominately male. Hence, all the respondents from the community were males.

CHAPTER 5: RESULTS

5.1 Introduction

The results chapter presents the study's findings based on the data collected and these were analysed using the methodology outlined in Chapter 4. This chapter aims to systematically provide an overview of the sample, followed by the findings based on the research question and the sub-questions, and the chapter concludes with a summary. To provide a clear and structured overview of the findings, the following sections present the codes, the subthemes, and the themes that emerged from the data analysis and the interpretation of the results to directly address the research questions, thus ensuring a coherent flow that aligns with the study's objectives.

This research aimed to investigate the role of stakeholder engagement in facilitating support for the JET within the mining industry. This chapter presents the study's findings based on the empirical data from the interviews on the role of stakeholder engagement in the energy transition towards a more inclusive energy transition. Through detailed tables, figures, and descriptive narratives, this chapter provides a comprehensive overview of the gathered empirical evidence, laying the groundwork for the subsequent discussion and interpretation of these results in the context of the broader literature.

The following research questions guided the inquiry:

> **Research Question:** What should the role of stakeholder engagement be in the energy transition towards a more inclusive energy transition?
>
> The following three sub-questions were utilised to answer the main research question.
>
> *Research Sub-Question 1: What constraints affect the stakeholder engagements during the energy transition in the mining industry?*
>
> *Research Sub-Question 2: What are the relationships between the different actors and stakeholders during the energy transition in the mining industry?*
>
> *Research Sub-Question 3: Can stakeholder mapping be utilised to enable, and benefit improved stakeholder engagement in the energy transition?*

5.2 Overview of the Participants

5.2.1 Relevance of the Sample and Sample Adequacy

The sample relevance and the adequacy of the sample size are critical aspects of the credibility of the sample (Guetterman, 2015). The study comprised of 14 interviews with representatives from various stakeholders involved in the energy transition process, each bringing unique expertise and perspectives. The initial intent was to conduct 16 interviews. However, only 14 interviews could be conducted, with diverse stakeholders that were deemed to be sufficient for the study. This study brought together representatives from the government, the non-governmental organisations, the mining industry, and the community to explore their roles and contributions to the energy transition (Table 3). The first group of participants were the government and the government-nominated authorities (independent power producers). For any such transition in the energy sector, the government has a key role to play through policy and regulation. Highly experienced in the energy transition initiatives, the senior staff from the Department of Minerals and Energy (DMRE) and the Presidential Climate Commission were available to offer strategic guidance and inputs through their roles as key stakeholders in the transition. The senior personnel from the independent power producers offered perspective in ensuring that the transitioning is also in keeping with broader energy independence and sustainability objectives.

Table 3: Table of Participants

ID	Representative	Role	Experience
1	Community	Community member	Knowledgeable about sustainability and energy transition. Experienced in identifying community needs and interests.
2	Community	Community member	Knowledgeable about sustainability and energy transition. Experienced in identifying community needs and interests.
3	Community	Community leader	Knowledgeable about sustainability and energy transition. Experienced in tribal and community leadership.
4	Environmental NGO	Environmental and human rights	Advocate for just energy transition.
5	Mine	Environmental mine	At the helm of the energy transition decision-making process with knowledge and understanding of the energy transition.
6	Mine	Environmental mine	At the forefront of the decision-making process for the energy transition with comprehensive knowledge and understanding.
7	Government Minerals and Energy nominated representative	Minerals and energy government representatives	Senior personnel in the department with a vast amount of experience in energy transition.
8	Government and government nominated power producer	Power producer representative	Senior personnel with a vast amount of experience in energy transition. At the core of independent power producers.
9	Government	Presidential climate commission	Facilitates an enabling environment for just energy transition.
10	Mine	JET senior manager	Running the JET projects on the mine. Experienced in energy transition.
11	Mine	Stakeholder relations manager	Running sustainability projects in and around the mines. Experienced in energy transition.
12	Mine	Stakeholder relations	
13	Mine	Trade union Member	The leadership of the recognised unions, with vested interests and an understanding of the energy transition.
14	Mine	Trade union member	

The second group of participants were from the mining industry. In the mining space, a senior JET manager leads and delivers projects that bundle the energy transition initiatives within established mining operations. The trade union members, who have been selected among the workforce, bring a valuable perspective by identifying practical consequences to these transitions and assist in addressing the labour-related interests/concerns. These teams, working alongside the stakeholder relations managers experienced in implementing sustainability projects, connect the mining operations with the local communities to collaboratively address the sustainable needs. The environmental managers are thought leaders in the management and the decision of an energy transition, embedding environmental considerations at all levels. The third group of participants were the community. The community is crucial to a truly collective energy transition. The community members help to steer it, as they already know about sustainability and what the locals' needs are, wanting the transition to be more holistic. The community leaders with a proven track record of tribal leadership and community organisation are key in helping to bring the voice to the whole discussion. All but maintaining the balance between sustainable energy transition and consideration for disadvantaged groups, in this case, the environmental rights workers also formed part of the participants.

The adequacy of the sample must be based on the number of interviews, which must be in accordance with the study's design and saturation. The 14 interviews confirmed the adequacy of the sample size for a narrative design in this qualitative study, which is within the recommended five to 25 by Saunders et al. (2023). Saturation is a crucial measure of whether a sample is adequate for studying a certain phenomenon. It ensures that the collected data accurately reflects the examined subject’s range, depth, and nuances, thereby ensuring content validity (Rahimi & Khatooni, 2024). Data saturation was performed on 105 unique study codes using the approach proposed by Guest et al. (2020). The initial six interviews comprised of 59 unique codes and formed the base size. A total of three run lengths followed this. The first run length was for interviews seven to nine, with 25, comprising 42.4%, and the second one for interviews 10 to 12, with 12 comprising 20.3%. The last run length was for interviews 13 and 14, with five comprising 8.42% (Figure 1). Although it was slightly higher than the recommended 5% or less, it was deemed adequate for this study when considering the size of the interviews.

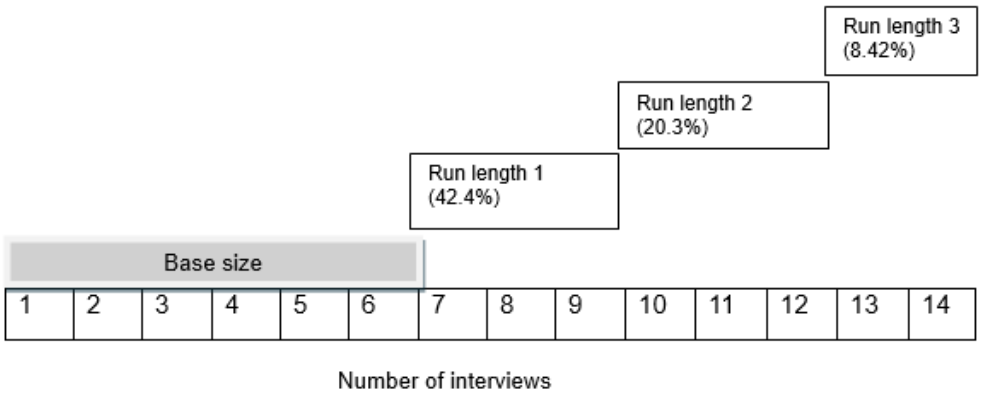

Figure 1: Baseline and Run Length for Saturation.

5.2.2 Relevance of Data

The word cloud was developed to assess the relevance of the empirical data and its alignment with the research questions. The keywords aligned with the study were evident, such as (just) transition, stakeholder, engagement, energy, and community (Figure 2).

Figure 2: Word Cloud for Empirical Data Relevance and its Alignment with the Research Questions.

5.3 The Role of Stakeholder Engagement in the Energy Transition

This section presents the findings focusing on the research question: *What should the role of stakeholder engagement be in the energy transition towards a more inclusive energy transition?* This question was analysed and answered at different levels, and it was also guided by the three sub-questions on how constraints affect stakeholder engagements, the relationships between different actors and stakeholders, and the role of stakeholder mapping as an enabler during the energy transition in the mining industry.

5.3.1 Current Roles and Contributions

The empirical data's findings highlighted several drivers of the energy transition, which provide a basis for understanding the roles and contributions of the stakeholders. These include regulatory and compliance pressure, economic and financial considerations, energy security and reliability, environmental and climate considerations, community impact and social responsibility, as well as information and communication (Table 4).

Table 4: Key Drivers of Energy Transition in the Mining Industry

Codes	Sub-themes	Themes
• Regulatory pressure • Government regulation	Regulatory and compliance pressure	Key drivers of energy transition in the mining industry
• Survival strategy • Energy costs • Shareholder and investor pressure • Economic risk	Economic and financial considerations	
• Energy security • Energy reliability • Eskom issues • Load shedding impact	Energy security and reliability	
• Climate change risks • Impact on production • Risk and opportunity understanding	Environmental and climate considerations	
• Community suffering • Forced transition	Community impact and social responsibility	
• Knowledge gap • Communication challenges	Information and communication	

These interconnected drivers have collectively shaped the industry's approach to energy consumption and environmental responsibility.

As a heavily regulated and embattled industry, mining is under pressure to move towards greener energy sources. A participant noted the Climate Change Act, which was passed recently. This act is likely to impose huge fines, including high taxation, if companies do not transition to other cleaner energy sources. This is likely to negatively impact many mining companies. One participant highlighted the heavy hand of government regulation and laws that have a major impact on the industry.

> *"The reaction to be involved in energy transition is the strategy for survival, because those regulations…might stifle your business and even your growth" [Participant 10].*
>
> *"There is a lot of pressure from government" [Participant 5].*

This finding suggests that energy transition is not a simple function of environmental pressure or company culture, but it becomes driven by the imperative to operate under increasingly demanding legislative constraints. Another participant also stated in this vein that the discourse about energy transition within the government had started some years ago, noting that:

> *"I remember in 2016 from Parliament they started speaking about energy transition" [Participant 1].*

This point properly frames history, and it shows that the discussion around energy transition is hardly new at a legislative level. The considerations for economic and financial gain also play a role as the shareholders and investors put pressure. A participant noted:

> *"Shareholders, investors…are very big on green economy, clean energy. So as being a listed company, as being part of a global company, there is a lot of pressure…" [Participant 5].*

In addition, there is the question of stability, energy security, and reliability. The national energy supplier, Eskom, has been unreliable lately, and it then, of course, becomes a very welcoming development when the companies in the mining sector can install a reliable and sustainable power source.

"I think the electricity, you've seen in the past, the load shedding and others. So hence they decided, the green energy will assist" [Participant 3].

Participant 5 expanded on the need for energy security, saying that the industry places much of its reliance upon Eskom, leaving it vulnerable in an environment where power outages and load shedding are all too common.

"We know the problems we've had with Eskom. So, for us, one of the things that we have to look at, it's energy security" [Participant 5].

Another participant said likewise, stressing that the current Eskom problems are forcing the mining companies to look at cleaner energy alternatives to run efficiently. It does not only end with the businesses; the local communities also feel it, as the participants described what load shedding has done to the community and how tough life gets for people.

"…this current status that we've been facing regarding ESKOM issues maybe is one forcing the mine to pursue this cleaner energy" [Participant 14].

"We suffered terribly…you don't have a backup, and also the network system towers here at the tribal council…load shedding costs was bad" [Participant 3].

For example, one participant highlighted the two-fold consequences of choosing to stick on a coal path (in this case, being recognised as such both economically and environmentally):

"The impact that continuing on the coal trajectory is going to have, and not only in the context of climate change, but also it's now becoming an economic issue" [Participant 8].

This was a moment of reflection within the industry itself, as it suddenly seemed to understand that the economic costs of non-transition could be as severe when compared to the environmental impact. As another participant emphasised even more, the urgency was justified in view of it not being denied that coal plays a big role in global warming by itself.

"…*it's been identified as the biggest cause of global warming and climate change, finally. So, something needs to be done" [Participant 4].*

This particular acknowledgement would seem to be an important turning point in the realisation within the industry that not only is there no longer any doubt that burning coal causes global warming, but there is also a dim fact demanding action. As this one participant explained, it is also vital to know how climate change affects businesses so that proper measures can be put in place and effective mitigation strategies are planned:

> *"Once you understand what climate change is going to do to our businesses, you are better prepared to put mitigation measures in place" [Participant 5].*

This highlights the nature of industries where companies not only see climate-related risk coming but also want to be better prepared for it. The stakeholders' engagement in the energy transition towards a more inclusive energy transition has five main roles and contributions (Table 5).

Table 5: Current Roles and Contributions

Codes	Sub-themes	Themes
• Environmental role • Decarbonisation responsibility • Energy reduction targets	Environmental strategy	Current roles and contributions
• Economic realities • Global standards • Economic competitiveness • Long-term perspective	Frame the economic imperatives of the transition	
• Planning and reporting • Risk management	Organisational process for just transition	
• Trend analysis adoption • Collaboration with implementers • Stakeholder inclusion • Crisis prevention • Commitment follow-up	Ensure inclusive stakeholder engagement	
• Language barrier • Narrative gap • Information provision • Robust engagement • Continuous communication • Communication emphasis • Facts-based discussions	Bridge communication gaps	

These include environmental strategy, framing the transition's economic benefit, developing an effective organisational process for transition, ensuring inclusive stakeholder engagement, and bridging the communication gap (Table 5).

Some stakeholders make the environmental strategy by imposing very high targets on energy cuts, as one participant reflected:

> *“Within the mining company, we do have energy reduction targets by 2030, and long-term targets, it’s about 2050…” [Participant 5].*

The emergence of clear energy reduction targets, with time frames set for 2030 and 2050, signifies the fact that the mining organisations have embraced policies which are concerned with the alleviation of adverse environmental repercussions. Another participant commented about taking on decarbonisation responsibilities:

> *“I’m quite involved, because I’m now dealing specifically with decarbonisation” [Participant 10].*

The contributions to the decarbonisation efforts also mean taking action to decrease greenhouse gas emissions, which is one of the major steps in moving towards using other greener energy sources. Organisational processes are improving through the planning and controlling of risks.

