

**Management of Informal Economies by South African Coal Mining Companies in the Context of  
their Just 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 Philosophy Corporate Strategy.

**24<sup>th</sup> of November 2025**

## **ABSTRACT**

This study critically examines how coal mining companies in South Africa manage informal economies within the framework of the Just Energy Transition (JET). Using a qualitative research design, twelve semi-structured interviews were analyzed through thematic analysis to explore governance, corporate strategies, stakeholder engagement, and socio-economic resilience in coal-dependent communities. Eight interrelated themes emerged: informal economies, management strategies, just energy transition planning, stakeholder engagement, future outlook, governance and policy, social protection and resilience, and theoretical constructs.

Findings reveal that informal economies are structurally embedded and economically vital yet remain marginalized in formal planning processes. Corporate interventions demonstrate developmental intent but lack flexibility and sustainability, while governance frameworks exhibit technocratic tendencies and multi-scalar fragmentation, undermining distributive and procedural justice. Informal actors face systemic exclusion from social protection schemes, despite demonstrating adaptive resilience through community-based coping mechanisms.

Conceptually, the study reinforces energy justice principles and stakeholder theory while introducing hybrid governance and anticipatory planning as theoretical extensions to JET discourse. Policy implications underscore the need for participatory governance, integrated social protection, and context-sensitive strategies that operationalize justice beyond rhetoric. By foregrounding the intersection of informality, governance, and transition planning, this research contributes to global debates on inclusive and equitable energy transitions in resource-dependent economies.

**Keywords:** Just Energy Transition (JET), Informal Economies, Governance and Policy, Social Protection and Resilience, Energy Justice

## **DECLARATION**

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Philosophy in Corporate Strategy 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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**24 November 2025**

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# CHAPTER ONE: INTRODUCTION

## 1.1 Background and Context

Worldwide efforts to achieve long-term ecological and social progress has intensified the urgency of transitioning from fossil-based energy systems to low-carbon alternatives. This transformation, encapsulated in the concept of the Just Energy Transition (JET), seeks not only to mitigate climate change but also to ensure that the transition is socially inclusive and economically equitable (Patrick et al., 2025; Anekwe et al., 2025). In South Africa, where coal remains the dominant energy source, the JET is particularly complex due to the socio-economic dependencies embedded in coal mining regions such as Mpumalanga. The country's commitment to decarbonization under the global climate accord and its national JET Investment Plan (JET-IP) reflects a strategic pivot toward renewable energy, yet implementation remains fraught with infrastructural, financial, and governance challenges (Anekwe et al., 2025).

Within this context, informal economic structures play a critical yet underexplored role. In South Africa, the informal sector accounts for approximately 20% of total employment and contributes significantly to local livelihoods, especially in communities reliant on coal resources (Durokifa, 2024). Informal enterprises ranging from street vendors and recyclers to home-based services are often excluded from formal energy planning and corporate sustainability practices initiatives, despite their economic relevance and vulnerability to restricted energy availability. These communities frequently rely on unsafe and unreliable energy sources, exacerbating health risks and deepening socio-economic marginalization (Patrick et al., 2025). Corporate Responsibility Framework (CRF) has emerged as a policy-driven and moral response to these sustainability challenges. In the South African mining sector, corporate sustainability practices is increasingly institutionalized through mechanisms such as Social and Labour Plans (SLPs), which aim to align corporate activities with community development goals (Serfontein-Jordaan & Dlungwane, 2022). However, empirical evidence suggests that corporate sustainability practices initiatives often prioritize formal stakeholders and infrastructure projects, while neglecting the nuanced needs of informal actors. This exclusion undermines the potential of corporate sustainability practices to contribute meaningfully to a just and inclusive energy transition (Ndong Ntoutoume, 2023).

The justification for focusing on informal economic contexts within corporate sustainability practices and energy transition discourse lies in the recognition of informality as a resilient and legitimate mode of economic organization. Rather than viewing informal economic structures as deficits to be formalized, recent scholarship advocates for their integration into sustainability frameworks through participatory governance, ethical engagement, and inclusive policy design (Wolf, 2023; Durokifa, 2024). In coal-reliant regions, where formal employment is declining and restricted energy availability persists, the inclusion of informal actors in corporate sustainability practices and JET strategies is not only a moral imperative but also a pragmatic necessity for achieving equitable development outcomes.

## 1.2 Relevance of the Research from a Business Perspective

The transition toward a low-carbon economy presents both strategic challenges and opportunities for South African coal mining companies. As the country advances its Just Energy Transition (JET) agenda, businesses operating in coal-dependent regions must navigate complex socio-economic landscapes marked by high levels of informality, unemployment, and restricted energy availability (UNDP South Africa, 2024). In

this context, Corporate Responsibility Framework (CRF) is no longer a peripheral activity but a strategic imperative that directly influences corporate reputation, stakeholder trust, and long-term sustainability (Kanyumba, 2023; Bowmans, 2024). corporate sustainability practices initiatives, when effectively designed and implemented, can enhance a company's social license to operate, mitigate reputational risks, and foster community resilience. In South Africa's mining sector, corporate sustainability practices have evolved to encompass broader Environmental, Social, and Governance (ESG) considerations, including housing, health, education, and local economic development. These efforts are particularly critical in coal mining regions such as Mpumalanga, where communities face acute socio-economic vulnerabilities and where informal economic structures play a vital role in sustaining livelihoods (Bowmans, 2024).

Engaging with informal economic structures presents coal mining companies with a dual set of strategic considerations, encompassing both risks and opportunities. On the risk side, informal mining activities often unregulated and operating outside formal legal frameworks are associated with regulatory uncertainty, reputational exposure, and limited accountability mechanisms (Marais et al., 2021; Morris, 2025). These risks are exacerbated by the spatial fragmentation of mining communities and the emergence of informal settlements near decommissioned or marginal coal sites, where governance structures are weak or absent. Moreover, the presence of organized informal mining networks can complicate corporate-community relations and heighten tensions around resource access and environmental degradation (Hassan, 2025).

On the other hand, informal actors such as waste pickers, street vendors, and informal service providers are deeply embedded in local value chains and offer unique insights into community needs and adaptive capacities (Adeola et al., 2019). Strategic engagement with these actors can unlock new pathways for inclusive development, enhance corporate sustainability practices effectiveness, and contribute to the socio-economic dimensions of the JET. From a strategic standpoint, energy sector firms operating in regions with high informality must adopt context-sensitive corporate sustainability practices frameworks that go beyond compliance and infrastructure provision. This includes participatory governance, ethical stakeholder engagement, and co-creation of development initiatives that reflect local realities. Failure to do so risks exacerbating social tensions, undermining transition efforts, and eroding corporate legitimacy (UNDP South Africa, 2024). Therefore, this research is highly relevant to business strategy and sustainability planning. It offers coal mining companies a framework for navigating the ethical and operational complexities of the JET, while positioning corporate sustainability practices as a tool for inclusive growth and long-term resilience in informal economic settings.

### **1.3 Theoretical Grounding**

The conceptual basis of this study is situated within the evolving discourse on Corporate Responsibility Framework (CRF), particularly as it applies to informal economic structures and energy transitions in the Global South. corporate sustainability practices theory has diversified into several paradigms, notably instrumental, stakeholder-oriented, and justice-based frameworks, each offering distinct perspectives on the role of corporations in society (Garriga & Melé, 2012; Awa et al., 2024). Instrumental corporate sustainability practices theories conceptualize the firm as an economic agent whose social initiatives are primarily designed to enhance profitability and shareholder value. These models often treat corporate sustainability practices as a strategic tool for risk mitigation and competitive advantage, with limited engagement in structural

transformation or ethical accountability (Garriga & Melé, 2012). In contrast, stakeholder theory expands the scope of corporate responsibility to include a broader array of actor's employees, communities, informal workers whose interests must be considered in corporate decision-making (Awa et al., 2024).

More recent scholarship has emphasized justice-oriented corporate sustainability practices frameworks, which foreground ethical principles such as dignity, autonomy, and equity. These frameworks align closely with the emerging field of energy justice, which advocates for the fair distribution of energy benefits and burdens, inclusive decision-making, and recognition of marginalized groups (Agbaitoro, 2024). Justice-oriented corporate sustainability practices challenge the deficit-based view of informality and instead positions informal economic structures as resilient, adaptive systems that contribute meaningfully to local development and sustainability.

The philosophical foundations of this study are grounded in the ethics of responsibility, distributive justice, and normative economics, each offering a distinct lens for evaluating corporate conduct within the context of South Africa's Just Energy Transition (JET). The ethics of responsibility, as articulated by Hans Jonas and Emmanuel Levinas, emphasizes the moral imperative of anticipating and mitigating harm, particularly toward vulnerable populations and future generations (Wolff, 2011; Métais & Villalobos, 2021). Jonas (1979) emphasizes the ethical duty of technological actors including corporations to act with foresight and caution in the face of ecological uncertainty and intergenerational risk. Levinas, by contrast, frames responsibility as an ontological condition rooted in the encounter with the Other, compelling ethical action beyond self-interest and toward relational accountability (Mkhwanazi, 2021; Soares, 2008). This ethical orientation is complemented by distributive justice theory, which interrogates the fairness of resource allocation and socio-economic outcomes. In the South African context, distributive justice is particularly salient given the enduring legacies of apartheid and persistent racialized inequalities in income, access, and opportunity. Knight (2012) applies Rawlsian, utilitarian, and luck egalitarian frameworks to post-apartheid South Africa, arguing that all three converge on the need for large-scale redistribution to benefit structurally disadvantaged populations. Normative economics contributes to this discourse by evaluating policy and corporate decisions not merely on efficiency grounds but in terms of their ethical and distributive consequences. Fleurbaey (2004) and Van Uffelen et al. (2023) argue that energy justice frameworks must grapple with normative uncertainties and competing conceptions of fairness, particularly in contexts of systemic inequality and contested transitions.