The focus on the risk management pertaining to climate change shows that the sector is acknowledging the potential inconvenience of climate change on its operations and the need for transparent reporting:

> *“I am more involved in risk management, understanding what the risk is that is brought about by climate change…I get involved in reporting, and you know, things like planning for impacts of climate change…" [Participant 5].*

The participant’s involvement in reporting indicates a commitment to accountability and transparency. At the same time, ‘pleading’ is taking place in conjunction with the implementers:

> *“We work very closely with the implementers of initiatives” [Participant 10].*

This insight implies a pragmatic approach whereby the stakeholders collaborate with the implementers and the adoption of trend analysis:

"My involvement mainly, it's looking at the trends and what can be adopted in a mining environment" [Participant 10].

Trend analysis helps to anticipate future challenges and opportunities, thereby enabling the organisation to stay ahead in the transition to cleaner energy sources.

5.3.2 Constraints Affecting Stakeholder Engagement During the Energy Transition

The first sub-question can be recapped as follows: *What constraints affect the stakeholder engagements during the energy transition in the mining industry?* The empirical data explains the barriers and constraints to stakeholder participation and engagement as well as highlights the strategies for overcoming stakeholder resistance and cynicism. The barriers and constraints included community relations, governance and decision-making, as well as systemic challenges (Table 6).

Table 6: Barriers and Constraints to Stakeholder Participation and Engagement

Codes	Sub-themes	Themes
• Community engagement • Inadequate response to community concerns • Community mistrust • Land ownership disputes	Community relations	Barriers to effective stakeholder engagement
• Unilateral decision-making • Leadership conflict • Transparency issues	Governance and decision-making	
• Structural barriers • Financial constraints • Exclusivity and elitism	Systemic challenges	Constraints to inclusive stakeholder participation

A qualitative analysis of the participants' responses indicated significant institutional barriers to generating meaningful stakeholder engagement outcomes in the energy transition projects. These challenges generally fall into two main categories: community relations and governance/decision-making. The participants expressed disappointment with the failure of a solar plant that had been planned by the mining

company, which did not include genuine community engagement, a participant emphasised:

> *"There's nothing that we can point to say this is what the mine has done for us or maybe the community itself" [Participant 1].*

This insight demonstrates how it is essential to include the community from an early stage of planning. This ensures that the projects match what the community needs and wishes in an effort to build trust. One participant, who pointed out that any successful energy transition requires an inclusive approach so as not to exclude key stakeholders, echoed this sentiment.

> *"I don't think this can be a unilateral process... there's no way that it can be something then that you can unilaterally go and look at to say that tomorrow I will transition to cleaner energy without bringing everyone on board" [Participant 9].*

An important barrier that was illustrated is forgetting the gatekeepers, thus leading to passive resistance and, consequently, ineffective sustainability initiatives. A participant also referred to the impact of some internal leadership conflicts and not taking community feedback on board during the stakeholder consultation. The participant remarked:

> *"We have two Indunas on the same... whether one is rightful or is not rightful, but it's impacting very negatively on any development intending to be placed in this village... Questions were raised... and we were not answered accordingly" [Participant 5]*.

This illuminates the necessity to intervene in open-ended communication and even-handed ways to resolve conflicts when engaging stakeholders to preclude disorientation or opposition. The issue of transparency resurfaced. One participant highlighted the lack of transparency in the dealings with the mining companies, stating:

> *"The move from the mining company was not transparent enough" [Participant 3].*

This point highlights the importance of open, honest, and direct communication in establishing trust between the stakeholders.

The participants' findings identified several key challenges around stakeholder engagement in the energy transition, particularly within mining. These challenges may be broadly categorised as systemic and information/communication related. One of the participants criticised the energy sector, saying stakeholder involvement is used as a tick-box exercise.

> *"So, I think the main problem is making it as if it's just a tick box exercise. And also, the industry itself is very elite based. So, if we can remove that and then include as many people, for the sake of inclusion and justice, just to move forward" [Participant 3].*

This criticism calls for real inclusivity, and therefore, justice requires more than paying lip service, as meaningful engagement goes beyond mere compliance when it extends to all the stakeholders. Another participant pointed out that the registration of independent entities should depend on capability rather than financial strength, and this requires a stringent regulatory framework. The participant remarked:

> *"If the process to register these independent entities is properly regulated, and not to bring things to only those that have the funds, but also those that have the necessary skills. I think that will then unlock a lot of these challenges" [Participant 6].*

That is, the rules may disproportionately benefit the wealthy over their deserving but financially disadvantaged peers. The participants also referred to the exorbitant costs of the energy transition projects with respect to implementation. It was noted:

> *"Cost is one of the big constraints looking at South Africa. So, it's just that balance that you would need to achieve... You need to also balance the expectations of the non-governmental organisations (NGOs) and stuff. You need to be reasonable" [Participant 8].*

This insight is important because it speaks of the relationship between the economic realities and the environmental ideals, a clear challenge that must be tackled from all sides and inclusive of all the stakeholders. One participant also noted that the local communities were often unaware of the projects associated with the energy transition and its potential benefits:

> *"I don't think a lot of people know about energy transition, how we can benefit and all this. We just know it's for the mine... Benefiting is not enough because if a project of that magnitude cannot even leave one millionaire here in the area, something is not right" [Participant 12].*

And therein lies a key problem: though the energy projects might be profitable for the mines, they do little to benefit the people living nearby, thus emphasising the significant gaps in the communication and collaboration with these communities. However, sometimes, it becomes so heavily outweighed by the environmentalist narrative that it makes it more difficult for all the other stakeholders to push back against such entrenched perceptions. A participant explained:

> *"You have too many voices that obviously run different narratives, right, particularly if you think of the environmentalist... And I have to admit that they are always ahead of the game. I think their communication machinery is smooth and sharper... because now you have to remove the perceptions that many environmentalists have already created" [Participant 1].*

These visions are mutually exclusive (from the perspective of various interest groups competing for dominance over narratives), which gives insight into why the stakeholder engagement in energy transition is so difficult. The participants discussed beyond the constraints that affect the stakeholder engagements during the energy transition in the mining industry, providing some insights on the strategies to overcome stakeholder resistance and cynicism (Table 7 and Figure 3). The strategies for overcoming stakeholder resistance and cynicism include but are not limited to identifying and addressing the sources of resistance, building trust through transparency and involving stakeholders in the process.

The participants mentioned a number of limitations. These insights suggested some strategies for dealing with reactivity and cynicism in the transition initiatives. These strategies are categorised as identifying and addressing economic interests, highlighting public and human impact, bridging communication gaps, framing transition as an economic imperative, and ensuring inclusive stakeholder engagement. The main opponents are the coal mining companies and the operators of the coal-fired power stations.

As one participant stated:

> *"Resistance to energy transition primarily comes from entities benefiting from coal-related industries (e.g., coal mining, coal-fired power stations)" [Participant 4].*

These stakeholders have striking economic ties to the coal industry, as any transition in terms of energy threatens their financial livelihood. Their dependency on an economy such as this also makes it quite a challenge to proceed, as these agencies are motivated to ensure their investments are intact and safeguarded within the coal industry.

Table 7: Strategies for Overcoming Stakeholder Resistance and Cynicism

Codes	Sub-themes	Themes
• Origins of resistance • Impact on livelihoods	Identify and address sources of resistance	Strategies for overcoming stakeholder resistance and cynicism
• Public perception • Engagement and information sharing • Addressing disparities to reduce cynicism • Project benefits • Multi-channel engagement • Training and education for alignment • Targeted communication • Trust in local communities • Empowerment • Broader societal impacts • Stakeholder mapping and identification • Segmenting stakeholders by interest and impact • Provide solutions to social issues • Multilateral decision-making • Human impact • Health and environmental awareness	Building trust through transparency	
• Moral imperative • Labour unions and community members • Step-by-step stakeholder involvement	Involving stakeholders in the process	

"People will always defend coal. For example, if their livelihood depends on coal" [Participant 8].

The message is that the resistance is not just ideological but deeply tied to economic survival. An alternative approach is to outline the positive case for energy transition, highlighting the significant health improvements and the environmental impacts that ordinary people can experience.

"Ordinary people are not resisting the energy transition; instead, they are more concerned about health and environmental impacts" [Participant 4].

This yearning for health benefits culminates in high public support for energy transition, born out of a need for greater health and a protective environment. Additionally, there is a human duty to stop coal power stations to reinforce their claim, pointing out how many people have suffered and even died due to poor health from working with or consuming so much of the dust coming out of these power stations.

"The significant loss of lives due to coal-related health issues creates a moral imperative to stop coal mining" [Participant 4].

This insight shows that while the economic concerns drive resistance, health and environmental awareness are powerful motivators for ordinary people to support the energy transition. Communication strategies must also change to ensure that complex industry terms are translated into simple, everyday language.

"The language used by industry and policymakers (e.g., carbon markets, carbon trading) is not resonating with the general public" [Participant 4].

An equally important factor is presenting truths and real information, above all, clearing up the many myths prevailing in society about coal, taking at face value the concerns linked to the economic aspects of energy supplies and global fallout from using coal.

"…provide accurate and factual information to stakeholders" [Participant 7].

The same sentiment was echoed by another participant.

"Bring facts on the table. It is a very difficult subject for most people, especially those that are affected. So, people will always defend coal" [Participant 8].

This presents the energy transition as being necessary for economic competitiveness with associated immediate perils of ongoing coal dependency.

> *“Countries are now blocking imports of goods that are produced from coal" [Participant 8].*

Another strategy to overcome resistance is involving the stakeholders in every step of the process and keeping them informed, as one participant said:

> *"…the most effective strategies are consistent communication and robust communication with your stakeholders. You take them all the steps of the way. You don't leave them behind" [Participant 7]*

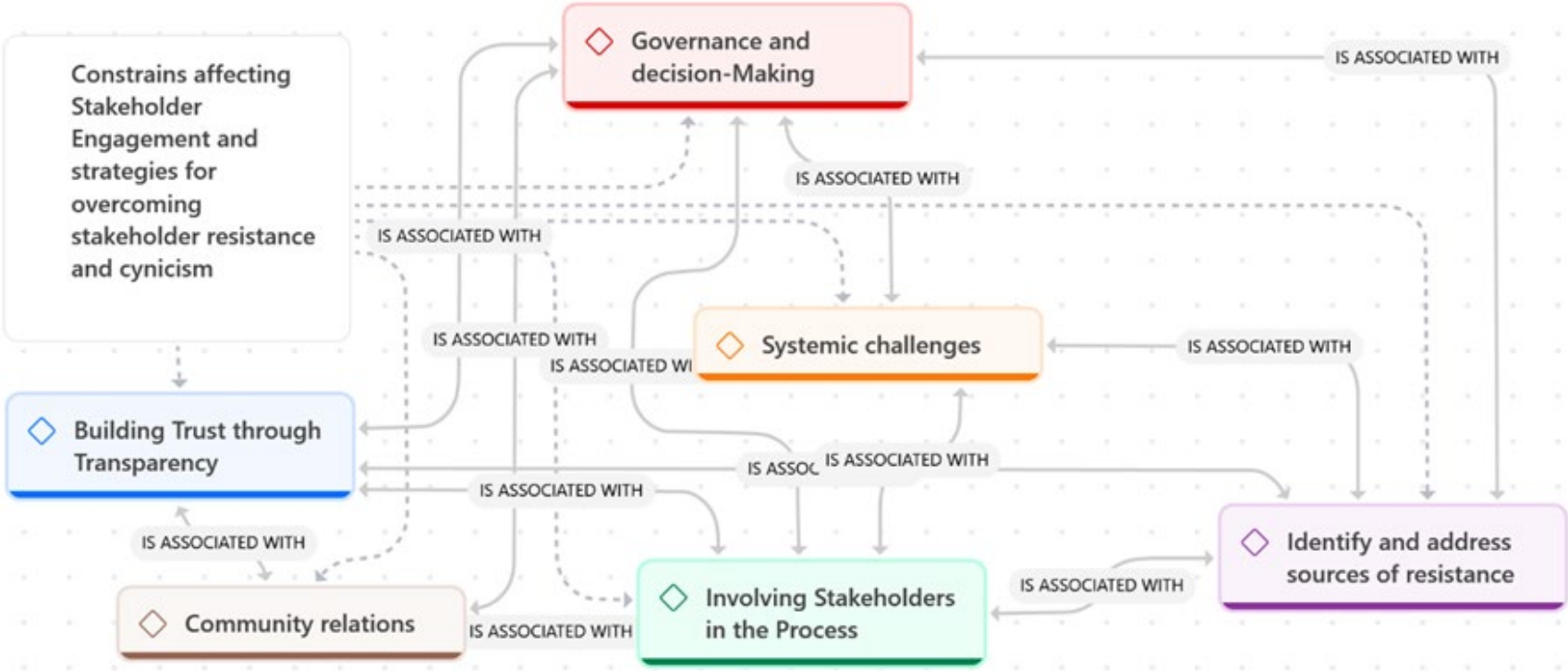

Figure 3: Constraints Affecting Stakeholder Engagement and Strategies for Overcoming Stakeholder Resistance and Cynicism.

5.3.3 Stakeholder Dynamics on the Relationship Between Different Actors and Stakeholders

The second sub-question was, "*What are the relationships between the different actors and stakeholders during the energy transition in the mining industry?*" Table 8 provides the stakeholder dynamics, which are driven by stakeholder interaction, policy, and implementation.

Table 8: Stakeholder Dynamics

Codes	Sub-themes	Themes
• Engagement forums • Interaction with national departments and financial institutions • Inclusion of community stakeholders • Exclusion from decision-making • Value of stakeholder experts • Objective-focused engagement • Economic opportunities for stakeholders • Tokenism in stakeholder engagement • Benchmarking and best practices • Engagement frequency and involvement • Westernised, profit-driven public participation • Involvement of organised labour unions	Stakeholder interaction	Stakeholder dynamics
• Articulation of departmental position • Policy intentions versus the implementation gaps • Lack of local content and skills development • Community-based policy influence • Policy integrity • Disparity in project implementation • Long-term strategy in energy transition • Inclusion in policy development	Policy and implementation	

The process provided an analytic lens for the study findings, revealing some of the complexities inherent to stakeholder engagement as it relates to the energy transition within a mining context. Dialogue and policy articulation are key focus areas in which other institutional engagement forums, such as the Mining Indaba, and the Chamber of Mines serve as a platform for discussion. However, a major problem remains the lack of alignment between the policy intentions and actual implementation. A participant raised the point:

"We are not seeing the results. There's still no local content in South Africa. Not enough local content. There are still not enough skills in the transition itself" [Participant 8].

This observation underlines the ongoing difficulty in matching the discussions with policy action, especially in areas such as local content and skills development. The energy transition is also a complex web of relationships among different government departments and Development Finance Institutions (DFIs), each with its own remits. As essential as these different interactions are across all the nodes, they represent a type of siloed way to address energy transition. One of the participants commented:

"We interact a lot with national departments, like National Treasury, DMRE... each of them will have a different developmental goal" [Participant 9].

The fragmentation of energy transition governance presents challenges for strategically aligning and coordinating all the dimensions.

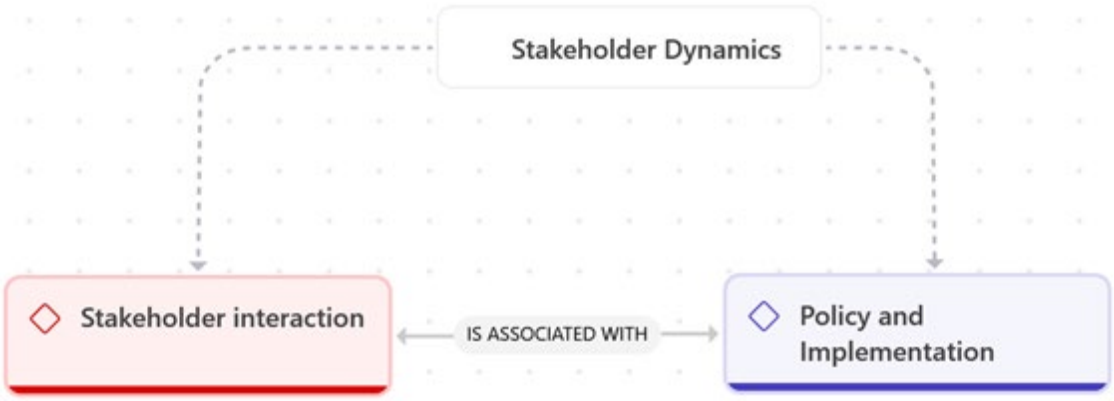

Figure 4: Stakeholder Dynamics on the Relationship Between Different Actors and Stakeholders.

In summary, Figure 4 presents the role and contribution of stakeholder management in the energy transition. Energy transition is being propelled by regulatory compliance, market imperatives, concerns around energy security, and increasing awareness about climate change impacts. However, formidable barriers remain regarding community relations, governance, and other systemic hurdles that impede inclusivity.

The findings confirm that the investors play an important role in forming climate strategies and in improving company practices to help drive the industry transition toward cleaner energy. Overcoming these barriers requires attention to economic, communication and stakeholder inclusion strategies that differ from the traditional institutional structures. It is humanly and environmentally important to consistently present coal as something that is connected with an economic interest, which factors as a resistance towards energy transition.

Presenting the transition as an economic imperative and by maintaining consistent, open communication across all the stakeholders, it can help to build greater acceptance and cooperation with the industry. The ability to realise this transformation and, in so doing, deliver sustainable market solutions that work for all the parties is further contingent not just on good intentions but also on a cohesive approach which harmonises policy ambitions with operational realities found or relieved by the industry as well as those communities and ecosystems it impacts.

5.3.4 Utilising Stakeholder Mapping to Enhance Engagement in Energy Transition

This section presents the findings focusing on research sub-question 3: *Can stakeholder mapping be utilised to enhance, and benefit improved stakeholder engagement in the energy transition*? Table 9 presents this research sub-question's codes, subthemes, and themes.

The empirical data pertaining to research sub-question 3 was analysed, focusing on inclusivity and legitimacy in stakeholder engagement, tailored approaches and communication strategies, power dynamics and challenges in the engagement, as well as the effectiveness and the utility of stakeholder mapping.

The principles of inclusivity and legitimacy for stakeholder engagement were emphasised by the participants. Stakeholder mapping has to ensure that all the appropriate voices are included, including the community members and traditional leaders, who are often at the epicentre of the energy-transition impacts. The participants highlighted the importance of including as many people as possible for stakeholder mapping to ensure comprehensive engagement. However, one participant also noted that stakeholder selection bias is a bigger issue, which speaks to the heart of legitimacy as well.

"…*engaging with legitimate stakeholders rather than using stakeholder engagement as a tick-box exercise" [Participant 2]* is crucial for the process's success.

Table 9: Utilising Stakeholder Mapping to Enhance Engagement in Energy Transition

Codes	Subthemes	Themes
• Inclusive stakeholder mapping • Legitimacy of stakeholders • Challenges in stakeholder selection • Role of traditional leadership	Inclusivity and legitimacy in stakeholder engagement	Utilising stakeholder mapping to enhance engagement in energy transition
• Tailored engagement approaches • Context-specific stakeholder mapping • Differentiated communication strategies • Comprehensive stakeholder understanding	Tailored approaches and communication strategies	
• Accountability of stakeholders • Selective engagement • Impact of community divisions • Challenges of power dynamics	Power dynamics and challenges in engagement	
• Pros and cons of stakeholder mapping • Essential role of stakeholder mapping • Need for genuine engagement	Effectiveness and utility of stakeholder mapping	

Another participant even went ahead to stress the importance of traditional leadership by saying:

"We need a central place where everybody—traditional leaders, faith leaders, other NGOs, and developmental committees—can be called and we discuss issues of development" [Participant 2].

This means that it is more important to have a true representation of the different segments of society as key players, as this is likely to mitigate the trust issues within those who may feel that there is no fair conduct.

Effective stakeholder engagement requires tailored approaches and communication strategies that resonate with different stakeholder groups. Another participant highlighted the need for tailored approaches, explaining that:

> *"When we engage mining houses, you use a different approach... the content of engagement will be different from when you approach communities" [Participant 7].*

This subtheme further highlights the importance of knowing the stakeholders' needs and wants so that engagement strategies can be designed accordingly.

Moreover, another participant emphasised the significance of individualised communication strategies, stating:

> *"Stakeholder mapping enables the development of differentiated communication strategies, ensuring that the content and method of engagement are tailored to each stakeholder group's needs and concerns" [Participant 7].*

It also underscores the necessity of stakeholder-related and context-specific approaches for strategy development, which can effectively manage different interests, concerns, and acceptance levels for projects. Power dynamics and community divisions can pose challenges to engaging relevant stakeholders. These barriers can undermine the process, allowing those in power to dictate who gets involved and preventing necessary voices (and other stakeholders) from participating.

> *"If the person determining [stakeholders] has an ambition to achieve which is against the core values of stakeholder engagement, then you won't be achieving what you need to achieve" [Participant 10].*

This insight shows how power dynamics affect stakeholder engagement and can work to shut out those voices that are critical of the mainstream agenda. One participant illustrated the effects of community divisions:

"Unresolved divisions within the community, often caused or exacerbated by the mining company, could undermine the effectiveness of stakeholder mapping and engagement efforts" [Participant 2].

If unchecked, in time, they can result in a fragmented community where reaching consensus is all but impossible. The effectiveness and utility of stakeholder mapping to improve engagement was discussed by the participants. A participant recognised the nature of:

"Pros and cons of stakeholder mapping" [Participant 10].

Stakeholder mapping might help to improve the engagement efforts, but its success should motivate the sincerity and depth of this process.

Similarly, another participant described stakeholder mapping as:

"Key in the just transition stakeholder engagement plan" [Participant 7], emphasising its essential role in guiding the engagement process. The above sentiment was shared by another participant who added that:

"For stakeholder mapping to be successful, it must involve genuine engagement with communities, addressing their concerns rather than imposing decisions made elsewhere" [Participant 2].

This offers a sobering lesson that there is a need to move beyond tokenistic participation and guarantee that the process is inclusive and genuinely so. Figure 5 presents stakeholder mapping to enhance engagement.

The findings from this study underscored the critical role that stakeholder mapping can play in enhancing the role of stakeholder engagement during the energy transition processes. The analysis focused on research sub-question 3, and it revealed that stakeholder mapping, when implemented effectively, can significantly improve the inclusivity, legitimacy, and the overall effectiveness of the engagement efforts in the energy transition.

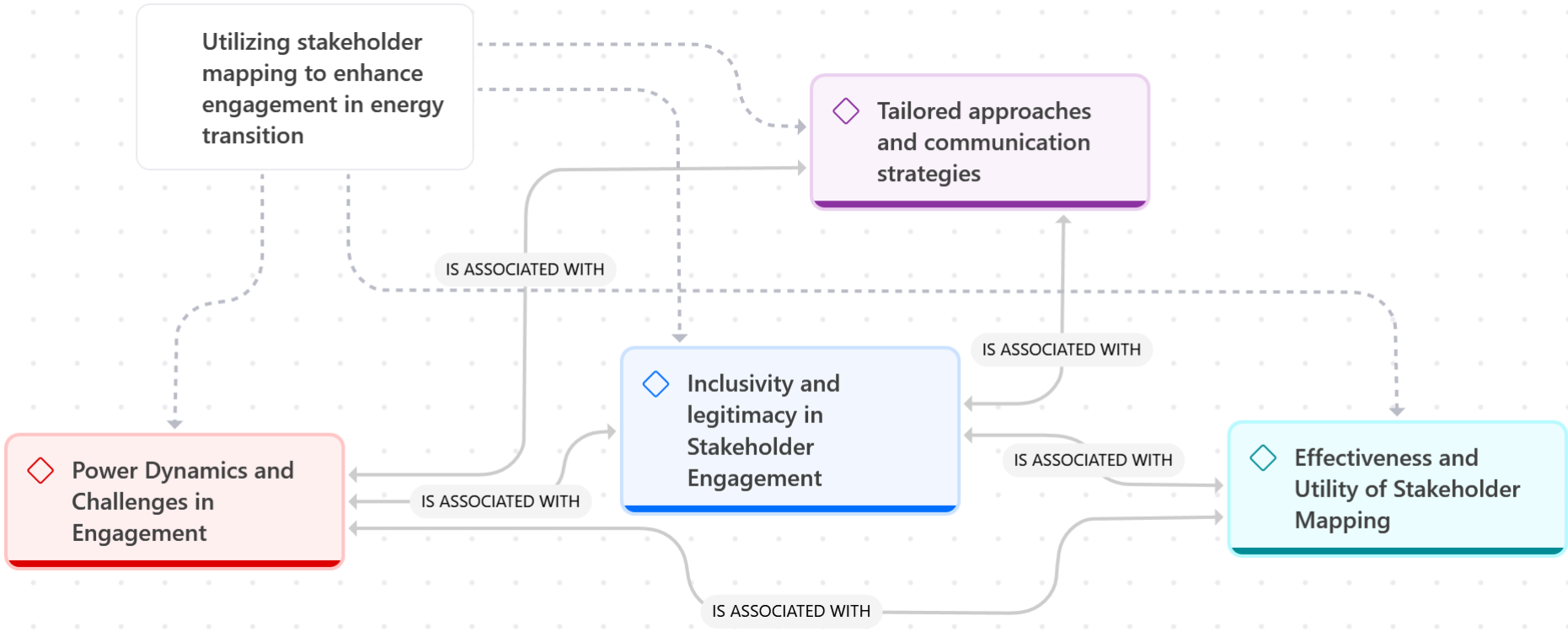

Figure 5: **Stakeholder Mapping to Enhance Engagement.**

5.4 Summary of Results

In summary, the findings from the 14 interviews are presented on the role of stakeholder engagement in facilitating support for a just energy transition within the mining industry. The research question focused on the role of stakeholder engagement in the energy transition towards a more inclusive energy transition. The basis of the roles and contributions for stakeholder engagement are the key drivers. The empirical data reveals that the key drivers are the regulatory and compliance pressure, the economic and financial considerations, energy security and reliability, environmental and climate considerations, community impact and social responsibility, as well as information and communication.

The key drivers' contributions included five main roles and contributions. These include environmental strategy, framing the transition's economic benefit, developing an effective organisational process for transition, ensuring inclusive stakeholder engagement, and bridging the communication gap. Moreover, the just transition is not without constraints that affect stakeholder engagements during the energy transition in the mining industry. The barriers and constraints included community relations, governance and decision-making, as well as systemic challenges. However, there are strategies that can be utilised to overcome stakeholder resistance and cynicism, including identifying and addressing sources of resistance, building trust through transparency, and involving stakeholders in the process. Furthermore, stakeholder dynamics is the relationship between different actors and stakeholders, which is driven by stakeholder interaction, policy, and implementation.

The research question was also investigated by looking into whether stakeholder mapping can enhance, and benefit improved stakeholder engagement in the energy transition. These include inclusivity and legitimacy in stakeholder engagement, tailored approaches and communication strategies, power dynamics and challenges in the engagement, as well as the effectiveness and utility of stakeholder mapping. These findings are discussed in Chapter 6, and the conclusions, including the limitations of the study, contextualise the findings in Chapter 7.

CHAPTER 6: DISCUSSION OF RESULTS

6.1 Introduction

The discussion of results in this qualitative research looked into the interpretation and significance of the findings presented in the previous chapter. This section goes beyond mere description, by offering a comprehensive critical analysis of how the results relate to the research questions, the theoretical framework, and the existing literature. By exploring the meanings and implications of the data, this chapter seeks to uncover deeper insights and provide a nuanced understanding of the phenomena under study. Through this analytical lens, the chapter aims to contribute to a richer and more comprehensive understanding of the role of stakeholder engagement in the energy transition towards a more inclusive energy transition. The main research question (*what should the role of stakeholder engagement be in the energy transition towards a more inclusive energy transition*?) was explored through three research sub-questions. The research sub-questions served as guiding pillars, leading to a deeper understanding of the complex dynamics of the role of stakeholder engagement in the energy transition towards inclusive transition.