In the context of South Africa's coal sector, informal economic structures are not peripheral anomalies but central to local resilience and survival. Conceptualizing informality as a resilient economic system allows for a more nuanced understanding of how coal mining companies can engage with these actors in ethically grounded and context-sensitive ways. Adeola, Eigbe, and Muritala (2019) emphasize that informal enterprises often possess adaptive capacities and localized knowledge critical for navigating socio-economic disruptions associated with energy transitions. Therefore, this theoretical grounding provides the analytical lens through which the study examines corporate practices, stakeholder dynamics, and ethical considerations in the management of informal economic structures during South Africa's energy transition. It supports a research design that integrates critical interpretive analysis with normative inquiry, aiming to contribute to both theoretical advancement and practical guidance for inclusive and sustainable corporate engagement.

## 1.4 Research Questions

This study is guided by a central inquiry into how coal mining companies in South Africa are navigating the socio-economic complexities of informal economic structures within communities reliant on coal resources during the country's Just Energy Transition (JET). The research is situated within broader discourses on environmental justice principles, stakeholder engagement, and corporate social responsibility (corporate sustainability practices), particularly in regions where coal phase-out intersects with entrenched informality and socio-economic vulnerability (Lawrence, 2020)

### Primary Research Question

***RQ1: What are the perceptions of management in South African coal mining companies regarding how their organizations manage informal economies in coal-dependent communities during the Just Energy Transition?*** This question seeks to explore strategic, ethical, and operational dimensions of corporate engagement with informal actors, particularly in regions undergoing structural shifts due to decarbonization and mine closures (Ndong Ntoutoume, 2023; Cole et al., 2023).

### Secondary Research Questions

***RQ2: How do managers perceive the socio-economic characteristics and structural drivers of informal economies in coal mining communities?*** This question investigates demographic, institutional, and livelihood dynamics underpinning informality in mining regions, with reference to spatial inequalities and employment precarity (Etim & Daramola, 2020; Blaauw et al., 2021).

***RQ3: How do managerial perspectives on CSR and stakeholder engagement practices influence the management of informal economies?*** This inquiry examines whether CSR initiatives and participatory governance mechanisms are inclusive of informal actors and contribute to sustainable development outcomes (Fatima & Elbanna, 2023; UNDP South Africa, 2024).

***RQ4: To what extent do current management practices align with principles of environmental justice and the goals of a Just Energy Transition?*** This question evaluates the normative coherence of corporate strategies with equity-focused models, including distributive, procedural, and restorative justice (Agbaitoro & Ekhatior, 2025; Nsafon et al., 2023).

This study aims to critically examine managerial perceptions and practices in South African coal mining companies regarding the management of informal economies during the Just Energy Transition (JET). The research situates these practices within justice-oriented CSR frameworks, participatory governance models, and normative principles of environmental justice.

## 1.5 Research Aims

The purpose of this research is to critically investigate the role of South African coal mining companies in managing informal economic structures within communities reliant on coal resources during the country's Just Energy Transition (JET). The research is situated within the broader discourse on corporate social responsibility (corporate sustainability practices), stakeholder engagement, and environmental justice principles, with a particular focus on the socio-economic dynamics of informality and restricted energy availability in the Global South.

The specific objectives of the study are to:

- Explore managerial perceptions of organizational strategies for engaging informal economies in coal-dependent communities during JET, assessing strategic, ethical, and operational dimensions (Ndong Ntoutoume, 2023; Cole et al., 2023).
- Analyse how managers understand the socio-economic characteristics and structural drivers of informality, including demographic, institutional, and livelihood dynamics (Etim & Daramola, 2020; Blaauw et al., 2021).
- Evaluate the influence of CSR and stakeholder engagement practices on the inclusion of informal actors in sustainability initiatives, focusing on participatory governance and ethical commitments (Fatima & Elbanna, 2023; UNDP South Africa, 2024).
- Assess the alignment of current management practices with principles of environmental justice and JET goals, including distributive, procedural, and restorative justice dimensions (Agbaitoro & Ekhatior, 2025; Nsafon et al., 2023).
- Develop a normative framework for inclusive corporate engagement that integrates informal economies into sustainability and decarbonisation strategies, offering practical recommendations for policy and business (Wolf, 2023; Adeola et al., 2019).

This study extends the theoretical grounding by incorporating justice-oriented CSR and participatory governance frameworks, emphasizing normative coherence with environmental justice principles. It draws on theories of distributive, procedural, and restorative justice to evaluate corporate strategies, while integrating stakeholder theory and ethics of responsibility to address the inclusion of informal actors in transition planning (Agbaitoro & Ekhatior, 2025; Nsafon et al., 2023; Fatima & Elbanna, 2023).

## **1.6 Research Contribution**

This study advances scholarly discourse on corporate sustainability, energy justice, and informal economic structures by providing a contextually grounded analysis of how coal mining firms in South Africa interact with informal actors amid the Just Energy Transition (JET). By situating corporate engagement within the socio-economic realities of coal-dependent regions, the research contributes to a deeper understanding of the ethical, strategic, and governance dimensions of sustainability transitions in the Global South (Adom & Simatele, 2025; Singh & Arya, 2024).

### Theoretical Contribution

The research advances corporate sustainability practices theory by integrating justice-oriented and ethics-based perspectives into the analysis of corporate engagement with informal economic structures. It challenges the dominant instrumental and compliance-driven corporate sustainability practices models by conceptualizing informality not as a deficit, but as a flexible and enduring economic framework central to community survival and local development (Durokifa, 2024; Adeola, Eigbe, & Muritala, 2019).

### Empirical Contribution

Through qualitative inquiry, the study provides grounded insights into the socio-economic characteristics of informal economic structures in coal-dependent regions, including employment precarity, restricted energy availability, and community resilience. It addresses a critical gap in empirical research on the lived

experiences of informal actors within the context of energy transitions in the Global South (Okoye, 2024; Besner, 2023).

### Practical Contribution

This investigation provides actionable recommendations for coal mining companies and policymakers to enhance the inclusivity and ethical grounding of corporate sustainability practices and stakeholder engagement strategies. These insights are particularly relevant for the implementation of South Africa's Just Transition Framework and the JET Investment Plan, which emphasize the protection of vulnerable communities and the promotion of equitable development (Agbaitoro & Ekhatior, 2025; Presidential Climate Commission, 2022).

### Policy Contribution

By critically evaluating the alignment of corporate practices with environmental justice principles such as distributive, procedural, and recognition-based justice the study informs policy debates on labour transitions, community participation, and socio-economic equity in post-coal economies. It supports the development of restorative justice mechanisms that address historical exclusions and promote inclusive energy governance (Wolf, 2023; Abe & Azubike, 2024)

Therefore, this research bridges theoretical, empirical, and practical domains by offering a normative framework for inclusive corporate engagement in informal economic structures during South Africa's energy transition. It contributes to both scholarly advancement and strategic policy formulation in the pursuit of a just and sustainable future.

## **1.7 Scope and Delimitations**

This study is situated within the broader context of energy transitions in the Global South, with a specific geographic emphasis on sub-Saharan Africa, and more precisely, South Africa's coal-dependent regions. The country's energy landscape is undergoing a significant transformation, driven by its commitment to a Just Energy Transition (JET) that seeks to decarbonize the economy while addressing entrenched socio-economic inequalities (Presidential Climate Commission, 2022).

The sectoral focus of the research is on energy and sustainability-related industries, particularly the coal mining sector, which remains central to South Africa's energy production and employment profile. Coal mining companies are key actors in the transition process, and their engagement with informal economic structures comprising waste pickers, informal traders, and community-based enterprises is critical to ensuring that the transition is inclusive and equitable (Adeola, Eigbe, & Muritala, 2019).

The conceptual boundaries of the study are defined by four interrelated domains:

**Corporate Responsibility Framework (CRF):** Examined as both a policy-driven and moral framework through which coal mining companies engage with communities and informal actors. The study interrogates the extent to which corporate sustainability practices are aligned with justice-oriented principles and inclusive development goals (Dzage & Szabados, 2024).

**Informality:** Conceptualized not as a deficit but as a flexible and enduring economic framework that sustains livelihoods in contexts of structural exclusion. The study explores how informal economic structures function within communities reliant on coal resources and how they are impacted by energy transition policies (Rogan & Skinner, 2021).

**Energy Poverty:** Investigated as a multidimensional challenge that intersects with informality, particularly in regions where access to affordable, reliable, and clean energy remains limited. The study considers how corporate and policy interventions address or fail to address restricted energy availability in informal settlements and enterprises (Stojilovska et al., 2023).

**Ethical Responsibility:** Grounded in the principles of environmental justice principles distributive, procedural, and restorative the study evaluates the normative coherence of corporate strategies in managing the socio-economic impacts of the JET (Wolf, 2023).

The study is delimited by its qualitative methodological approach, focusing on document analysis, stakeholder interviews, and normative evaluation. It does not attempt to quantify the economic value of informal activities or model energy systems, but rather seeks to understand the ethical and strategic dimensions of corporate engagement in the context of transition.

## **1.8 Limitations of the Qualitative Approach**

This study adopts a qualitative research design, incorporating document analysis, stakeholder interviews, and normative evaluation to explore the ethical, strategic, and socio-economic dimensions of corporate engagement with informal economic structures during South Africa's Just Energy Transition (JET). While qualitative methods offer depth, contextual sensitivity, and the ability to capture complex social realities, they are accompanied by several methodological limitations.

Firstly, qualitative research is inherently interpretive and subject to researcher bias, particularly in the selection, framing, and interpretation of data. The subjective nature of qualitative inquiry may influence the analytical lens and the conclusions drawn, especially when dealing with politically sensitive or ethically charged topics such as energy justice and informality (Cartwright & Igudia, 2024).