6.2 Discussion: Research *Sub-Question 1*

Research sub-question 1: What constraints affect the stakeholder engagements during the energy transition in the mining industry?

The first research sub-question explored the constraints that affect the stakeholder engagement in the quest to understand its role during the energy transition. Civera et al. (2019) highlight the importance of stakeholder engagement within the organisations to determine the interests and expectations of all the stakeholders concerned. Similarly, Kujala et al. (2022) also recognise the negative side of stakeholder engagement, which is further influenced by conflicting views amongst the different stakeholders.

The discussion of this research sub-question commences by unpacking the current roles and contributions of the different stakeholders driving energy transition, then it explores the constraints affecting stakeholder engagement during the transition and finally examines the strategies to counter resistance and cynicism towards stakeholder engagement.

6.2.1 Current Roles and Contributions of Stakeholders

The empirical data findings have highlighted the following roles and considerations for stakeholder engagement in the energy transition towards a more inclusive energy transition: environmental strategy, framing the transition's economic benefit, developing an effective organisational process for transition, ensuring inclusive stakeholder engagement and bridging the communication gap.

6.2.1.1 Environmental Strategy

The energy transition from fossil fuels to cleaner energy alternatives has become an inherent need to address climate change and energy security for most developing countries (De la Pena et al., 2022). The severity of climate change is evident, and the need to reduce greenhouse emissions has never been this urgent. The goal of the United Nations Climate Action (n.d) is to halve the emissions by 2030.

The study's findings indicate that the organisations want to and are responding to the call for greenhouse reduction, as pointed out through their decarbonisation strategies (AngloAmerican Climate Change Report, 2023). However, the environmental strategy also illustrates the complex interplay between the regulatory pressures, economic considerations, and the growing urgency for energy transition in industries such as mining. There is recognition from the study that cleaner energy alternatives are essential not only for operational stability but also for community well-being. Additionally, there is an emphasis on the dual impact of remaining on the fossil-generated path of energy, stressing that the economic consequences of not transitioning could be as severe as the environmental costs because of climate change (Furnaro, 2020). The realisation within the mining industry marks a critical turning point, recognising both the climate-related risks and the economic implications of delayed action. As the mining industry increasingly aligns its strategies with decarbonisation and sustainability goals, stakeholder engagement, inclusive strategies, and proactive planning emerged as critical components of a successful energy transition.

6.2.1.2 Transition's Economic Benefit

Literature advocates for the active participation of all the stakeholders through the planning and execution stages of projects (Civera & Freeman, 2019). The stakeholders are more likely to engage and participate when their views are heard and supported (Tladi et al., 2024). Climate change crises have brought about both

adversity and opportunities. Baker et al. (2014) highlight that when such opportunities arise, change must take effect. However, for many stakeholders in the mix of such opportunities and change, the goal is more geared towards economic benefit, as the study findings have displayed. The study did show the failure of some renewable energy projects as the communities felt that they were not properly engaged, and they felt the economic benefit thereof was not properly framed. In contrast, the energy transition has the potential to bring about job creation, innovation and skills, and long-term benefits for the overall well-being of communities, inspiring a new wave of motivation and dedication (Moorthy et al., 2019).

Furthermore, embracing the energy transition creates new opportunities for innovation and market expansion, further driving economic growth, as the study noted. In South Africa's context, the energy crisis has also presented new opportunities, hence the drive for renewable energy alternatives. Framing the economic benefits of the energy transition is critical for gaining the support of the different stakeholders. While the organisation's intent towards alternative, greener energy sources might be clear, how different stakeholders are treated and engaged during the process will determine the success or failure of such initiatives (Freeman et al., 2021). The latter has been evident from the study in that when other stakeholders, such as communities, are not properly engaged and the economic benefits are not properly framed, the results are negative towards the renewable energy projects.

6.2.1.3 Organisational Process for Transition

The urgency to transition is paramount, and the organisations are adopting energy transition as part of their corporate strategies. The mining sector is one of the biggest contributors to greenhouse emissions (Aramendia et al., 2023); thus, there is a need to be part of the solution. The realisation from the study is that many companies have to transition from a regulation point of view and probably from a license-to-operate standpoint to appease the shareholders who are greener energy conscious.

The study further highlighted that developing an effective organisational process for energy transition is crucial to ensuring a company's survival in the face of stringent regulations and evolving energy policies. In addition to the regulatory pressures, the stakeholders such as the shareholders and investors play a significant role in

pushing the companies towards energy transition. This influence highlights the need for the mining companies to incorporate clean energy strategies into their business models, not just as a regulatory compliance measure but also as a financial imperative (Freudenreich et al., 2020). Establishing a robust process for decarbonisation and setting clear energy reduction targets will help the mining companies to mitigate the risks of energy security while playing a role in providing solutions towards climate change and contributing to the long-term sustainability of the business (Marsden & Marsden, 2021). As such, a company with a well-structured and forward-thinking organisational process for efficient transition will ensure both regulatory compliance and the satisfaction of the stakeholders' demands while securing a company's operational future (Rodrigues et al., 2022).

6.2.1.4 Inclusive Stakeholder Engagement

The stakeholder theory advocates for the inclusivity of all stakeholders (Harrison et al., 2019). Literature highlights that the stakeholders, regardless of power, should have equal footing in project participation and engagement if the stakeholder theory is to hold. Mahara et al. (2023) believe that the stakeholders may directly or indirectly influence an outcome within the organisations. The study has highlighted the importance of ensuring inclusive stakeholder engagement in the success of the energy transition initiatives. As the pressure mounts to transition, the study did indicate that it is becoming essential for the mining companies to include diverse voices in their decision-making process to mitigate these changes effectively. This inclusive engagement is necessary to ensure that the concerns from all parties, including those related to economic and environmental impacts, are considered, thus promoting cooperation and reducing resistance (Slabbert, 2016). JET advocates for inclusivity for everyone who is affected and impacted (Presidential Climate Commission, 2022), and as such, it can be achieved through inclusive stakeholder engagement.

As observed from the study, the pressure from the shareholders and investors focused on clean energy adds another layer of complexity, thus necessitating transparent communication to manage the expectations and secure ongoing support for green initiatives. Incorporating the local communities into the energy conversation is equally important, as they are directly affected by the decisions related to energy security and sustainability. And in most cases, they are the custodians of the land. By engaging the local stakeholders, the companies can

better understand the broader societal implications of their energy strategies and work collaboratively to develop solutions that benefit all (Campos et al., 2022). This emphasises the alignment of value creation and stakeholder theory (Freudenreich et al., 2020). Ensuring inclusivity in this discussion not only enhances trust but also drives innovative approaches to energy transition (Goodson et al., 2022). However, the study has provided a different view in this regard. The stakeholders such as the communities feel undermined and not adequately engaged by the organisations when it comes to the energy transition initiatives, and as such, procedural justice is not upheld for a just energy transition to take effect.

6.2.1.5 Bridging Communication Gap

Bucata and Rizescu (2017) emphasise the importance of effective communication to ensure that all the stakeholders are properly informed throughout the entire project process. Bridging the communication gap in the energy transition process is crucial, as the study observed. It intends to assist in driving alignment with the stakeholders' needs and expectations (Civera et al., 2019). The study also observed the pressures exerted by the government regulations, which are not fully understood or communicated within the organisations. This highlights a communication gap between the government policies and corporate responses, where earlier engagement could have mitigated some of the pressures faced by the mining companies today.

Effective communication is further needed to align internal and external stakeholders on the economic and environmental benefits of transition (Herremans et al., 2016). The study pointed out that the shareholders and investors are increasingly focused on cleaner energy and creating significant pressure on the mining companies to adjust their strategies. However, without clear communication of these pressures, urgency, and potential impacts, the employees and local communities may resist change (Moomen & Dewan, 2017). The study also pointed out the impact of energy security and how it negatively affects both businesses and communities. However, there is often a disconnect in communicating how the renewable energy solutions could alleviate these issues. Whether the intended purpose for energy transition is solely for the benefit of the mining company and whether the community will benefit as well. Bridging this gap requires not only providing stakeholders with accurate information but also engaging them in conversations that address their concerns and highlight the long-term benefits of

the energy transition, a view that is also noted by Herremans et al. (2016) on the success of the organisations' projects.

6.2.2 Constraints Affecting Stakeholder Engagement

The stakeholders are key components of any organisation's success, and how they are treated matters (Harrison et al., 2019). The stakeholders who feel that they are not part of the decision-making process are likely to disengage, thereby resulting in project failures (Dmytriyev et al., 2021). Stakeholder engagement is key in driving operational success for the mining companies. The mining companies are at the helm of innovation to mine sustainably and to improve people's lives (Chipangamate et al., 2023). However, at the core of driving such innovation adoption is effective stakeholder engagement. The empirical data from the study highlighted the barriers and constraints to stakeholder participation and also looked into the strategies to overcome stakeholder resistance and cynicism. The barriers and constraints outlined in the study included community relations, governance and decision making as well as systematic challenges.

6.2.2.1 Community Relations

Kujala et al. (2022) highlight the negative side of stakeholder engagement. This negativity is driven by conflicting views on the projects' intent and purpose. The community is a critical stakeholder in the projects related to energy transition. Funder et al. (2021) point out the need to shape community engagement better. This is a casing point in that, at times, the community engagements are not clearly defined and given the massive scale of projects relating to the energy transition, this could even leave the communities on the periphery of discussions, and recognition-based justice will not be realised.

Community relations play a critical role in determining the success of stakeholder engagement in energy transition projects, particularly in the mining sector (Moomen & Dewan, 2017). The study highlighted how the failure to effectively engage and involve the local communities can create significant barriers. The study also pointed to the exclusion of communities in project planning as a major limitation, particularly citing a failed solar plant initiative. This failure to engage the community members early on not only eroded trust but it also led to unmet expectations regarding the benefits that the community would derive from the project. Such insights point out the importance of aligning the energy transition projects with community needs and

preferences to ensure that all the stakeholders are on board and are invested in the outcomes (Slabbert, 2016).

The study further emphasised the importance of transparent and conflict-free leadership when engaging with the local communities. One of the barriers that was cited was the presence of the leadership conflicts within the communities, which negatively impacted the development efforts. As highlighted in the study, this issue refers to the disputes between the community leaders, which led to confusion and delays in decision-making. This lack of clarity and transparency created distrust and disengagement from the community. The absence of open communication and the failure to address the leadership disputes within the communities can hinder meaningful stakeholder engagement, as observed. Without measures such as clear communication channels and conflict resolution mechanisms, the projects are likely to face resistance or disinterest, further delaying the energy transition efforts and overall community development.

6.2.2.2 Governance and Decision Making

The governance and decision-making challenges were highlighted in the study as significant barriers to effective stakeholder engagement in the energy transition projects. The mining companies should strive for inclusivity and approach stakeholder engagement with legitimate intentions, especially in the communities they operate in (Tladi et al., 2024). The just transition embraces energy transition and energy justice (Carley & Konisky, 2020). The mining companies should not transition to alternative energy sources to the detriment of the other stakeholders, especially the marginalised communities. The transition should positively benefit all the affected and impacted stakeholders (Newell & Mulvaney, 2013). The stakeholders have to be part of the decision-making process for their voices to be heard (Civera et al., 2019).

The study pointed out the frustration over the lack of genuine involvement in the decision-making process, particularly from the labour unions and communities impacted by the energy transition initiatives. A recurring theme was the perception that stakeholder engagement was treated as a superficial exercise, thereby fulfilling the regulatory requirements without genuinely incorporating the views and interests of all the parties involved. This critique points to a deeper governance issue where the decision-makers fail to create inclusive, participatory frameworks that address

the concerns of marginalised stakeholders, thereby undermining trust and cooperation.

Another key issue that was raised was the need for a more equitable and transparent regulatory framework to facilitate the energy transition projects. The study observed the need for governance structures that prioritise skills and expertise over financial clout when registering independent entities for the energy transition initiatives. This observation highlights the disproportionate advantage that the wealthier entities hold in the current regulatory landscape, potentially excluding smaller yet capable stakeholders from meaningful participation. Effective governance should balance economic and social considerations, ensuring that the decision-making processes are transparent and inclusive as well as encourage long-term sustainability in the energy transition.

6.2.2.3 Systematic Challenges

The study identified systematic challenges as one of the significant barriers. This reveals the deeply entrenched barriers within the institutional frameworks of the energy transition projects. These challenges often manifest through the exclusion of key stakeholders, such as the local communities and the trade unions, from the decision-making process. This perceived elitism within the mining industry further exacerbates the feelings of exclusion among the less privileged stakeholders, thus creating a cycle where only the financially strong entities benefit from the energy transition initiatives.

The study furthermore highlighted the significant cost barriers that are associated with the energy transition projects, which disproportionately affect the economically disadvantaged communities and stakeholders. The high cost of implementing sustainable energy solutions creates a complete imbalance between the environmental goals and economic realities (An et al., 2023). For many local communities, the lack of financial benefit from these projects only adds to their sense of discouragement, as they see little tangible improvement in their economic conditions. This disconnect between the economic opportunities of the energy transition and the lived realities of the communities reveals a systemic gap in communication and collaboration, where the projects are often viewed as benefiting only the involved mining companies. These systemic barriers highlight the need for more inclusive, transparent and economically balanced approaches to stakeholder engagement in the energy transition.

6.2.3 Strategies for Overcoming Stakeholder Resistance and Cynicism

The stakeholder theory advocates for inclusivity and equal footing (Freeman et al., 2021). The organisations can manage the stakeholders' needs and expectations prior to the projects to avoid resistance (Haroon & Malik, 2018). The empirical data supports the following strategies to counter resistance and cynicism: identify and address sources of resistance, build trust through transparency, and involve stakeholders throughout the process.

6.2.3.1 Identify and Address Sources of Resistance

The study findings indicate that the resistance to energy transition is primarily rooted in economic survival concerns rather than ideological opposition. Many stakeholders, particularly those involved in fossil-fuelled industries, fear the loss of livelihoods and financial security, thereby leading to the pushback against the shift towards cleaner energy sources (Moorthy et al., 2019). However, the study also highlights the importance of reframing the conversation to emphasise the health and environmental benefits that resonate with the ordinary people. The understanding from the study is that the public support for energy transition often stems from the desire for improved health outcomes and a cleaner environment, a sentiment that is shared also by Tladi et al. (2024). By advocating for these positive impacts, such as the reduced health risks from fossil-fuelled pollution and the broader environmental benefits, the case for energy transition can be strengthened. This approach could help to alleviate the fears by showing that the shift towards renewable energy serves both immediate and long-term public interest.

The study further suggests that overcoming resistance requires clear, transparent communication, particularly in simplifying industry jargon for broader understanding. Complex terms such as "carbon markets" and "carbon trading" were highlighted as terms that often fail to resonate with the general public, thus making it harder for them to grasp the tangible benefits of energy transition. To mitigate this, the communication strategies should focus on delivering factual information in an accessible manner while also debunking the myths related to fossil-fuelled energy dependency (Moomen & Dewan, 2017). Furthermore, the study emphasised the need to involve the stakeholders in the decision-making process and keep them informed at every stage. Consistent, open dialogue with stakeholders can build trust, by ensuring that their concerns are addressed and that they feel included in the transition process (Civera et al., 2019).

6.2.3.2 Build Trust Through Transparency

The study's findings emphasise that building trust through transparency is critical to overcoming stakeholder resistance in the energy transition projects. The study points out that resistance is not only rooted in economic concerns but also in a lack of clear and honest communication between the stakeholders and decision-makers, a sentiment also highlighted by Moomen and Dewan (2017). One of the most effective strategies to address this challenge is providing stakeholders with accurate, accessible information about the energy transition (Civera & Freeman, 2019). The study also noted that the language that is often used in the industry is too complex and disconnected from the realities of the ordinary people. Simplifying this communication and focusing on tangible outcomes such as health improvements could help to gather public support and build trust, as it aligns with the people's personal and community interests.

Transparency in the decision-making process is crucial for ensuring that all the stakeholders feel included and that their concerns are acknowledged (Moomen & Dewan, 2017). The study stressed the importance of consistent and robust communication throughout all the phases of the energy transition process, which helps to avoid misinformation and feelings of exclusion. By taking the stakeholders "all steps of the way," as the study alluded to, the project leaders can raise a sense of shared responsibility and mitigate the economic fears that fuel resistance.

6.2.3.3 Involve Stakeholders Throughout the Process

Involving the stakeholders throughout the entire energy transition process emerged from the study as a key strategy to overcome resistance and cynicism, a sentiment shared by Haroon and Malik (2018). The study findings consistently emphasised that genuine involvement, rather than superficial consultation, is crucial for gaining community trust and support. As pointed out in the study, resistance often stems from a lack of transparency engagement, stating that many projects suffer from being imposed unilaterally without considering the stakeholders' views or concerns. Continuous engagement ensures that the stakeholders understand the economic, environmental, and the health impacts of the energy transition and see themselves as active contributors to shaping the outcomes (Campos et al., 2022). By involving the stakeholders at every stage, from planning to implementation, the stakeholders feel a sense of ownership which reduces resistance and builds lasting commitment (Tladi et al., 2024).

Furthermore, the study highlighted that engaging the stakeholders throughout the process helps to align their interests with the broader goals of the energy transition. The study noted that consistent and robust communication with the stakeholders is essential to ensure that they are not left behind. This involvement goes beyond simply providing information; as it requires listening to feedback and adapting projects to reflect the needs and priorities of the affected communities (Herremans et al., 2016). When the stakeholders feel that their voices are genuinely considered and their concerns about economic survival and livelihood can be addressed in a collaborative manner, the result thereof is making the energy transition more sustainable and equitable (Civera et al., 2019). Ultimately, this strategy raises trust, minimises conflict and enhances the likelihood of long-term success for the energy transition initiatives.

6.3 Discussion: Research Sub-Question 2

Research sub-question 2: What are the relationships between the different actors and stakeholders during the energy transition in the mining industry?

The second research sub-question explored the stakeholder dynamics driving the relationships between the different actors and stakeholders to determine the role of stakeholder engagement in energy transition. Marcon Nora et al. (2023) recognise that there are different actors with different interests and participation during the energy transition process. The stakeholder dynamics regarding the relations of the different actors and stakeholders are discussed through the following drivers: stakeholder interaction and policy and implementation. Vallecha and Bhola (2019) highlight that the actor-network theory recognises both human and non-human factors. Marcon Nora et al. (2023) also acknowledge that not all the actors can be regarded as stakeholders, but each actor, as much as different stakeholders, has room to play during the energy transition process.

6.3.1 Stakeholder Interaction

Stakeholder interaction plays a critical role in shaping the dynamics of energy transition within the mining sector, as it encompasses the complex relationships between the various actors and stakeholders (Civera & Freeman, 2019). The study findings indicate that meaningful engagement, collaboration, and the alignment between these parties are essential for the successful implementation of the energy transition strategies, which Kujala et al. (2022) also highlight as a key component. Platforms such as the Mining Indaba and the Chamber of Mines serve as spaces

for dialogue and policy articulation, by offering opportunities for the stakeholders to discuss pressing issues such as local content, skills development and sustainable practices. However, the study findings raised concerns about the gap between policy intentions and implementation. As noted in the study findings, while discussions take place on such platforms, tangible outcomes, such as enhanced local content and skill development, are often lacking. This highlights the need for better alignment between the policies discussed in these forums and their actual impact on the ground pertaining to energy transition initiatives.

The stakeholder interactions in the energy transition process reveal a fragmented governance structure that complicates the efforts to coordinate and align policy with urgency, as noted in the study's findings. Various government departments, development finance institutions, and private entities each pursue their own development goals, often leading to siloed approaches that hinder cohesive progress. As highlighted in the findings, the challenge of navigating these disjointed efforts with different departments, such as the National Treasury and the Department of Mineral Resources and Energy, operating with separate priorities is noted. This fragmentation can lead to inefficiencies and delays, particularly when trying to balance the economic, environmental, and social objectives in the energy transition. The lack of a unified strategy and the presence of multiple, sometimes conflicting interests complicate stakeholder engagement and reduce the effectiveness of collaborative efforts (Chipangamate et al., 2023).

The study findings suggest that overcoming these challenges requires a more integrated and inclusive approach to stakeholder engagement, a sentiment that is also shared by the Presidential Climate Commission (2022). In particular, the investors play a crucial role in driving climate strategies and in fostering the industry's best practices. Their involvement, alongside consistent communication and collaboration across all the stakeholder groups, is vital to building trust and cooperation (Civera & Freeman, 2019). Presenting the energy transition as an economic and health necessity while ensuring that the stakeholders are informed and engaged throughout the process can help to address resistance and encourage acceptance. Ultimately, the success of the energy transition in the mining sector will depend on harmonising the policy goals with operational realities and creating an inclusive environment where all the stakeholders feel heard and

valued (Tladi et al., 2024). In the long run, this approach can help to deliver sustainable solutions that benefit both the industry and the communities it affects.

6.3.2 Policy and Implementation

The policy and implementation dynamics surrounding the energy transition in the mining sector reflect the gap between formulation and practical execution. As pointed out previously, the Mining Indaba and the Chamber of Mines offer valuable spaces for discussion and policy articulation; though translating these dialogues into actionable outcomes remains a challenge. Despite numerous police discussions, the tangible impact on the local communities and the workforce capacity remains limited. A lack of a unified policy framework is noted by the Presidential Climate Commission (2022). As pointed out in the findings, “there still not enough skills in the transition itself”, thus indicating a disconnect between the policy intentions and their real-world implementation.

Another critical issue identified in the findings is the disparity in project implementation, particularly regarding community-based policy influence and local involvement in decision-making. The findings pointed out that the energy transition policies often overlook the needs and perspectives of the local communities, thereby leading to resistance and a sense of exclusion, a sentiment also shared by (Dmytriyev et al., 2021). This lack of community engagement diminishes the policy’s integrity and the just aspect of the transition, as it fails to reflect the voices of those most impacted by the energy projects. The study’s findings highlighted the importance of community-based policy influence, stating that they do not see results of the promised local content and community benefits. This disparity between the rhetoric of inclusivity in policy development and the reality of implementation further drives scepticism and cynicism among the stakeholders. To close this gap, a more inclusive approach is needed, where the communities are actively involved in shaping policies that affect them, thus ensuring that their concerns and aspirations are addressed from the onset (Civera & Freeman, 2019).

The long-term strategy for energy transition must include all relevant stakeholders, including government agencies and departments, local communities, industry leaders, and investors (Todd & McCauley, 2021). The findings suggest that to build a sustainable energy future, the policies must move beyond short-term, fragmented solutions and embrace a holistic, long-term strategy. This strategy must prioritise skills development, local content generation, and meaningful community

engagement, ensuring that the benefits of the energy transition are equitably distributed. Additionally, policy integrity must be maintained by aligning the intentions of the national and local policies with transparent and accountable implementation processes. This requires closing the gap between policy development and actual project outcomes, where inclusive dialogue and genuine stakeholder participation can improve trust and collaboration (Haroon & Malik, 2018). By addressing these systematic issues, the energy transition can become a more inclusive, effective, and sustainable process (Newell & Mulvaney, 2013).

6.4 Discussion: Research Sub-Question 3

Research sub-question 3: Can stakeholder mapping be used to enable and benefit improved stakeholder engagement in energy transition?

The third research sub-question explored utilising stakeholder mapping to enhance engagement in the energy transition. Stakeholder mapping can serve as an effective tool to enhance stakeholder engagement (Okazaki et al., 2021). If identified, the power, interest, and influence that the different stakeholders possess can pave the way to map different stakeholders to define ways and levels of engagement (Walker et al., 2008). The study focused on the following sub-themes to explore the research sub-question: inclusivity and legitimacy in stakeholder engagement, tailored approaches and communication strategies, power dynamics and challenges in engagement, as well as the effectiveness and utility of stakeholder mapping.

6.4.1 Inclusivity and Legitimacy in Stakeholder Engagement

The study's findings underpinned the crucial role of inclusivity and legitimacy in stakeholder engagement within the energy transition (Slabbert, 2016). Stakeholder mapping emerged as a pivotal tool to ensure that all the relevant voices, including marginalised groups such as the community members and the traditional leaders, are incorporated into the decision-making process. The findings emphasised that stakeholder mapping must avoid selection bias and ensure that engagement is not treated as a mere formality. The importance of legitimacy in stakeholder selection, as well as engaging legitimately rather than using stakeholder engagement as a tick box exercise are also highlighted in the findings. This indicates that for stakeholder engagement to be successful, it must authentically include all the appropriate stakeholders, ensuring that various perspectives are represented and respected (Civera et al., 2019). The study noted that the traditional leaders, the

faith leaders, and the NGOs play a central role in engagements. Inclusivity, therefore, is not just about the numbers but ensuring that diverse, legitimate stakeholders are actively participating in shaping the energy transition.

6.4.2 Tailored Approaches and Communication Strategies

The study findings highlight that tailored approaches and communication strategies are vital in enhancing stakeholder engagement during the energy transition. They emphasised that stakeholder mapping must consider different stakeholder groups' unique needs, concerns, and communication preferences to ensure meaningful engagement (Walker et al., 2008). As noted from the study, the remark “when we engage mining houses, you use a different approach …the content of engagement will be different from when you approach the communities” suggests that stakeholder engagement cannot adopt a one-size-fits-all strategy, as the nature and dynamics of different groups vary. Stakeholder mapping, therefore, allows for the design of differentiated communication strategies that align with each group’s specific needs and interests (Walker et al., 2008). This approach enhances the effectiveness of the engagement efforts by ensuring that the stakeholders feel heard and respected rather than overwhelmed by irrelevant or inappropriate messaging.

However, power dynamics and community challenges were also noted as significant barriers to effective stakeholder engagement. The process of stakeholder selection, for instance, can be manipulated by those in positions of power, thereby excluding critical voices from the marginalised or the less powerful groups (Mzembe, 2016). This, in essence, highlights the risk of selective inclusion. Furthermore, the divisions within the communities are often exacerbated by the mining companies, which can hinder consensus building and undermine the stakeholder mapping process. Therefore, stakeholder mapping must not only be context-specific, but must also consider and address underlying social and power dynamics to improve genuine inclusivity and legitimacy.

6.4.3 Power Dynamics and Challenges in Engagement

Power dynamics and the challenges in stakeholder engagement emerged as significant factors influencing the effectiveness of the energy transition efforts, as also noted by Mzembe (2016). The empirical data revealed that the stakeholders in positions of power often dictate who participates in these engagements, which can lead to selective inclusion. This shows that when personal or organisational

agendas influence engagement processes, it can result in the exclusion of critical voices, especially those of marginalised communities. This selective engagement undermines the legitimacy of stakeholder mapping and creates challenges in addressing the full spectrum of perspectives that are necessary for a just energy transition. The findings also noted that the community divisions, often fuelled by external factors such as the mining companies, further complicate the efforts to achieve consensus, as the unresolved community conflicts hinder meaningful participation.

Additionally, the power imbalances can distort the purpose of stakeholder mapping, turning it into a tool for validating predetermined decisions rather than fostering genuine dialogue (Harrison et al., 2019). The analysis underlines the challenge of navigating these dynamics while striving for inclusivity. The divisions within the communities also highlight the need for the facilitators of the engagement process to be aware of these dynamics and actively work towards resolving conflicts and building trust among the stakeholders. The failure to address these power imbalances can result in stakeholder engagement that is more symbolic than substantive, ultimately weakening the process and its outcomes. Effective stakeholder mapping must, therefore, be sensitive to these challenges, ensuring that all the voices, especially those from the traditionally marginalised groups, are included and empowered in the decision-making process (Chilvers et al., 2021).