Secondly, the findings generated through qualitative methods are context-specific and may not be generalizable across different geographic regions or industrial sectors. This limitation is particularly relevant in studies of informal economic structures, which are highly heterogeneous and shaped by localized socio-political dynamics (Ward, 2024).

Thirdly, access to stakeholders especially informal actors can be constrained by logistical, institutional, and relational barriers. Informal workers may be wary of formal engagement due to historical exclusion or mistrust of corporate and governmental institutions. These access limitations can restrict the diversity of perspectives captured and may result in partial representations of community realities (Monteith, 2021).

Moreover, qualitative approaches may lack the capacity to quantify economic contributions or model systemic impacts, such as the aggregate effects of energy transition policies on informal employment or household energy access. While this study does not aim to produce statistical generalizations, it acknowledges the value

of mixed-methods research in complementing qualitative insights with empirical validation and broader policy relevance (Cartwright & Igudia, 2024).

Despite these limitations, qualitative research remains well-suited to the objectives of this study. It enables a nuanced exploration of ethical responsibility, stakeholder engagement, and the lived experiences of informality in communities reliant on coal resources. As argued by Cartwright and Igudia (2024), qualitative methods enrich our understanding of economic systems by revealing dimensions that are often obscured in quantitative datasets, particularly in contexts where informality and marginalization are prevalent.

## **1.9 Chapter Summary**

Chapter 1 has laid the conceptual and contextual foundation for this study, which critically investigates the role of coal mining companies in managing informal economic structures within communities reliant on coal resources during South Africa's Just Energy Transition (JET). The chapter began by situating the research within the broader global discourse on long-term ecological and social progress and decarbonisation, emphasizing the socio-economic and ethical complexities that arise when transitioning from fossil fuels in regions marked by informality and restricted energy availability (Strambo, Patel, & Maimela, 2024).

The relevance of the study from a business perspective was articulated through the strategic importance of Corporate Responsibility Framework (CRF) in building stakeholder confidence, mitigating reputational risk, and fostering long-term sustainability. However, recent scholarship reveals that corporate sustainability practices implementation in Sub-Saharan Africa often suffers from regulatory gaps, superficial engagement, and limited integration of human rights and informal sector dynamics (Ndong Ntoutoume, 2023).

The theoretical grounding of the study draws on instrumental, stakeholder, and justice-oriented corporate sustainability practices frameworks, supported by philosophical principles such as distributive justice and ethics of responsibility. These frameworks provide a lens through which corporate practices can be evaluated for their alignment with inclusive and equitable transition goals (Patrick et al., 2025).

The research questions and aims were developed to interrogate the socio-economic characteristics of informal economic structures, assess the influence of corporate sustainability practices and stakeholder engagement, and evaluate the extent to which corporate strategies align with environmental justice principles. The literature review synthesized recent empirical and theoretical contributions, highlighting the resilience of informal economic structures, the limitations of current corporate sustainability practices models, and the need for justice-based approaches to energy transition planning (Adeola, Eigbe, & Muritala, 2019; Blaauw et al., 2021).

The scope and delimitations clarified the geographic focus on sub-Saharan Africa, the sectoral emphasis on energy and sustainability, and the conceptual boundaries encompassing corporate sustainability practices, informality, restricted energy availability, and ethical responsibility. The study's qualitative methodology while enabling rich, context-sensitive insights is acknowledged to have limitations, including potential researcher bias, restricted generalizability, and challenges in stakeholder access (de Gooyert et al., 2024).

In conclusion, Chapter 1 establishes a robust foundation for the inquiry into how coal mining companies can ethically and effectively engage with informal economic structures during South Africa's energy transition. It

positions the study to contribute to both academic discourse and practical policy development in the pursuit of a socially just and environmentally sustainable future.

## **1.10 Structure of the Dissertation**

This dissertation is organized into seven chapters, each contributing to a comprehensive understanding of how coal mining companies in South Africa manage informal economic structures within the framework of the Just Energy Transition (JET).

### **Chapter 1: Introduction**

This section presents the research context and outlines the relevance of the study from both business and theoretical perspectives. It defines the research problem, presents the research aims and questions, and delineates the scope and limitations of the study. The chapter also highlights the study's contribution to the fields of corporate sustainability, energy justice, and informal economy governance, establishing the conceptual foundation for the inquiry.

### **Chapter 2: Literature Review**

This chapter critically engages with scholarly literature on Corporate Responsibility Framework (CRF), informal economic structures, restricted energy availability, stakeholder engagement, and environmental justice principles. It identifies theoretical gaps and synthesises current academic debates to develop a conceptual framework. The literature review positions the study within the broader discourse on sustainability transitions and provides the theoretical grounding for the research questions.

### **Chapter 3: Research Questions and Propositions**

This chapter presents the research questions and numbered propositions that guide the empirical investigation. These are derived directly from the literature review and are justified through alignment with the study's conceptual framework and qualitative research design. The chapter ensures coherence between the theoretical foundation and the methodological approach.

### **Chapter 4: Research Methodology**

This chapter outlines the qualitative research design, including the philosophical orientation, data collection methods (document analysis and semi-structured interviews), sampling strategy, and ethical considerations. It also discusses the procedures for ensuring research rigour such as credibility and transferability and acknowledges the limitations of the chosen methodology. The chapter demonstrates methodological congruence with the research aims and questions.

### **Chapter 5: Findings**

This chapter presents the empirical findings in a structured and thematic format. Drawing on stakeholder interviews and document analysis, it explores how coal mining companies engage with informal economic structures, the nature of these interactions, and the implications for corporate sustainability. Verbatim quotations and thematic patterns are used to support the findings, which are presented without interpretation or reference to literature.

## Chapter 6: Discussion

This chapter interprets the findings in relation to the literature reviewed in Chapter 2. It applies theoretical analysis to assess the alignment, divergence, or extension of existing scholarship. The discussion evaluates the effectiveness of corporate sustainability practices, the ethical dimensions of corporate engagement, and the implications for energy justice. The chapter also revisits and refines the conceptual framework based on empirical insights.

## Chapter 7: Conclusion and Recommendations

The final chapter synthesises the key insights from the study, highlighting its theoretical and practical contributions. It offers recommendations for coal mining companies, policymakers, and civil society actors to support inclusive and ethically grounded engagement with informal economic structures during the energy transition. The chapter also outlines the limitations of the study and proposes directions for future research.

# CHAPTER TWO: LITERATURE REVIEW

## 2.1 Introduction

The management of informal economies within coal-dependent communities has emerged as a critical dimension of South Africa's Just Energy Transition (JET). This transition, which seeks to decarbonize the national energy system while promoting socio-economic equity, introduces complex governance challenges for coal mining companies (Anekwe et al., 2025; UNDP, 2024). As South Africa moves toward renewable energy, firms operating in coal regions face the dual imperative of mitigating socio-economic disruptions and aligning with sustainability imperatives (Patrick et al., 2025). Informal economies comprising artisanal and small-scale mining (ASM), informal trade, and survivalist activities are deeply embedded in coal-dependent communities and function as both a livelihood safety net and a governance challenge (Adom & Simatele, 2025; Blaauw et al., 2021). These activities often arise from structural unemployment, poverty, and exclusion from formal labor markets, making them resilient yet vulnerable systems within the broader energy transition discourse (Kabutey-Ongor et al., 2025). Consequently, understanding how coal mining companies engage with informal actors during JET is essential for ensuring distributive and procedural justice, reducing socio-economic precarity, and fostering inclusive development (Wolf, 2023; Agbaitoro & Ekhaton, 2025). This literature review synthesizes global and local scholarship on energy transitions, informality, and corporate responsibility, highlighting theoretical frameworks and empirical gaps that inform the research questions. Building on the introduction, the next section traces the historical evolution of the Just Transition concept, providing the foundation for understanding its normative principles.

## 2.2 Just Transition: Origins and Evolution of the Concept

The concept of a "Just Transition" emerged in the late 20th century at the intersection of labor rights and environmental justice movements in the United States. During the 1970s and 1980s, growing awareness of occupational hazards and industrial pollution prompted trade unions to advocate for protections for workers impacted by environmental regulations (Future Economy, 2023). Tony Mazzocchi of the Oil, Chemical and Atomic Workers Union pioneered the idea by proposing a "Superfund for Workers," aimed at supporting workers displaced from polluting industries with compensation and retraining programs (Gov.scot, 2020; Wikipedia, n.d.). This concept was seminal in redefining environmental protection as inherently socio-economic as well as ecological.

By the 1990s, the notion of Just Transition had been formally embraced by labor-environmental coalitions, including the Just Transition Alliance (est. 1997) and the Climate Justice Alliance (est. 2012), which sought to unite worker welfare with community health and environmental sustainability. These alliances reframed transition strategies to include equitable treatment of affected workers and communities, laying the groundwork for what would become foundational justice-oriented energy transition (Future Economy, 2023).

During the late 1990s and early 2000s, the concept broadened into policy dialogues within the European Union. As demonstrated by the 2018 Solidarity and Just Transition Silesia Declaration at COP24, the term transitioned from an activist frame into institutional recognition; over 38% of national climate plans included Just Transition principles by 2022 (Future Economy, 2023). The Paris Agreement (2015) further reinforced this shift by acknowledging the need for fairness, equity, and inclusivity in climate action, extending the

concept into the realm of international climate law (Johansson, 2023). Having outlined the origins of Just Transition, this section now examines its theoretical foundations and multidimensional justice dimensions.

### **2. 2. 1 Theoretical Foundations and Multidimensional Justice**

Just Transition is underpinned by a multidimensional justice framework encompassing distributive, procedural, recognition, and restorative justice. Distributive justice demands a fair allocation of transition benefits and burdens, while procedural justice emphasizes inclusive, participatory decision-making processes (Heffron & McCauley, 2018). Recognition justice protects the voices and identities of communities historically marginalized by industrial and environmental policies (Schlosberg, 2007). The more recent addition of restorative justice highlights the need to repair historical harms caused by exploitation in extractive industries (Wolf, 2023; Agbaitoro & Ekhatior, 2025).