6.4.4 Effectiveness and Utility of Stakeholder Mapping

The effectiveness and utility of stakeholder mapping in the energy transition efforts are highlighted as critical components for ensuring inclusive and legitimate engagement (Okazaki et al., 2021). The study emphasised that when applied correctly, stakeholder mapping can be a powerful tool to ensure that all the relevant voices are included in the engagement process. This inclusion encourages significant legitimacy and transparency, which are critical factors for achieving consensus in complex projects such as energy transition (Chilvers et al., 2021). This further highlights a key strength of stakeholder mapping: its ability to counteract the common pitfall of superficial engagement by ensuring that all the relevant parties are included from the beginning (Chilvers et al., 2021). However, this utility is only realised if the process is implemented sincerely and without bias.

However, the study findings also revealed that stakeholder mapping is not without challenges despite its potential. As pointed out, its limitations included the potential

for power dynamics to distort the process. For instance, the unresolved divisions within the communities or the influence of influential stakeholders can skew the mapping process and result in the exclusion of critical voices. This highlights the complexity of using stakeholder mapping as a tool that can either be a force for genuine inclusivity or a vehicle for maintaining existing power structures. The findings suggest that for stakeholder mapping to be effective, it must go beyond simply identifying the stakeholders and involve continuous, genuine engagement that addresses the concerns of all the parties. Ultimately, stakeholder mapping can significantly improve the engagement efforts in the energy transition, but only if it is free from manipulation and driven by a commitment to transparency and inclusivity (Chilvers et al., 2021).

6.5 Credibility and Validity of the Findings

Theory triangulation was the triangulation method that was used to affirm the credibility and validity of this study. Thus, different theories can guide and assist the researcher in substantiating or challenging their findings (Triangulation, 2014). The stakeholder theory and the actor-network theory were ideal theories for this study to test the credibility and validity of the findings related to the constraints affecting stakeholder engagement, the relationships among actors and stakeholders, and stakeholder mapping in the energy transition, all in the quest to understand the role of stakeholder engagement towards inclusive transition.

6.5.1 Triangulation: Constraints Affecting Stakeholder Engagement

Stakeholder Theory Perspective: From the lens of the stakeholder theory, the identified constraints, such as the exclusion of the local communities, the lack of equitable participation, and the governance challenges, reflect the failures in inclusivity and fair representation. The stakeholder theory emphasises that all the relevant stakeholders should have a voice in decision-making (Freeman et al., 2020). The findings suggest a disconnect between the principles of inclusivity and actual engagement practices, which is valid and credible when viewed through the lens of the stakeholder theory.

ANT Perspective: ANT highlights the role of both human (such as local communities and government) and non-human actors (such as forums, policies, and technologies) in shaping the outcomes about energy transition. The identified constraints, such as the cost barriers and institutional frameworks, align with ANT's view that the systematic factors (non-human actors) also impact engagement

(Missonier & Loufrani-Fedida, 2014). This enhances the validity of the findings by considering the broader network of influences beyond just the human relationships, thereby reinforcing the credibility of the identified constraints.

6.5.2 Triangulation: Relations of Different Actors and Stakeholders

Stakeholder Theory Perspective: The findings reveal misalignment and fragmented governance among the different stakeholders. The stakeholder theory helps to validate this by focusing on the need for coordination and collaboration among the various actors (Freudenreich et al., 2020), such as the government, the finance institutions, and the local communities. The gaps in policy formulation and implementation and the lack of inclusivity reflect a failure to adhere to the stakeholder theory's principles, which supports the credibility of these findings.

ANT Perspective: ANT further validates these findings by considering the role of non-human actors (such as energy policies, forums, and platforms such as the Mining Indaba) in shaping interactions. ANT's notion that actors, including non-human elements like policy frameworks, shape the engagement process (Marcon Nora et al.,2023) can explain the lack of alignment between the policy discussions and practical outcomes. This reinforces the validity of the findings by providing a more nuanced understanding of the dynamics at hand.

6.5.3 Triangulation: Stakeholder Mapping

Stakeholder Theory Perspective: The stakeholder theory highlights the importance of identifying and including all the relevant voices in the engagement process (Freeman et al., 2020). This is necessary for stakeholder mapping to be effective. The findings emphasised the role of stakeholder mapping in ensuring inclusivity, avoiding selection bias, and addressing power dynamics (Okazaki et al., 2021). These insights align with the stakeholder theory, validating the importance of stakeholder mapping as a tool to promote fair and legitimate engagement, thus supporting the credibility of the research (Civera et al., 2019).

ANT Perspective: From the ANT perspective, power dynamics and the role of both human and non-human actors are critical in shaping the effectiveness of stakeholder mapping (Sage et al., 2011). The findings that power imbalances can distort the stakeholders' purposes align with ANT's focus on how various actors (such as community leaders and policies) can influence engagement. This highlights that stakeholder mapping must account for the entire network of actors

involved, thus enhancing the validity of the research by addressing the complexity of interactions.

The study effectively employed theory triangulation through Stakeholder Theory and ANT to establish the robustness of the findings. By incorporating both theories, the study addresses stakeholder engagement constraints, the relationships among actors, and the role of stakeholder mapping in the energy transition process with depth and validity. Each theory offers a unique lens to affirm that the identified constraints, dynamics, and power imbalances in the stakeholder relationships are not only reflective of the engagement challenges but also validated through theoretical support.

Stakeholder Theory supports the study's credibility by highlighting gaps in inclusivity, equitable participation, and coordination among actors, emphasising that effective engagement should include diverse stakeholders in decision-making processes. ANT further reinforces these findings by examining how non-human elements, such as policies, technologies, and forums, influence engagement outcomes, thereby validating that structural and institutional factors also significantly impact the energy transition. The two theories together enhance the study's credibility and validity by providing a multidimensional perspective on stakeholder engagement in the energy transition.

6.6 Summary

In summary, the study's exploration of the factors affecting the role of stakeholder engagement during the energy transition in the mining industry revealed critical insights into the challenges and opportunities that arise during this process. Effective stakeholder engagement is essential for a successful transition, yet various barriers hinder meaningful participation, such as community relations, governance issues, and systematic challenges. The research findings also highlighted the intricate stakeholder dynamics in the mining industry's energy transition, emphasising the importance of effective engagement and policy implementation. Stakeholder mapping is also a tool that can enhance engagement by identifying and addressing the unique needs of the different stakeholders. Ultimately, a cohesive strategy that is for genuine dialogue and inclusivity is crucial for achieving a successful and sustainable energy transition.

CHAPTER 7: CONCLUSION AND RECOMMENDATIONS

7.1 Introduction

The conclusion and recommendations chapter of this research on the role of stakeholder engagement in the energy transition towards a more inclusive energy transition consolidates the critical insights gained throughout the study and proposed actionable steps for improving stakeholder involvement. As the global shift towards cleaner energy accelerates, it is crucial to ensure that the transition process is not only environmentally sustainable but that it is also socially inclusive (Carley & Konisky, 2020). Throughout this study, the voices and perspectives of various stakeholders, ranging from the community members, the community leaders, policymakers, industry experts, government officials, NGOs, the employees and trade unions, have been explored to understand their role in shaping energy transition. The insights reveal both challenges and opportunities in making the transition more inclusive and responsive to the needs of all the affected groups. In this chapter, a reflection on these findings is made, and recommendations are provided to help to strengthen the engagement initiatives, thereby ensuring that everyone's voice is heard and valued in the journey towards a more just and sustainable energy transition (Just Transition Center, 2017; Presidential Climate Commission, 2022).

7.2 Research Findings

7.2.1 Constraints Affecting Stakeholder Engagement

The findings effectively addressed the research sub-question one to unpack the main research question on the role of stakeholder engagement during the energy transition. Several key constraints that affect stakeholder engagement were identified. One major constraint that was highlighted was the issue of community relations. The study pointed out that the local communities, which play a pivotal role as critical stakeholders in the energy transition process, often feel excluded from decision-making, particularly when it comes to large-scale projects such as the renewable energy initiatives. This exclusion erodes trust and leads to disengagement (Civera & Freeman, 2019), as evidenced by the failure of a solid plant project due to a lack of proper community engagement. The leadership conflicts within the communities, unclear communication, and the unmet expectations regarding the economic benefits of these projects further exacerbate the issue, thereby leading to resistance and project failures (Dmytriyev et al., 2021).

Governance and the decision-making challenges also surface as a significant constraint, with stakeholders, particularly marginalised communities and trade unions, feeling superficially consulted rather than genuinely involved. As noted in the study, the lack of an equitable regulatory framework favours the wealthier entities over the smaller players and capable stakeholders, highlighting key challenges and creating a barrier to inclusive engagement.

The study also explored the systematic challenges within the institutional frameworks as a significant constraint. These include the cost barriers associated with the energy transition projects, which disproportionately impact economically disadvantaged stakeholders and prevent them from participating meaningfully. The study also emphasised that the high cost of sustainable energy solutions often creates a disconnect between the environmental goals and the economic realities of the local communities, who feel excluded from the benefits of the energy transition projects. This systematic gap in communication and collaboration between the mining companies and communities results in projects being viewed as only benefiting the companies involved. To overcome these barriers, the study advocated for building trust through transparency, reframing economic concerns to focus on long-term benefits, and ensuring that the stakeholders are involved throughout the energy transition process (Moomen & Dewan, 2017). Incorporating stakeholder value creation flow can further improve the relations of stakeholders and its importance in engagement for sustainability projects (Attanasio et al., 2022). These strategies are crucial to reducing resistance and encouraging cooperation, ultimately making the transition more equitable and sustainable for all the stakeholders.

7.2.2 Relations of Different Actors and Stakeholders

The study thoroughly addressed research sub-question two regarding the relationships between the different actors and stakeholders during the energy transition in mining (Kujala et al., 2022). The findings highlighted that stakeholder interaction is pivotal in the success or failure of the energy transition initiatives. Complex dynamics exist between the government agencies, the development finance institutions, the private companies, and the local communities, all with varying interests. Platforms such as the Mining Indaba and the Chamber of Mines serve as actors to engage in policy discussions. However, there is often a gap between policy formulation and real-world implementation. The study noted that

although these forums provide space for dialogue, tangible outcomes such as the improvements in local content and skills development are frequently missing, thus reflecting misalignment between policy discussions and operational execution. This misalignment reveals a fragmented governance structure, with different stakeholders pursuing separate priorities, further complicating the coordination and stakeholder engagement efforts.

Furthermore, the research highlighted the significant role of policy and implementation in shaping the dynamics between the actors and stakeholders (Marcon Nora et al., 2023). It emphasised the disconnect between high-level policy intention and the lived realities of the local communities, which often feel excluded from the decision-making process. The findings pointed out that failing to include these communities in shaping the energy transition policies has led to resistance and diminishing trust in the transition process, a sentiment shared also by Herremans et al. (2016). The lack of community benefits and local content in the project outcomes stresses a critical failure in stakeholder engagement. Addressing these challenges requires a holistic and inclusive approach, ensuring that all the relevant stakeholders from the government agencies, the mining companies, and the local communities are involved throughout the energy transition process (Moomen & Dewan, 2017). This approach is crucial for achieving sustainable long-term success that balances the needs of all the stakeholders.

7.2.3 Stakeholder Mapping

The research sub-question three regarding whether stakeholder mapping can enable and improve stakeholder engagement in the energy transition was adequately addressed in the study. The findings emphasised that stakeholder mapping is essential for ensuring inclusivity and legitimacy in the engagement processes (Chilvers et al., 2021). It allows for the identification of key stakeholders, such as community leaders, NGOs, and other marginalised groups, ensuring their voices are represented in decision-making (Okazaki et al., 2021). By avoiding selection bias, stakeholder mapping can promote authentic engagement, ensuring that it is not just a formality but an opportunity for legitimate dialogue. The study also highlighted the importance of using stakeholder mapping to create tailored approaches and communication strategies that cater to the different groups' diverse needs and perspectives, ultimately improving the overall quality of engagement.

However, the study also revealed the challenges associated with the power dynamics in stakeholder engagement, which can compromise the effectiveness of stakeholder mapping. Mzembe (2016) also notes this. In some cases, those in positions of power can manipulate the process, excluding critical voices, especially from the marginalised communities. These power imbalances can distort the purpose of stakeholder mapping, turning it into a tool for reinforcing existing hierarchies rather than for improving meaningful engagement. Despite these challenges, the study concluded that when applied sincerely, stakeholder mapping has the potential to significantly enhance the inclusivity, legitimacy and transparency of the energy transition efforts (Chilvers et al., 2021). It requires continuous, genuine engagement and a commitment to addressing power imbalance to achieve its full potential.

7.3 Summary of Findings

The research sub-questions collectively addressed and answered the main research question, providing a comprehensive understanding of the role stakeholder engagement should play in the energy transition. The findings highlight that stakeholder engagement is critical to ensuring an inclusive energy transition. It stressed the importance of meaningful stakeholder interaction, where effective collaboration and alignment between various actors and stakeholders exist for the successful implementation of the energy transition strategies. Stakeholder mapping emerged as a vital tool for promoting inclusivity and legitimacy, as it ensures that the marginalised voices are incorporated into the decision-making process. However, the research also identified challenges such as power imbalances and fragmented governance, which can hinder engagement efforts. To cover these challenges, a tailored approach to communication and a commitment to continuous, genuine engagement is essential (Kujala et al., 2022). By promoting trust and collaboration among the diverse stakeholders, stakeholder engagement can play a pivotal role in achieving a just and inclusive energy transition where policies are aligned with operational realities and community needs (Civera & Freeman, 2019; Civera et al., 2019).

7.4 Proposed Framework

Based on the findings from this research on the role of stakeholder engagement in the energy transition, a proposed framework for future stakeholder engagement efforts towards a more inclusive energy transition in the mining sector can be

organised into five interconnected components. Each component addresses a key theme that emerged during data analysis. Including inclusivity, legitimacy, communication strategies, power dynamics and long-term strategy. The framework emphasises practical steps to improve stakeholder engagement and achieve a more equitable and inclusive transition in the mining sector (Figure 6 and Table 10).