Institutional expressions of these justice dimensions include the International Labour Organization's 2015 guidelines on Just Transition, which call for decent work in green economies, and the European Green Deal, emphasizing social protection and inclusivity (ILO, 2015; Berthe & Turquet, 2024). According to the IPCC Working Group III, a Just Transition involves "processes and measures that enable diverse communities, sectors, stakeholders, regions and cultures to participate in just, equitable and inclusive processes" throughout the transition to sustainability (IPCC WGIII, 2022/2023). The UNDP (2022) further articulates that a Just Transition entails "greening the economy in a way that is as fair and inclusive as possible to everyone concerned, creating decent work opportunities and leaving no one behind". Building on the theoretical discussion, the following section explores how these principles have diffused globally and their contemporary applications.

### **2.2.2 Global Diffusion and Contemporary Applications**

The Just Transition framework has transcended its North American origins to inform energy policy globally. In countries like South Africa, coal phase-out strategies now formally reference justice principles (Berthe & Turquet, 2024). Renewable energy expansion projects in India similarly integrate Just Transition aims by addressing energy poverty and gender disparities in rural areas (Raman et al., 2025).

However, scholars caution that many global applications remain technocratic. Market-based solutions such as carbon credit trading and private-sector-led renewables often sideline vulnerable communities, perpetuating governance gaps and asymmetries (Bhaskar et al., 2024; Montanés et al., 2023). Studies further reveal that the social impact of energy transitions is frequently overlooked, especially in policy environments dominated by macroeconomic objectives (Sun et al., 2023).

### **2.2.3 Summary of Historical Trajectory and Critical Reflections**

In its origins, the concept of Just Transition redefined environmental and labor discourses by prioritizing worker and community resilience alongside ecological goals. Its expansion into global policy frameworks demonstrates normative maturation through governance design. However, the ongoing challenge lies in translating justice-oriented ideals into practical measures that protect informal workers, ensure participatory governance, and deliver equitable distribution particularly in regions undergoing deep ecological and economic transformations. Continued critical attention is required to evaluate whether policy mechanisms

genuinely embed justice or merely replicate technocratic inequalities. Transitioning from global perspectives, this section introduces the concept of Just Energy Transition as an evolution of the broader framework.

## **2.3 Introducing the Just Energy Transition**

The concept of the Just Energy Transition (JET) emerges as a critical evolution of the broader Just Transition framework, operationalizing its principles within the context of global climate governance and national energy policy agendas. Historically, Just Transition was primarily concerned with safeguarding labor rights during environmental reforms, emphasizing compensation and retraining for workers displaced by ecological modernization (Heffron & McCauley, 2018). However, JET extends this mandate beyond labor considerations to encompass systemic decarbonization strategies that integrate social equity, environmental sustainability, and economic resilience (Heffron & McCauley, 2018; Newell & Mulvaney, 2013). This expansion reflects a paradigmatic shift in energy governance, recognizing that transitions are not merely technical or infrastructural undertakings but deeply political and ethical processes requiring multidimensional justice frameworks namely distributive, procedural, and recognition justice (Schlosberg, 2007; Wolf, 2023).

From a normative perspective, JET functions as a bridge between climate mitigation imperatives and socio-economic transformation, ensuring that the pursuit of net-zero emissions does not exacerbate existing inequalities or marginalize vulnerable populations (Baker et al., 2021). This approach foregrounds the principle that energy transitions must be inclusive, participatory, and context-sensitive, particularly in regions heavily dependent on fossil fuel economies. Consequently, JET is increasingly framed as a cornerstone of sustainable development, aligning decarbonization pathways with broader goals of poverty alleviation, gender equity, and community resilience (International Labour Organization [ILO], 2015; Sweeney & Treat, 2020). In doing so, it underscores the ethical obligation to reconcile environmental objectives with social justice, positioning energy policy as a site of contestation and negotiation rather than a purely technocratic domain. Having defined JET, the next section situates it within the global context, highlighting its normative and operational dimensions.

### **2.3.1 Global Context of Just Energy Transition**

Energy transitions are increasingly theorized as complex socio-technical transformations that transcend mere technological substitution, encompassing systemic shifts in governance, equity, and justice. As Heffron and McCauley (2018) contend, these transitions involve multi-layered interactions between energy systems, social structures, and institutional arrangements, rendering them deeply political rather than purely technical processes. Within this framework, the global discourse on Just Energy Transition (JET) underscores that decarbonization must be accompanied by principles of distributive, procedural, and restorative justice to prevent vulnerable populations from bearing disproportionate burdens during structural shifts (Schlosberg, 2007; Wolf, 2023).

This perspective reflects a growing recognition that climate mitigation strategies, if narrowly focused on technological efficiency, risk perpetuating historical inequalities and exacerbating socio-economic marginalization (Montanés et al., 2023). For example, transitions that prioritize rapid deployment of renewable technologies without addressing labor displacement or community participation may deepen existing patterns of exclusion. Consequently, JET is increasingly framed as a normative project that integrates environmental

sustainability with social equity, requiring deliberate interventions to safeguard livelihoods and promote inclusive development (Heffron & McCauley, 2018).

Operationalizing this vision necessitates embedding justice principles into policy design and implementation. This includes ensuring that the costs and benefits of transition are equitably distributed, decision-making processes are participatory, and historically marginalized groups receive recognition and support. As Wolf (2023) observes, the legitimacy of energy transitions depends on their capacity to reconcile climate imperatives with socio-economic realities, positioning JET as a cornerstone of sustainable and democratic energy governance.

The concept of energy justice has evolved to encompass multiple dimensions distributive, procedural, and recognition justice each addressing distinct aspects of fairness in energy governance (Heffron & McCauley, 2018). Distributive justice concerns the equitable allocation of benefits and burdens associated with energy transitions, such as access to clean energy and compensation for job losses. Procedural justice emphasizes inclusive decision-making processes that empower marginalized communities to participate meaningfully in transition planning. Recognition justice calls for acknowledging the rights, identities, and lived experiences of historically disadvantaged groups, ensuring that their voices are not silenced in technocratic policy frameworks (Schlosberg, 2007). Recent scholarship extends these principles to include restorative justice, advocating for reparative measures that address historical harms caused by extractive industries (Wolf, 2023; Agbaitoro & Ekhatior, 2025). These justice dimensions have gained traction in global policy arenas, informing initiatives such as the European Green Deal and the International Labour Organization's guidelines on just transitions (ILO, 2015). Drawing on the global context, this section presents international case studies to extract lessons relevant for South Africa.

### **2.3.2 International Case Studies and Lessons**

Empirical evidence from international case studies underscores the critical importance of embedding justice principles within transition strategies. Germany's coal phase-out provides a widely cited example of how participatory governance and robust social protection mechanisms can mitigate socio-economic risks associated with structural change. As Bhaskar et al. (2024) note, the German model integrated stakeholder dialogue, regional development funds, and comprehensive retraining programs, thereby aligning environmental objectives with socio-economic resilience (Heffron & McCauley, 2018). This approach demonstrates that inclusive governance frameworks can enhance legitimacy and reduce resistance to transition policies.

Conversely, experiences from emerging economies reveal persistent challenges in operationalizing justice dimensions. India's renewable energy expansion illustrates the necessity of policy frameworks that address energy poverty and gendered vulnerabilities in rural communities (Raman et al., 2025). However, comparative studies indicate that transitions often exacerbate inequalities when informal actors such as waste pickers, artisanal miners, and informal traders are excluded from planning processes (Montanés et al., 2023). These exclusions not only undermine the legitimacy of transition policies but also perpetuate structural disadvantages for marginalized groups, reinforcing patterns of socio-economic exclusion.

Latin American experiences further highlight the complexities of implementing JET principles in resource-dependent economies. In countries such as Colombia and Chile, donor-driven transition programs have prioritized macroeconomic stability and carbon reduction targets over local development needs, resulting in governance misalignments and community resistance (Caprotti et al., 2024). Similarly, in Sub-Saharan Africa, renewable energy projects have frequently failed to incorporate participatory governance mechanisms, creating tensions between national climate commitments and local livelihood imperatives (Kabutey-Ongor et al., 2025).

Collectively, these cases underscore the need for multi-scalar governance frameworks that reconcile global climate imperatives with local socio-economic realities. Embedding distributive, procedural, and recognition justice into transition strategies is not merely normative but instrumental for ensuring legitimacy, reducing resistance, and fostering inclusive development. Following the case studies, this section critically examines the persistent challenges in translating justice principles into practice.

### **2.3.4 Challenges in Operationalizing Justice**

Despite notable normative advances in global energy governance, significant challenges persist in translating justice principles into actionable policy frameworks. The increasing dominance of market-based mechanisms, such as carbon trading and private-sector-led renewable energy investments, has raised concerns regarding the commodification of justice and the marginalization of grassroots voices in transition processes (Bhaskar et al., 2024). While these instruments are often justified on efficiency grounds, scholars caution that they risk privileging capital-intensive actors while sidelining vulnerable communities, thereby reinforcing structural inequalities rather than dismantling them (Montanés et al., 2023; Raman et al., 2025).

Without deliberate efforts to embed participatory governance and social safeguards, energy transitions may devolve into technocratic projects that prioritize decarbonization metrics over inclusive development outcomes. This technocratic bias undermines the transformative potential of Just Energy Transition (JET) by neglecting distributive and recognition justice dimensions, particularly in contexts where socio-economic vulnerabilities intersect with historical patterns of exclusion (Wolf, 2023).