7.4.1 Inclusivity and Representation

The objective of stakeholder inclusivity and representation in the energy transition is to ensure that all the relevant stakeholders, particularly the marginalised communities, the traditional leaders, women, youth, and the local organisations, are actively involved in the discussions. This can be achieved through comprehensive stakeholder mapping to identify all the potential participants, thereby ensuring that traditionally underrepresented groups are included in decision-making processes. Accessible platforms for engagement that respect the local cultural contexts must be provided alongside feedback loops that guarantee ongoing representation and participation throughout the process.

7.4.2 Legitimacy and Accountability

The goal of legitimacy and accountability in stakeholder engagement is to build trust and prevent tokenism by ensuring that the involved stakeholders are truly representative and credible. This can be achieved by prioritising the inclusion of legitimate stakeholders over selective or biased engagement, using clear criteria to avoid conflicts of interest. Regular reviews and evaluations of stakeholder legitimacy are necessary to maintain accountability. Additionally, a transparency mechanism should be established to allow the stakeholders to assess the fairness of their involvement and ensure that the process remains open and equitable.

7.4.3 Communication and Engagement Strategies

Tailored communication and engagement strategies aim to address the diverse needs of different stakeholder groups by customising approaches based on their unique interests and contexts. This involves developing engagement methods specific to industry, communities, and NGOs and creating communication strategies that accommodate varying levels of technical understanding as well as cultural expectations. A mix of traditional and modern media could be used to reach a wider audience. Additionally, encouraging two-way communication is essential to promote active participation and facilitate meaningful dialogue.

7.4.4 Power Dynamics and Overcoming Barriers

Addressing dynamics and overcoming barriers is critical to ensuring equitable participation in the energy transition. This involves mapping power structures within the stakeholder groups to identify and mitigate potential marginalisation. Empowering disadvantaged stakeholders, such as rural communities and employees, through resources and training advances meaningful engagement and provides clarity.

7.4.5 Long-Term Strategy

A long-term strategy for stakeholder engagement in the energy transition requires continuous evolution to ensure sustained inclusivity and impact. This involves developing a roadmap that aligns with key energy transition milestones while incorporating ongoing learning by evaluating stakeholder feedback and adapting strategies as needed. Regular reassessments should be conducted to update the engagement strategies based on the emerging challenges and shifting stakeholder needs. Additionally, adopting collaboration and partnerships will bring in diverse expertise and resources, thus ensuring the long-term success and inclusivity of the energy transition.

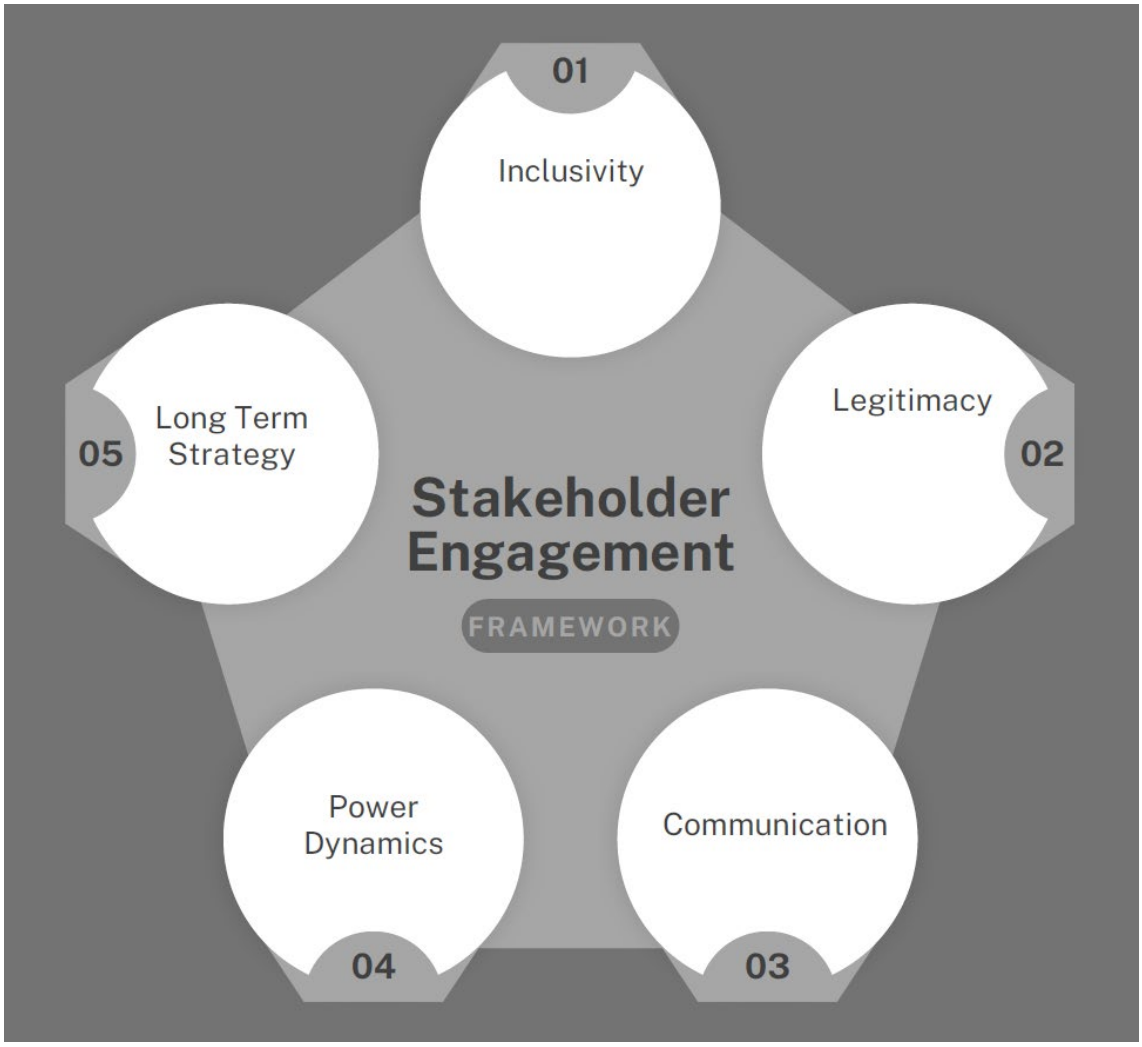

Figure 6: Proposed Stakeholder Engagement Framework for Inclusive Energy Transition in the Mining Sector.

Source: Author's own

Table 10: Summarised Proposed Stakeholder Engagement Framework with Practical Steps

Framework Component	Objective	Practical Steps
Inclusivity and representation	To ensure that all the stakeholders, particularly the marginalised groups, are actively involved in decision-making.	Comprehensive stakeholder mapping to identify all potential participants.
		Include underrepresented groups (e.g., women, youth, traditional leaders).
		Provide accessible platforms for engagement that respect local cultures.
		Maintain feedback loops to ensure ongoing participation.
Legitimacy and accountability	To build trust and avoid tokenism by ensuring that the stakeholders are truly representative and credible.	Prioritise inclusion of legitimate stakeholders using clear criteria.
		Conduct regular reviews and evaluations of stakeholder legitimacy.
		Establish transparency mechanisms for stakeholders to assess the fairness and openness of their involvement.
Communication and engagement strategies	To tailor approaches to address diverse stakeholder needs based on interests and contexts.	Develop customised engagement methods for industry, communities, NGOs, etc.
		Create communication strategies that accommodate different technical levels and cultural expectations.
		Use a mix of traditional and modern media.
		Foster two-way communication to encourage active participation and meaningful dialogue.
Power dynamics and overcoming barriers	To address the power imbalances and ensure equitable participation.	Map power structures within stakeholder groups to identify potential marginalisation.
		Empower disadvantaged groups (e.g., rural communities, employees) through resources and training.
		Provide clarity and support to enable meaningful engagement.
Long-term strategy	To ensure sustained inclusivity and impact through continuous evaluation and adaptation.	Develop a long-term roadmap aligned with energy transition milestones.
		Regularly reassess and update engagement strategies based on emerging challenges.
		Foster collaboration and partnerships to bring in diverse expertise and resources.
		Incorporate ongoing learning by evaluating stakeholder feedback and adapting strategies accordingly.

This framework aligns with the key themes identified in the research, ensuring that the energy transition process is inclusive, legitimate, and guided by the stakeholders' voices. It provides a practical roadmap for improving stakeholder engagement efforts and creating a more just and equitable transition to sustainable energy.

7.5 Value of the Study

7.5.1 Implication for Business

The implications for business, based on the findings, emphasise the need for the companies, particularly in sectors such as mining, to adopt more inclusive and transparent stakeholder engagement practices during the energy transition. Businesses must recognise that effective stakeholder engagement is not just a regulatory or compliance requirement, but it is a strategic imperative that can drive long-term sustainability and success. By mapping the stakeholders thoroughly and ensuring that all relevant voices, including those of the marginalised communities, the local government, and the environmental groups, are considered, businesses can build trust, avoid conflicts, and foster greater collaboration. This approach reduces not only the risks but also positions companies as leaders in responsible business practices, enhancing their reputation and ability to attract investment, particularly in the context of climate-conscious investors.

Furthermore, the findings are of the view that the businesses must address the power imbalances within the stakeholder engagements to ensure more equitable and meaningful participation. The companies that manipulate stakeholder mapping or exclude critical voices risk undermining their legitimacy and facing resistance, which can delay or derail the energy transition projects. To avoid this, the businesses must adopt tailored approaches to communication, actively work to resolve conflicts, and ensure transparency in decision-making processes. By doing so, the businesses can align their energy transition efforts with broader social and environmental goals, ensuring that their strategies not only comply with policies but also reflect the needs and aspirations of the communities they operate in. This will ultimately lead to more sustainable, inclusive growth and long-term success.

7.5.2 Implication for Theory

The implications for theory based on the research findings contribute to the existing literature on the role of stakeholder engagement during the energy transition. The constraints identified, such as the exclusion of the local communities and

governance challenges, reinforce and extend the work of Civera and Freeman (2019) as well as Dmytriyev et al. (2021), who highlighted the consequences of neglecting meaningful engagement in large-scale initiatives. These findings highlight the need for a more equitable regulatory framework and better governance structures, aligning with stakeholder theory, which advocates for inclusive decision-making processes that genuinely incorporate the needs and concerns of all the parties involved. Furthermore, the study's emphasis on addressing economic disparities through transparent and long-term benefits contributes to the growing literature on how stakeholder engagement can mitigate resistance and promote cooperation, particularly in energy transition contexts, as suggested by Moomen and Dewan (2017).

In terms of the actor-network theory, the study findings on the interactions between the different actors and stakeholders highlight the complexity of energy transition governance, as also noted by Kujala et al. (2022). This theory helps to explain the fragmented governance structures and misalignment between policy formulation and implementation, providing a deeper understanding of the power dynamics at play in stakeholder engagement. The use of stakeholder mapping as a catalyst to improve inclusivity and legitimacy further supports the literature by Chilvers et al. (2021) and Okazaki et al. (2021), thereby suggesting that while this method can enhance engagement, the power imbalances can still compromise its effectiveness. By integrating both the stakeholder theory and actor-network theory, this research contributes to a more comprehensive understanding of how to address the complex challenges in stakeholder engagement for energy transition projects.

7.5.3 Suggestion for Future Study

Future research should investigate the effectiveness of different stakeholder engagement strategies across various disciplines of the energy transition, focusing on how these strategies can overcome constraints such as power imbalances and governance fragmentation. Specifically, the studies could explore how systematic challenges, such as cost barriers and the exclusion of marginalised communities, can be mitigated by a more inclusive policy framework. Comparative analyses across different regions and types of energy projects, such as renewable energy versus traditional energy sector, could provide valuable insights into best practices for the role of stakeholder engagement in diverse socio-economic contexts.

Additionally, future research could examine the long-term effects of stakeholder mapping and its role in driving trust and reducing resistance in the energy transition projects. Investigating how the stakeholder relationships evolve over time and how power dynamics shift with these relationships would provide a more comprehensive understanding of how to sustain stakeholder engagement and ensure equitable participation. Furthermore, the studies should consider the role of evolving communication strategies, particularly those that cater to local contexts and technical understanding, to improve meaningful dialogue and cooperation among the diverse stakeholders in the energy transition process.

7.6 Recommendations

7.6.1 Recommendations for Stakeholders

Based on the findings, the mining companies, the communities, and the government entities should prioritise transparent, inclusive stakeholder engagement to ensure the success of energy transition projects. The mining companies should actively involve the local communities in the decision-making process from the onset, addressing unmet expectations by clearly communicating the economic and social benefits of the projects. The communities should be empowered through leadership training and support to participate effectively in dialogues, reduce internal conflicts, and enhance collaboration. The government entities must create equitable regulatory frameworks that ensure that marginalised groups are genuinely represented and consulted. Additionally, all the stakeholders should encourage continuous, open communication to build trust, mitigate power imbalances, and align policy intentions with the lived realities of communities, thereby ensuring a just and sustainable energy transition.

7.6.2 Recommendations for Practice

For practical application, it is essential that the mining companies implement comprehensive stakeholder mapping to identify and engage all the relevant stakeholders, including marginalised groups, early in the project planning phase. Clear communication strategies tailored to different stakeholders' needs should be developed, using both traditional and digital platforms to ensure accessibility. Equally important is the establishment of regular feedback loops. This practice, which is crucial for maintaining continuous engagement and for promptly addressing concerns, should be a standard procedure. Training programmes for community leaders and stakeholders can improve their participation in decision-

making, while transparent monitoring and reporting mechanisms could be implemented to ensure accountability. Additionally, the government entities must streamline regulatory processes and facilitate collaboration between the stakeholders to remove barriers to participation, thus encouraging a more inclusive and equitable energy transition.

7.7 Limitations to the Research Study

In the context of this exploratory, qualitative research study, the limitations inherent to the design pose challenges to the generalisability of the findings. Due to the design and scope of the study, additional limitations, such as researcher bias, time horizon bias, and gender bias, were identified.

7.7.1 Researcher Bias

This study notes the researcher's bias as a limitation, primarily due to the researcher's professional involvement in the mining industry. This insider perspective, while valuable for industry insights, could have introduced bias in how the stakeholder engagement challenges are perceived or how certain actors are portrayed. The researcher recognised the possibility of this bias and mitigated it by including diverse sources, both internal and external interviewers, in data collection.