A critical gap in both scholarship and policy practice concerns the absence of systematic frameworks for evaluating social impacts on informal economies. As Sun et al. (2023) observe, most analyses remain narrowly focused on formal labor markets and industrial restructuring, overlooking the adaptive strategies, vulnerabilities, and contributions of informal actors. These actors including waste pickers, artisanal miners, and informal traders are frequently excluded from policy dialogues and benefit-sharing mechanisms, despite their integral role in local economies and resource flows (Caprotti et al., 2024). Such exclusions not only compromise the legitimacy of transition policies but also perpetuate structural disadvantages, reinforcing cycles of socio-economic marginalization.

Addressing these gaps requires a multi-scalar governance approach that integrates justice principles into both macro-level policy frameworks and micro-level implementation strategies. This entails developing robust social impact assessment tools, institutionalizing participatory mechanisms, and ensuring that informal economies are recognized as critical stakeholders in the transition landscape. Building on global insights, the next section contextualizes these principles within South Africa's socio-economic and governance landscape.

### **2.3.5 Lessons for South Africa: Contextualizing Global Insights**

The global literature offers critical lessons for South Africa, where entrenched informality and spatial inequality present unique challenges to achieving a just and inclusive energy transition. International experiences demonstrate that successful transitions require integrated strategies that combine normative justice frameworks with context-sensitive governance models, balancing global climate imperatives with local development priorities (Heffron & McCauley, 2018; Wolf, 2023). This approach underscores that energy transitions cannot be reduced to technocratic exercises; rather, they must be embedded within socio-economic realities that shape vulnerability and resilience at the community level.

For South Africa, this necessitates moving beyond compliance-driven corporate social responsibility (CSR) models toward justice-oriented approaches that explicitly recognize informal economies as legitimate components of local resilience systems. Informal actors such as waste pickers, artisanal miners, and street traders play a critical role in sustaining livelihoods in coal-dependent regions, yet they remain largely invisible in transition planning and benefit-sharing mechanisms (Montanés et al., 2023; Caprotti et al., 2024). Incorporating these actors into policy frameworks is not only a moral imperative, grounded in principles of recognition and distributive justice, but also a pragmatic necessity for ensuring socio-economic stability during structural shifts.

Embedding informal economies within JET strategies requires multi-scalar governance innovations that integrate local knowledge systems, participatory decision-making, and targeted social protection measures. Such interventions can mitigate transition risks, enhance policy legitimacy, and foster inclusive development pathways that align decarbonization objectives with poverty alleviation and spatial equity. Ultimately, the South African case illustrates that operationalizing JET principles demands a deliberate recalibration of governance models to reconcile climate commitments with the lived realities of marginalized communities. Having established global lessons, this section now turns to South Africa's structural and historical context to understand transition complexities.

### **2.3.6 South Africa's Just Energy Transition: Structural and Historical Context**

South Africa's energy transition is deeply conditioned by its historical reliance on coal, which has long served as the foundation of its industrial and economic development. Coal remains the dominant source of electricity generation, supplying more than 80% of the national energy mix (Cole et al., 2023). This entrenched dependency has produced a carbon-intensive economy that is increasingly exposed to global decarbonization pressures and domestic socio-economic vulnerabilities. As Baker et al. (2021) argue, such structural reliance on coal creates systemic risks for economic stability and social welfare as the country moves toward low-carbon pathways.

The coal sector is geographically concentrated in Mpumalanga and Limpopo provinces, regions that exhibit characteristics of mono-industrial economies. In these areas, livelihoods, municipal revenues, and local development trajectories are deeply intertwined with coal-based activities (Patrick et al., 2025). This spatial concentration amplifies transition risks, as communities dependent on coal face heightened vulnerability to economic stagnation and unemployment. According to the United Nations Development Programme (UNDP, 2024), the planned decommissioning of coal-fired power stations and closure of mines under South Africa's

climate commitments will likely result in significant social dislocation unless mitigated through inclusive and well-resourced transition strategies.

Historically, South Africa's coal dependency is rooted in apartheid-era industrialization policies that prioritized coal as a strategic resource for energy security and economic growth (Fine & Rustomjee, 1996; Marquard, 2006). This legacy has entrenched coal within the political economy, creating institutional inertia and vested interests that complicate diversification efforts (Burke & Stephens, 2018). Consequently, the transition away from coal is not merely a technical challenge but a deeply political process requiring structural reforms, participatory governance, and targeted socio-economic interventions to safeguard vulnerable communities. Expanding on the structural context, the following section interrogates the political economy of coal and its implications for transition governance.

### **2.3.7 Coal Political Economy in South Africa**

The political economy of coal in South Africa is central to understanding the complexities of its Just Energy Transition (JET). Coal has historically functioned as more than an energy source; it is embedded in the country's industrialization trajectory, fiscal architecture, and socio-political arrangements. Fine and Rustomjee (1996) describe coal as a strategic resource underpinning the Minerals-Energy Complex (MEC), a system that shaped South Africa's economic development and entrenched resource dependency. This legacy persists, as coal continues to dominate electricity generation and remains a critical employer in Mpumalanga and Limpopo, reinforcing regional mono-industrialism (Cole et al., 2023; Patrick et al., 2025).

From a governance perspective, coal's dominance has produced institutional inertia and vested interests that complicate decarbonization efforts. Burke and Stephens (2018) argue that energy transitions are inherently political, as they redistribute power and resources across sectors and regions. In South Africa, this dynamic manifests through strong coal-linked constituencies, including labor unions, municipal authorities, and state-owned enterprises such as Eskom, which collectively exert influence over policy trajectories (Baker et al., 2021). These actors often frame coal as essential for energy security and economic stability, creating resistance to rapid transition and shaping the pace and design of JET interventions.

The fiscal dimension of coal dependency further illustrates its political economy. Municipalities in coal-producing regions rely heavily on coal royalties and associated economic activity for revenue generation, making them particularly vulnerable to transition shocks (UNDP, 2024). This dependency creates a governance dilemma: while national climate commitments necessitate coal phase-out, local governments face severe fiscal risks that threaten service delivery and social stability. As Schlosberg (2007) and Heffron and McCauley (2018) emphasize, addressing these risks requires embedding distributive and procedural justice into transition planning to ensure that costs and benefits are equitably shared and that affected communities have meaningful participation in decision-making processes.

Ultimately, the coal political economy underscores that South Africa's energy transition is not merely a technical exercise but a deeply contested socio-political process. It demands structural reforms, inclusive governance, and targeted socio-economic interventions to reconcile climate imperatives with developmental priorities and historical inequalities. Building on the political economy analysis, this section examines policy frameworks and governance dynamics shaping JET implementation.

### **2.3.8 Policy Frameworks and Governance Dynamics**

The Just Energy Transition Investment Plan (JET-IP), launched in 2022, constitutes South Africa's flagship policy instrument for orchestrating a managed transition toward a low-carbon economy. Framed as a multi-year roadmap, the JET-IP seeks to balance decarbonization imperatives with socio-economic resilience through targeted interventions such as infrastructure modernization, workforce reskilling, and community development initiatives (Presidential Climate Commission, 2022). This policy architecture reflects an attempt to operationalize justice principles within energy governance by aligning climate objectives with developmental priorities.

However, scholars caution that governance fragmentation and institutional capacity constraints significantly undermine the effectiveness of these strategies. As Anekwe et al. (2025) argue, the complexity of South Africa's multi-level governance system comprising national, provincial, and municipal authorities has produced overlapping mandates and policy incoherence, which in turn delay project execution and erode implementation efficiency (Wolf, 2023). These structural challenges are compounded by resource limitations within local governments, which often lack the technical and financial capacity to deliver transition-related programs.

Equally critical is the question of procedural justice. Kabutey-Ongor et al. (2025) highlight that limited community participation in transition planning raises concerns about the legitimacy and inclusivity of decision-making processes. The absence of robust stakeholder engagement mechanisms risks reproducing historical patterns of exclusion, particularly in coal-dependent regions where socio-economic vulnerabilities are most acute. This governance gap underscores the need for participatory frameworks that empower local actors and integrate bottom-up perspectives into national transition strategies.

In sum, while the JET-IP represents a significant step toward institutionalizing just transition principles, its success hinges on addressing governance fragmentation, enhancing institutional capacity, and embedding inclusive participatory processes. Without these reforms, the policy risks becoming a technocratic exercise that fails to deliver distributive and procedural justice in practice. Having reviewed governance dynamics, the next section explores socio-economic vulnerabilities and spatial inequalities that condition transition outcomes.

### **2.3.9 Socio-Economic Vulnerabilities and Spatial Inequalities**

The socio-economic vulnerabilities of coal-dependent communities in South Africa are deeply compounded by historical patterns of exclusion rooted in apartheid-era spatial planning. These regions primarily concentrated in Mpumalanga and Limpopo continue to exhibit structural disadvantages, including persistently high unemployment rates, limited educational attainment, and inadequate access to basic services such as healthcare, housing, and transportation (Nel et al., 2023). Such conditions render these communities particularly susceptible to the adverse impacts of mine closures and power station decommissioning, as their economic base remains narrowly tied to coal-related activities.

Empirical studies indicate that without inclusive and justice-oriented strategies, the energy transition risks replicating entrenched structural inequalities and deepening poverty in already marginalized areas (Anekwe et al., 2025). These risks are not uniform but intersect with gendered and generational dimensions of

vulnerability, as women and youth often occupy precarious positions within informal economies that remain excluded from formal policy frameworks (Blaauw et al., 2021). Informal actors such as waste pickers, artisanal miners, and small-scale traders play a critical role in sustaining household incomes and local resilience systems, yet their contributions are systematically overlooked in transition planning.

Addressing these vulnerabilities requires multi-scalar governance interventions that integrate distributive, procedural, and recognition justice principles into policy design. This includes targeted social protection measures, skills development programs, and participatory mechanisms that amplify the voices of historically disadvantaged groups. Failure to incorporate these dimensions risks transforming the energy transition into a technocratic exercise that exacerbates inequality rather than fostering inclusive development. Moving from structural vulnerabilities, this section analyzes corporate social responsibility and stakeholder engagement as strategic responses to transition risks.

## **2.4 Corporate Social Responsibility and Stakeholder Engagement in Energy Transitions**

Corporate Social Responsibility (CSR) has evolved from its early philanthropic orientation to a strategic instrument for managing socio-economic risks and sustaining corporate legitimacy in resource-dependent economies, as Carroll (2021) explains. Within the context of energy transitions, CSR is increasingly positioned as a mechanism through which corporations align business objectives with societal expectations, particularly in regions vulnerable to structural disruptions (Fatima & Elbanna, 2023). In coal-dependent communities, CSR initiatives are expected to mitigate the adverse impacts of mine closures, support local development, and foster inclusive governance. However, Munir and Watts (2025) note that empirical evidence suggests CSR practices often fall short of these transformative aspirations, functioning primarily as compliance-driven or reputational tools rather than frameworks for systemic change.

Traditionally, CSR has been framed as a voluntary commitment by firms to integrate social and environmental considerations into business operations beyond regulatory compliance, as Carroll (1999) observes. In the context of energy transitions, CSR initiatives often manifest through community development programs, environmental stewardship, and workforce reskilling efforts. Yet, Banerjee (2008) argues that conventional CSR models tend to adopt a compliance-driven orientation, focusing on reputational management rather than transformative justice. This approach risks reducing the Just Energy Transition (JET) to a technocratic exercise, where corporate actors prioritize carbon metrics over socio-economic inclusion.

Stakeholder engagement, by contrast, is increasingly recognized as both a normative and instrumental pillar of just transition governance. Freeman (1984) and Kabutey-Ongor et al. (2025) emphasize that effective engagement entails participatory mechanisms that empower affected communities, labor unions, and informal actors to influence decision-making processes. Such engagement is not merely consultative but deliberative, requiring transparency, accountability, and recognition of diverse knowledge systems. Bhaskar et al. (2024) caution that transitions lacking robust stakeholder participation often encounter legitimacy deficits and social resistance, particularly in regions where livelihoods are deeply tied to fossil fuel economies.

Integrating CSR and stakeholder engagement within JET frameworks demands a paradigm shift from philanthropic or compliance-based models toward justice-oriented approaches. This involves embedding distributive, procedural, and recognition justice principles into corporate strategies and governance

structures, ensuring that transition benefits such as infrastructure investment, skills development, and economic diversification are equitably shared. Ultimately, CSR and stakeholder engagement must function as complementary mechanisms for operationalizing inclusive and context-sensitive energy transitions.

Gendered and intersectional vulnerabilities within informal economies further complicate CSR and stakeholder engagement strategies in coal-dependent communities. Kabutey-Ongor et al. (2025) observe that women and youth disproportionately occupy precarious roles in informal sectors such as waste picking and low-value retail, facing systemic barriers to financial inclusion, skills development, and social protection. These vulnerabilities intersect with governance gaps, as CSR initiatives often adopt gender-neutral approaches that obscure differentiated needs (Boodhram, 2024). Consequently, Wolf (2023) warns that stakeholder engagement practices failing to incorporate gender-sensitive mechanisms risk perpetuating structural inequalities rather than advancing inclusive development. Integrating intersectional considerations into CSR frameworks and participatory governance models is therefore essential for operationalizing distributive and recognition justice within the Just Energy Transition (Agbaitoro & Ekhatior, 2025). This linkage underscores the ethical and strategic imperative for coal mining companies to move beyond compliance-driven approaches toward transformative engagement that addresses the lived realities of marginalized groups.

#### **2.4.1 Corporate Role and Stakeholder Engagement**

Coal mining companies occupy a pivotal position in shaping the trajectory and outcomes of South Africa's Just Energy Transition (JET). Their influence extends beyond energy production to encompass local economic development, environmental rehabilitation, and social investment, primarily operationalized through regulatory instruments such as Social and Labour Plans (SLPs) mandated under the Mineral and Petroleum Resources Development Act (Serfontein-Jordaan & Dlungwane, 2022). These mechanisms were designed to ensure that mining operations contribute to community development and workforce welfare, thereby aligning extractive activities with broader socio-economic objectives.

However, empirical evidence suggests that corporate engagement in transition governance remains predominantly compliance-driven, with limited integration of justice-oriented principles or meaningful inclusion of marginalized and informal actors (Ndong Ntoutoume, 2023). This narrow interpretation of corporate responsibility often reduces JET to a technocratic exercise, privileging regulatory box-ticking over transformative social outcomes. As Fatima and Elbanna (2023) argue, such approaches fail to address structural inequalities and undermine the legitimacy of transition processes, particularly in coal-dependent regions where livelihoods are deeply intertwined with extractive economies.

The literature increasingly calls for a paradigm shift toward participatory governance models that embed stakeholder engagement and co-creation of development strategies as core components of corporate sustainability frameworks. This entails moving beyond transactional CSR practices toward inclusive governance architectures that recognize diverse knowledge systems, empower local communities, and incorporate informal economies into planning and benefit-sharing mechanisms. By institutionalizing these practices, coal companies can transition from being passive compliance actors to active agents of socio-economic transformation, thereby operationalizing the normative principles of distributive, procedural, and

recognition justice within corporate governance. Having discussed corporate strategies, the following section introduces informal economies as critical yet overlooked components of transition governance.

#### **2.4.2 Implications for Just Energy Transition**

The South African context underscores the profound complexity of operationalizing Just Energy Transition (JET) within socio-economic landscapes marked by entrenched informality and structural inequality. These conditions challenge conventional transition models that often assume formalized labor markets and institutional coherence. Achieving a just and inclusive transition therefore requires multi-scalar governance approaches that integrate normative justice frameworks with context-sensitive strategies, balancing global climate imperatives with local development priorities (Wolf, 2023; Agbaitoro & Ekhatior, 2025).

This imperative calls for a decisive shift away from technocratic solutions toward holistic governance models that recognize informal economies as legitimate components of local resilience systems. Informal actors such as waste pickers, artisanal miners, and small-scale traders play a critical role in sustaining livelihoods in coal-dependent regions, yet they remain systematically excluded from policy dialogues and benefit-sharing mechanisms. Their exclusion not only undermines distributive and recognition justice but also compromises the socio-economic stability of communities most vulnerable to transition shocks.

Failure to incorporate these dimensions risks perpetuating historical injustices rooted in apartheid-era spatial and economic marginalization, thereby eroding the transformative potential of JET. Conversely, embedding informal economies within transition planning can enhance policy legitimacy, foster inclusive development, and ensure that decarbonization pathways do not exacerbate poverty or inequality. This requires governance innovations that institutionalize participatory mechanisms, integrate local knowledge systems, and align climate objectives with social protection and economic diversification strategies.

#### **2.4.3 CSR as a Strategic Response to Transition Risks**

The literature consistently highlights that energy transitions impose significant socio-economic risks on coal-dependent communities, including job losses, income insecurity, and disruptions in service delivery (Ndong Ntoutoume, 2023). In response to these vulnerabilities, mining companies have increasingly adopted Corporate Social Responsibility (CSR) strategies aimed at cushioning the adverse impacts of structural change. These strategies typically encompass community development projects, skills training programs, and infrastructure investments, which are often framed as mechanisms for promoting local resilience during the transition (Serfontein-Jordaan & Dlungwane, 2022).

In South Africa, CSR initiatives are frequently embedded within Social and Labour Plans (SLPs) a regulatory instrument mandated under national mining legislation to ensure that companies contribute to socio-economic development in host communities. SLPs were conceived as a means of institutionalizing corporate accountability and aligning extractive activities with developmental objectives. However, empirical evidence suggests that while these frameworks provide a formal basis for CSR, their implementation often lacks depth and transformative potential. Projects are frequently designed to satisfy compliance requirements rather than address the structural drivers of vulnerability, such as entrenched spatial inequality, limited economic diversification, and exclusion of informal actors (Fatima & Elbanna, 2023).

This compliance-driven orientation reflects a broader critique within the literature: CSR in the context of energy transitions tends to prioritize risk management and reputational concerns over justice-oriented outcomes. Consequently, CSR initiatives risk becoming symbolic gestures rather than substantive interventions that redistribute benefits and empower marginalized communities. Scholars advocate for a paradigm shift toward participatory and co-creative governance models, where CSR functions not as a peripheral activity but as an integral component of inclusive transition planning. Such models would embed distributive, procedural, and recognition justice principles into corporate sustainability frameworks, ensuring that transition benefits such as skills development and infrastructure investment are equitably shared and responsive to local needs.

#### **2.4.5 Justice-Oriented CSR Frameworks**

Recent scholarship increasingly advocates for justice-oriented CSR models that transcend instrumental logics and embed ethical principles such as equity, participation, and recognition within corporate sustainability frameworks (Wolf, 2023). These models challenge the traditional compliance-driven orientation of CSR, emphasizing its potential as a transformative mechanism for advancing the normative goals of the Just Energy Transition (JET). Rather than treating CSR as a peripheral or philanthropic activity, justice-oriented approaches position it as a strategic tool for addressing structural inequalities and fostering inclusive development.

Central to these frameworks is the principle of co-creation, operationalized through participatory governance mechanisms that actively involve local communities including informal actors who have historically been excluded from formal decision-making processes (Fatima & Elbanna, 2023). Such engagement is not merely consultative but deliberative, requiring transparency, accountability, and recognition of diverse knowledge systems. By integrating distributive and procedural justice principles, CSR can function as a vehicle for redistributing transition benefits, mitigating socio-economic risks, and enhancing policy legitimacy.