7.7.2 Time Horizon

Another limitation of this study was its time horizon, as it was conducted over a relatively short period, which may not have allowed for a comprehensive exploration of the ongoing energy transition in the mining sector. Energy transition is a long-term process influenced by evolving policies, technological advancements, and shifting stakeholder dynamics. The short time frame may have captured only a snapshot of this development, potentially overlooking the changes in the stakeholder engagement practices or the long-term impact of initiatives aimed at inclusivity. Additionally, certain trends or challenges that emerged over time, such as sustained community resistance or the effectiveness of policy implementation, may not have been fully visible within the study's limited duration.

7.7.3 Gender Bias

Gender bias emerged as a notable limitation in this study due to the disproportionate representation of the male participants, particularly in the community. The dominance of male voices in the interviews may have skewed the findings, potentially overlooking important perspectives from women, who often

play critical roles in community decision-making and are also impacted by the energy transition initiatives. The respondents were primarily male and they were from the community.

7.8 Conclusion

The research study concludes that stakeholder engagement plays a crucial role in ensuring an inclusive and equitable energy transition, especially in the mining sector. The study identified key constraints, such as community exclusion, governance challenges, and power imbalances, which hinder meaningful engagement and lead to project failures and resistance. To overcome these barriers, the research emphasised the importance of building trust through transparent communication, addressing economic concerns, and involving all the relevant stakeholders, particularly marginalised communities, in the decision-making processes. The study further highlights the need for a more inclusive approach that prioritises local community participation and equitable regulatory frameworks by highlighting these constraints.

Moreover, the study underlines the value of stakeholder mapping as a tool to improve inclusivity, legitimacy, and transparency in the energy transition. It highlights the complex relationships between various actors and stakeholders, such as government agencies, companies and local communities, and the need for alignment between policy intentions and operational realities. The proposed framework for stakeholder engagement focuses on inclusivity, accountability, tailored communication strategies, and long-term collaboration. By addressing power dynamics and fostering continuous engagement, the research concludes that a more inclusive energy transition is achievable through the effective role of stakeholder engagement, benefiting all the stakeholders and contributing to sustainable development in the mining sector.

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APPENDIX 1: CONSISTENCY MATRIX

QUESTIONS	*Research Sub-Question*	LITERATURE REVIEW	DATA COLLECTION	ANALYSIS
Research Question 1	***Research Sub-Question 1***			
What should the role of stakeholder engagement be in the energy transition towards a more inclusive energy transition?	*What constraints affect stakeholder engagements during energy transition in the mining industry?*	Freeman et al. (2020)	Questions 2 to 4 in the Questionnaire.	Analysis of the constraints identified.
	Research Sub-Question 2			
	What are the relations of different actors and stakeholders during the energy transition in the mining industry?	Marcon Nora et al. (2023)	Questions 5 to 9 in the Questionnaire.	Analysis of the relations.
	Research Sub-Question 3			
	Can stakeholder mapping be used to enable and benefit improved stakeholder engagement in energy transition?	Chilvers et al. (2021)	Question 10.	Analysis of the mapping.

APPENDIX 2: INDIVIDUAL CONSENT FORM

Participant consent form

I am a student at the University of Pretoria's Gordon Institute of Business Science, completing my research in partial fulfilment of an MBA. My name is Elelwani Machaka, and I would like to conduct an interview for a research project titled "The Role of Stakeholder Engagement in the energy transition towards a more inclusive energy transition." This study aims to understand the role of stakeholder engagement in facilitating the transition to cleaner energy sources and alternatives within the mining sector.

The urgency to address climate change has reached unprecedented levels, necessitating a rapid shift towards alternative, cleaner energy sources. The mining industry, known for its significant energy consumption and high greenhouse gas emissions, holds the potential to lead in this energy transition. However, the success of such initiatives depends heavily on the effectiveness of stakeholder engagement.

Your participation in the study will involve one-on-one interviews through a medium of your choice, where we will explore your perspective on stakeholder engagement during the energy transition within the mining industry. By delving into the implications, challenges, and opportunities of stakeholder engagement, we aim to provide insights that can inform ways to foster meaningful collaboration amongst different stakeholders.

Your expertise and insights are invaluable for addressing the research study and the advancement of the understanding of stakeholder dynamics in the context of the energy transition. Participation in this study is voluntary, and all information provided will be kept confidential. You can, at any given time, opt out or quit participation in the study. Your identity will not be revealed in any reports or publications resulting from the research. Your participation will involve approximately sixty minutes of your time for the interview.

Thank you for considering participation in this study.

Researcher: Elelwani Machaka Supervisor: Dr Sherin Ramparsad

Email:ele.machaka@gmail.com Email: sherin.ramparsad@gmail.com

Phone:0822020257 Phone: 0649080043

Signature of Participant _____

Date: _____ 2024

Signature of researcher: _____

Date: _____ 2024

APPENDIX 3: COMPANY CONSENT FORM

To whom it may concern,

Company XXXX, Mining Company

South Africa

I am a student at the University of Pretoria's Gordon Institute of Business Science, where I am completing my research in partial fulfilment of an MBA.

I am conducting research on The Role of Stakeholder Engagement in the energy transition towards a more inclusive energy transition.

I will be interviewing seven employees from your company, including the JET Senior Manager, Union members, Stakeholder Relations Manager, and Environment Manager.

Our interview is expected to last about an hour at maximum. It has 10 questions. Participation is voluntary, and participants can withdraw at any time without penalty. All data will be reported without identifiers, and company anonymity will be maintained at all times.

I will contact participants directly and schedule interviews as their schedules permit.

However, I need your company's permission to participate in this study. Please sign the consent form below on behalf of your mining company.

If you have any concerns, please contact my supervisor or me. Our details are provided below.

Researcher name	Elelwani Machaka
Email	ele.machaka@gmail.com
Phone	0822020257
Research Supervision name	Sherin Ramparsad
Email	sherin.ramparsad@gmail.com
Phone	0649080043
Name and Signature of P&O Manager, on behalf of Company XXXX, Mining Company	_____

Name and Signature of Talent &Org Effectiveness Manager, on behalf of Company XXXX, Mining Company	_____
Name and Signature of Executive, on behalf of Company XXXX, Mining Company	_____
Name of researcher	Elelwani Machaka
Signature of researcher	_____
Date	_____

APPENDIX 4: INTERVIEW GUIDE

Questionnaire

The interview guideline is designed to explore the role of stakeholder engagement during energy transition within the mining industry. It is structured to dive into stakeholders' relationships, engagement, challenges, benefits, and opportunities that may arise during the energy transition.

Interview Questions: For mines, labour and host community representatives

1. Can you describe your current involvement in energy transition initiatives within the mining industry?
2. From your perspective, what are the main drivers pushing the mining industry towards energy transition?
3. How do you perceive the role of stakeholder engagement in facilitating the energy transition process?
4. What specific challenges have you encountered in engaging with stakeholders during energy transition initiatives?
5. How do you prioritise stakeholder interests and needs when planning and implementing energy transition projects?
6. Can you provide examples of successful stakeholder engagement efforts that have supported energy transition goals in the mining industry?
7. In your opinion, what strategies or approaches can enhance stakeholder engagement and collaboration in energy transition projects within the mining sector?
8. How do you envision the future of stakeholder engagement evolving as the mining industry transitions to cleaner energy sources?
9. What are the constraints to stakeholder engagement in the energy transition towards a more inclusive energy transition?
10. Can stakeholder mapping be used to benefit improved stakeholder engagement in energy transition?

Interview Questions: For government and environmental organisations representatives

1. As a representative of [government entity/environmental organisation], what role do you see your organisation playing in promoting stakeholder engagement during energy transition initiatives in the mining industry?
2. From your perspective, what are the key constraints or barriers that shape stakeholder engagement during the energy transition in the mining sector?
3. How do you collaborate with primary stakeholders (e.g., mining companies, communities, labour unions) to address challenges and promote effective stakeholder engagement?
4. Can you share any insights into the relationships between different actors and stakeholders during the energy transition process in the mining industry?
5. What initiatives or policies has your organisation implemented to support stakeholder engagement and collaboration in energy transition projects?
6. How do you ensure that the interests of all stakeholders are considered and balanced in energy transition decision-making processes?
7. In your experience, what are some effective strategies for overcoming resistance or cynicism among stakeholders towards energy transition initiatives?
8. From your perspective, what opportunities exist for enhancing stakeholder engagement practices in the mining industry to ensure a smoother transition towards cleaner energy sources?
9. What should drive stakeholder engagement in energy transition towards a more inclusive energy transition?
10. Can stakeholder mapping be used to benefit improved stakeholder engagement in energy transition?

APPENDIX: 5 CODE BOOK

Research Sub-Question 1:	*What constraints affect stakeholder engagements during the energy transition in the mining industry?*		
	Codes	Sub-themes	Themes
	· Community engagement	Community Relations	Barriers to effective stakeholder engagement
	· Inadequate response to community concerns		
	· Community mistrust		
	· Land ownership disputes		
	· Unilateral decision-making	Governance and decision-Making	Constraints to Inclusive Stakeholder Participation
	· Leadership Conflict		
	· Transparency Issues		
	· Structural barriers	Systemic challenges	
	· Financial constraints		
	· Exclusivity and Elitism		
Research Sub-Question 2:	*What are the relationships between different actors and stakeholders during the energy transition in the mining industry?*		
	Codes	Sub-themes	Themes
	· Engagement forums	Stakeholder interaction	
	· Interaction with national departments and financial institutions		
	· Inclusion of community stakeholders		
	· Exclusion from decision-making		

	· Value of stakeholder experts		
	· Objective-focussed engagement		
	· Economic opportunities for stakeholders		
	· Tokenism in Stakeholder Engagement		
	· Benchmarking and best practices		
	· Engagement frequency and involvement		
	· Westernised, Profit-Driven Public Participation		
	· Involvement of organized labor unions		
	· Articulation of departmental position	Policy and Implementation	Stakeholder dynamics
	· Policy intentions vs. implementation Gaps		
	· Lack of local content and Skills development		
	· Community-based policy influence		
	· Policy Integrity		
	· Disparity in project implementation		
	· Long-term strategy in		

	energy transition		
	· Inclusion in policy development		
Research Sub-Question 3:	*Can stakeholder mapping be utilised to enable and benefit improved stakeholder engagement in the energy transition?*		
	Codes	Subthemes	Themes
	· Inclusive stakeholder mapping	Inclusivity and legitimacy in Stakeholder Engagement	Utilising stakeholder mapping to enhance engagement in energy transition
	· Legitimacy of stakeholders		
	· Challenges in stakeholder selection		
	· Role of traditional leadership		
	· Tailored engagement approaches	Tailored approaches and communication strategies	
	· Context-specific stakeholder mapping		
	· Differentiated communication strategies		
	· Comprehensive stakeholder understanding		
	· Accountability of stakeholders	Power dynamics and challenges in engagement	
	· Selective engagement		
	· Impact of community divisions		

	· Challenges of power dynamics		
	· Pros and Cons of stakeholder mapping	Effectiveness and utility of stakeholder mapping	
	· Essential role of Stakeholder mapping		
	· Need for genuine engagement		

APPENDIX: 6 RESEARCH FINDINGS COMPARED TO THE LITERATURE

Key Theme	Research Findings	Comparison to Literature	Addition/Contradiction to Literature	Beyond Scope of Study/Future Research
Constraints Affecting Stakeholder Engagement	Several constraints identified include the exclusion of local communities, governance challenges, and economic barriers.	Civera & Freeman (2019) and Dmytriyev et al. (2021) highlight similar barriers, especially around disengagement and exclusion.	The study adds specific evidence of how these constraints affect South Africa's mining sector in energy transitions.	Future research could explore how to build frameworks that enhance engagement and minimize these constraints across similar projects globally.
Community Relations	Local communities often feel excluded from decision-making, leading to mistrust and project failures.	Freeman (2019) emphasises the need for community involvement in project success, similar to the study's findings.	No contradiction: findings align with existing literature, further supporting the importance of community inclusion.	Future studies could investigate specific mechanisms or tools for continuous community involvement throughout energy transition projects.
Governance and Decision-Making	Unequal Regulatory frameworks favour wealthier stakeholders, marginalising smaller players.	Dmytriyev et al. (2021) also highlight governance as a key barrier to inclusivity, confirming this study's findings.	This study supports the literature but adds insights specific to the inequitable frameworks within South Africa's regulatory environment.	Research could assess specific policy reforms that promote equal participation and governance in the energy transition process.

Economic Barriers	High costs of sustainable energy disproportionately affect disadvantaged stakeholders.	Moomen & Dewan (2017) discuss similar economic challenges, particularly in relation to marginalised groups.	No contradiction; findings are consistent with literature but provide detailed examples from South African communities.	Future research should explore financing models for renewable projects that reduce economic barriers for disadvantaged stakeholders.
Relations of Different Actors and Stakeholders	Misalignment between policy formulation and practical implementation hinders engagement.	Kujala et al. (2022) emphasise the importance of aligning policy and practice, as echoed in the study.	This study provides concrete examples of how misalignments are manifesting in South Africa's mining sector.	Investigating methods for bridging the gap between policy discussions and real-world outcomes could be an avenue for future research.
Stakeholder Mapping	Stakeholder mapping enhances engagement but can be manipulated due to power dynamics, excluding certain groups.	Chilvers et al. (2021) highlight the importance of mapping but warn against the manipulation of power, confirming findings.	The study expands on the literature by providing examples of power imbalances in stakeholder mapping in energy transitions.	Further research could look into how stakeholder mapping processes can be designed to minimize manipulation and increase inclusivity.

Power Dynamics in Stakeholder Engagement	Power imbalances result in the exclusion of critical voices, especially in marginalised communities.	Mzembe (2016) also discusses power imbalances and their negative impact on effective stakeholder engagement.	Adds to the literature by showcasing specific instances of power dynamics in South African mining projects.	Future studies could focus on strategies for reducing power imbalances and creating more equitable stakeholder engagement frameworks.