However, operationalizing these frameworks necessitates a fundamental shift in corporate governance paradigms, moving away from hierarchical, top-down approaches toward collaborative models that prioritize local agency and contextual knowledge (Agbaitoro & Ekhaton, 2025). This transformation involves embedding justice principles into corporate decision-making structures, aligning CSR initiatives with community-driven development priorities, and institutionalizing mechanisms for continuous dialogue and adaptive learning. Without such reforms, CSR risks remaining a technocratic exercise that reproduces existing inequalities rather than catalyzing structural change.

#### **2.4.6 Structural Constraints on CSR in the Global South**

Despite its normative potential, the practice of Corporate Social Responsibility (CSR) in the Global South remains constrained by structural and institutional limitations. Munir and Watts (2025) argue that CSR initiatives in developing economies are frequently shaped by short-term reputational considerations rather than long-term developmental commitments. This instrumental orientation reflects a broader tendency to prioritize compliance and image management over transformative social outcomes.

These limitations are reinforced by weak regulatory oversight, fragmented governance arrangements, and limited institutional capacity for monitoring and evaluation (Ndong Ntoutoume, 2023). As a result, CSR

projects often exhibit superficial engagement, focusing on visible infrastructure investments such as schools or clinics while neglecting systemic issues including informality, gender inequality, and environmental degradation (Blaauw et al., 2021). Such approaches risk reproducing structural vulnerabilities rather than addressing their root causes, thereby undermining the legitimacy and effectiveness of transition strategies.

The exclusion of informal actors from CSR frameworks is particularly problematic in coal-dependent regions, where informal economies constitute a significant component of local resilience systems (Adom & Simatele, 2025). These actors such as waste pickers, artisanal miners, and informal traders play a critical role in sustaining livelihoods and buffering communities against economic shocks. Their systematic omission from CSR planning not only violates principles of recognition and procedural justice but also compromises the socio-economic stability of regions most affected by energy transitions.

Addressing these constraints requires a paradigm shift toward justice-oriented CSR models that embed participatory governance, integrate informal economies, and prioritize structural transformation over symbolic compliance. Without such reforms, CSR risks remaining a technocratic exercise that perpetuates inequality rather than advancing the normative goals of the Just Energy Transition (JET).

#### **2.4.7 Implications for Corporate Strategy**

The literature increasingly emphasizes that for Corporate Social Responsibility (CSR) to contribute meaningfully to the objectives of the Just Energy Transition (JET), mining companies must adopt holistic strategies that integrate social, environmental, and governance dimensions into their core business models (Fatima & Elbanna, 2023). This approach moves beyond the traditional compliance-driven paradigm toward a justice-oriented framework, where CSR is not peripheral but embedded within the strategic architecture of corporate decision-making.

Operationalizing such a framework entail embedding participatory governance mechanisms that enable inclusive dialogue and co-creation of development strategies with affected communities. This includes aligning CSR initiatives with local development priorities and recognizing informal economies as legitimate stakeholders in transition planning. Informal actors such as waste pickers, artisanal miners, and small-scale traders play a critical role in sustaining livelihoods in coal-dependent regions, yet they remain systematically excluded from policy and corporate engagement processes. Their inclusion is therefore both a moral imperative, grounded in principles of recognition and distributive justice, and a pragmatic necessity for ensuring socio-economic stability during structural shifts (Wolf, 2023).

Failure to institutionalize these justice dimensions risks perpetuating historical patterns of exclusion, reinforcing spatial inequalities, and undermining the transformative potential of JET. Conversely, CSR represents a unique opportunity for coal mining companies to redefine their social contract, moving from extractive logics toward developmental partnerships that advance inclusive growth and environmental sustainability. As South Africa navigates the complexities of decarbonization, CSR can serve as a strategic lever for reconciling global climate imperatives with local socio-economic realities, positioning corporate actors as agents of systemic change rather than passive compliance entities.

#### **2.4.8 Corporate Strategies and Governance Gaps in Managing Transition Risks**

The management of socio-economic risks associated with South Africa's Just Energy Transition (JET) has positioned coal mining companies at the center of a complex governance landscape. These companies are not merely energy producers; they function as critical development actors tasked with mitigating the adverse impacts of mine closures while aligning operations with sustainability imperatives. To this end, firms employ a range of strategies, including stakeholder engagement, mine rehabilitation, and workforce reskilling, which are intended to cushion communities against economic shocks and facilitate structural adjustment (Serfontein-Jordaan & Dlungwane, 2022).

While these practices signal an evolving corporate response to transition challenges, the literature reveals persistent gaps in implementation. Chief among these is the limited operationalization of justice principles, particularly in relation to distributive and procedural justice, which remain peripheral to corporate governance frameworks. Furthermore, the systematic exclusion of informal actors such as waste pickers, artisanal miners, and small-scale traders from stakeholder engagement processes undermines the legitimacy and inclusivity of transition strategies (Africa Climate Reports, 2025). These omissions are not trivial; they perpetuate structural inequalities and compromise the resilience of coal-dependent communities, where informal economies constitute a vital component of local survival systems.

Addressing these gaps requires a paradigm shift toward governance models that embed participatory mechanisms, integrate informal economies into planning, and align corporate strategies with broader socio-economic transformation objectives. Without such reforms, corporate interventions risk becoming symbolic gestures that satisfy compliance requirements while failing to deliver substantive justice outcomes.

#### **2.4.9 Stakeholder Engagement and Participatory Governance**

Stakeholder engagement is widely recognized as a cornerstone of effective transition governance, particularly in contexts where socio-economic vulnerabilities intersect with structural dependence on fossil fuels. Mining companies have increasingly adopted consultative mechanisms such as community forums, social audits, and participatory planning sessions to foster dialogue and build trust with affected communities (Dlamini & Dubihlela, 2025). These practices are intended to enhance transparency, mitigate conflict, and legitimize corporate interventions within the broader framework of the Just Energy Transition (JET).

However, empirical evidence reveals that these processes often exhibit selective inclusivity, prioritizing formal stakeholders such as municipal authorities and registered community organizations while systematically excluding informal actors who constitute a significant portion of local economies (Ndong Ntoutoume, 2023). This exclusion undermines procedural justice, as informal workers such as waste pickers, artisanal miners, and small-scale traders lack representation in decision-making structures despite bearing disproportionate transition risks (Wolf, 2023). The persistence of such governance asymmetries reflects a technocratic bias that privileges institutional actors over grassroots constituencies, thereby reproducing historical patterns of marginalization.

Scholars advocate for multi-stakeholder governance frameworks that embed inclusivity and accountability as core principles of transition planning. These frameworks emphasize participatory governance as both a normative and instrumental requirement, ensuring that informal economies are recognized as legitimate

stakeholders and integrated into benefit-sharing mechanisms (Fatima & Elbanna, 2023). Operationalizing this vision requires institutional innovations such as deliberative forums, community co-design processes, and social impact assessments that capture the lived realities of marginalized groups. Without such reforms, stakeholder engagement risks remaining a symbolic exercise, undermining the transformative potential of JET and perpetuating governance deficits in coal-dependent regions.

#### **2.4.10 Mine Rehabilitation and Environmental Governance**

Mine rehabilitation has emerged as a critical component of corporate sustainability strategies, reflecting the dual imperative of ecological restoration and socio-economic resilience in the context of energy transitions. Rehabilitation initiatives aim to restore ecological integrity while repurposing degraded land for alternative livelihoods, thereby aligning environmental objectives with community development goals (Haagner et al., 2025). In South Africa, rehabilitation projects typically involve land contouring, soil stabilization, and revegetation, complemented by water treatment interventions to address acid mine drainage a pervasive environmental hazard associated with coal mining (Cole et al., 2023).

Innovative models such as MC Mining's Sustainable Value Model illustrate potential pathways for integrating environmental restoration with socio-economic development. These approaches seek to convert rehabilitated land into agricultural hubs, renewable energy sites, or mixed-use community spaces, thereby creating diversified livelihood opportunities and reducing dependency on extractive economies (Africa Climate Reports, 2025). Such models resonate with global best practices that advocate for multi-functional land use as a strategy for achieving both ecological and social objectives in post-mining landscapes.

Despite these advances, implementation gaps persist, driven by inadequate funding, weak regulatory enforcement, and fragmented institutional mandates (Serfontein-Jordaan & Dlungwane, 2022). These structural constraints often result in partial or delayed rehabilitation, undermining the credibility of corporate sustainability commitments. Moreover, rehabilitation strategies rarely incorporate informal actors, missing opportunities to leverage local knowledge systems and co-create inclusive livelihood options (Adom & Simatele, 2025). This omission reflects a broader governance deficit in transition planning, where informal economies despite their critical role in local resilience remain systematically excluded from policy and corporate frameworks.

Addressing these gaps requires a paradigm shift toward participatory rehabilitation models that embed principles of distributive and recognition justice. Such models would institutionalize community engagement, integrate informal actors into planning processes, and align rehabilitation outcomes with broader socio-economic transformation objectives. Without these reforms, mine rehabilitation risks remaining a technocratic exercise, delivering ecological restoration without advancing the normative goals of the Just Energy Transition (JET).

#### **2.4.11 Workforce Reskilling as a Strategic Pillar of Transition Governance**

Workforce reskilling has emerged as a critical pillar of corporate transition management, designed to equip displaced coal workers with competencies relevant to emerging sectors such as renewable energy, green manufacturing, and sustainable agriculture (UNDP, 2024). These initiatives reflect an acknowledgment that energy transitions are not merely technological shifts but socio-economic transformations requiring deliberate

interventions to safeguard livelihoods. Mining companies have partnered with vocational training institutions, technical colleges, and government agencies to deliver programs in solar installation, electrical engineering, and sustainable farming practices, thereby aligning workforce development with national decarbonization objectives (Kabutey-Ongor et al., 2025).

Despite these efforts, significant implementation gaps persist, particularly concerning the inclusion of informal workers. Many reskilling programs rely on eligibility criteria tied to formal employment records, inadvertently excluding workers in informal economies who constitute a substantial share of coal-dependent livelihoods (Blaauw et al., 2021). This oversight reinforces structural inequalities and limits the transformative potential of reskilling initiatives, as vulnerable groups remain locked out of opportunities to participate in the green economy.

Scholars argue that addressing these gaps requires inclusive training models that incorporate recognition of prior learning, flexible enrollment mechanisms, and financial support to overcome barriers related to cost and accessibility (Wolf, 2023). Such models would bridge the divide between formal and informal labor markets, ensuring that transition strategies do not reproduce historical patterns of exclusion. Furthermore, embedding reskilling within participatory governance frameworks can enhance legitimacy and responsiveness by aligning program design with local knowledge systems and community priorities.

Ultimately, workforce reskilling represents both a challenge and an opportunity for operationalizing the normative principles of the Just Energy Transition (JET). When implemented inclusively, it can serve as a catalyst for socio-economic transformation, enabling coal-dependent regions to diversify their economic base and build resilience in the face of structural change.

#### **2.4.12 Governance Fragmentation and Institutional Capacity**

The effectiveness of management practices within South Africa's Just Energy Transition (JET) is significantly constrained by governance fragmentation and weak institutional capacity. Overlapping mandates among national, provincial, and municipal authorities create policy incoherence, hinder coordinated action, and dilute accountability across multiple governance scales (Anekwe et al., 2025). This fragmentation reflects structural weaknesses in the country's multi-level governance system, where competing priorities and jurisdictional ambiguities often result in delayed implementation and inconsistent enforcement of transition-related policies.

Regulatory frameworks governing mine rehabilitation, social investment, and environmental compliance are frequently characterized by poor enforcement, enabling companies to adopt minimalist approaches to sustainability obligations (Ndong Ntoutoume, 2023). Such regulatory laxity perpetuates a compliance-driven orientation, where corporate actors prioritize symbolic adherence over substantive engagement with justice-oriented principles. Furthermore, limited institutional capacity for monitoring and evaluation exacerbates accountability deficits, allowing superficial compliance to substitute for transformative action (Munir & Watts, 2025). These gaps undermine the credibility of transition governance and compromise its ability to deliver equitable outcomes.

The literature calls for integrated governance architectures that harmonize regulatory mandates, strengthen institutional capacity, and embed accountability mechanisms across all levels of transition planning (Fatima & Elbanna, 2023). This entails developing coordinated policy frameworks, enhancing resource allocation for

enforcement agencies, and institutionalizing participatory oversight structures that include civil society and local communities. Without such systemic reforms, governance fragmentation will continue to impede the operationalization of justice principles, reducing JET to a technocratic exercise rather than a transformative socio-economic project.

#### **2.4.13 Toward Inclusive Governance Models**

To address persistent governance and justice deficits, scholars advocate for institutional frameworks that operationalize distributive and procedural justice principles within corporate and policy architectures (Wolf, 2023). This requires embedding participatory mechanisms that empower marginalized groups including informal actors to influence decision-making processes and co-create development strategies tailored to local socio-economic realities (Agbaitoro & Ekhat, 2025). Such mechanisms move beyond tokenistic consultation toward deliberative engagement, ensuring that transition planning reflects diverse knowledge systems and community priorities.

Multi-stakeholder platforms comprising government agencies, mining companies, civil society organizations, and informal worker associations are increasingly proposed as vehicles for fostering transparency, accountability, and collaborative problem-solving (Dlamini & Dubihlela, 2025). These platforms can serve as institutional spaces for negotiating trade-offs, monitoring implementation, and aligning corporate sustainability initiatives with national decarbonization objectives. By institutionalizing inclusive governance, coal companies can enhance the legitimacy of transition policies, mitigate social resistance, and contribute to the broader objectives of social equity and environmental sustainability.

However, operationalizing these models demands structural reforms in governance architecture, including harmonization of regulatory mandates, capacity-building for local institutions, and formal recognition of informal economies as legitimate stakeholders. Without these reforms, stakeholder engagement risks remaining symbolic, undermining the transformative potential of the Just Energy Transition (JET) and perpetuating historical patterns of exclusion. Having discussed corporate strategies, the following section introduces informal economies as critical yet overlooked components of transition governance.

### **2.5 Informal Economies**

Informal economies refer to economic activities that are not regulated by formal legal or institutional frameworks, encompassing production, trade, and services that operate outside state-sanctioned systems of taxation, labor regulation, and social protection (Chen, 2012). These economies are characterized by low entry barriers, flexible labor arrangements, and limited contractual security, making them a critical source of livelihood for marginalized populations in contexts of structural unemployment and weak industrial diversification (Adom & Simatele, 2025). In resource-dependent regions, informal economies often include activities such as artisanal mining, waste picking, and informal trading, which provide income security and social resilience in the absence of formal employment opportunities.

Despite their socio-economic significance, informal economies remain systematically excluded from policy frameworks and governance structures, reflecting a technocratic bias that privileges formalized labor markets and institutional actors (Ndong Ntoutoume, 2023). This exclusion perpetuates procedural and recognition justice deficits, as informal workers lack representation in decision-making processes despite bearing

disproportionate risks associated with structural economic transitions (Wolf, 2023). Scholars argue that integrating informal economies into development planning is both a normative imperative, grounded in principles of equity and inclusion, and a pragmatic necessity for fostering socio-economic stability and legitimacy in governance systems.

### **2.5 1. Informal Economies in Coal Mining Communities**

Informal economies within coal-dependent regions constitute a pivotal yet insufficiently examined facet of South Africa's socio-economic fabric. These economies are characterized by a heterogeneous array of livelihood strategies, encompassing artisanal and small-scale mining (ASM), informal retail networks, waste reclamation and recycling activities, as well as casual and day labor arrangements. Collectively, these practices function as critical survival mechanisms for thousands of individuals systematically excluded from formal employment structures and social protection systems (Adom & Simatele, 2025; Blaauw et al., 2021). While such activities generate indispensable income streams and foster localized resilience, they simultaneously engender profound environmental degradation, occupational health risks, and governance deficits. These dynamics introduce complex regulatory and developmental challenges that undermine policy coherence and complicate the operationalization of a just and inclusive energy transition. Consequently, any transformative agenda aimed at decarbonization must contend with the embedded socio-economic dependencies and institutional blind spots that sustain these informal economies, lest the transition exacerbate existing inequalities and perpetuate structural marginalization.

### **2.5.2 Structural Drivers of Informality**

The persistence of informal economies within coal-mining communities is deeply embedded in structural determinants such as chronic unemployment, entrenched poverty, and the systemic fragility of institutional governance. South Africa's coal-producing regions most notably Mpumalanga and Limpopo are characterized by pronounced socio-economic vulnerability, manifesting in limited access to formal labor markets, inadequate public infrastructure, and constrained delivery of essential services (Nel et al., 2023). The progressive contraction of coal-related employment, driven by mine closures, mechanization, and broader decarbonization imperatives, has exacerbated dependence on informal livelihood strategies that operate beyond the purview of regulatory oversight and remain devoid of social protections (Kabutey-Ongor et al., 2025). Within this context, scholarly discourse increasingly challenges reductive interpretations of informality as a mere regulatory aberration, instead conceptualizing it as an adaptive mechanism a rational response to systemic exclusion, structural precarity, and the failure of formal economic institutions to absorb surplus labor (Chen, 2012; Adom & Simatele, 2025). This reframing underscores the need for policy paradigms that recognize informality as a constitutive element of local economies rather than an anomaly to be eradicated, thereby foregrounding its significance in debates on energy justice and equitable transition pathways.

### **2.5.3 Economic and Social Significance**

Informal economies constitute a foundational pillar for sustaining household incomes and fostering community resilience within coal-dependent regions. These economies encompass a spectrum of activities that collectively mitigate the socio-economic vulnerabilities engendered by structural unemployment and declining formal sector opportunities. Artisanal and small-scale mining (ASM), for instance, provides

subsistence employment to thousands of individuals, albeit under precarious and hazardous conditions, often devoid of legal recognition and occupational safeguards (Marais et al., 2021). Complementing these extractive practices are informal retail and service enterprises such as spaza shops, informal transport systems, and mobile money agents which function as critical nodes within localized value chains, facilitating access to goods and financial services in geographies systematically underserved by formal markets (Blaauw et al., 2021). Furthermore, waste recycling and reclamation activities represent an increasingly salient livelihood strategy, with informal waste pickers contributing significantly to emergent circular economy dynamics through the collection and sorting of coal ash and industrial by-products (Godfrey, 2021). Despite their economic indispensability and embeddedness within local socio-ecological systems, these activities remain conspicuously marginalized within policy discourse and development planning, thereby perpetuating patterns of invisibility, exclusion, and regulatory neglect. This omission underscores a critical disjuncture between the lived realities of coal-dependent communities and the normative frameworks guiding South Africa's energy transition, raising fundamental questions about distributive justice and inclusive development.

#### **2.5.4 Environmental and Health Risks**

The environmental ramifications of informal mining and associated activities are both extensive and multidimensional, exerting profound pressures on local ecosystems and public health. Artisanal and small-scale mining (ASM) operations typically employ rudimentary extraction techniques that accelerate processes of land degradation, soil erosion, and deforestation, while simultaneously contributing to severe water contamination through the discharge of untreated effluents and sediment loads into river systems (Haagner et al., 2025). These practices further precipitate biodiversity loss, destabilizing ecological networks and undermining the resilience of already fragile landscapes. The absence of regulatory oversight and enforceable environmental safeguards compounds these risks, generating cumulative ecological liabilities that not only compromise the integrity of natural resources but also obstruct post-closure rehabilitation initiatives undertaken by formal mining entities (Cole et al., 2023). Parallel to these environmental externalities are acute health hazards: informal miners are routinely exposed to toxic substances, unsafe working conditions, and chronic respiratory illnesses linked to prolonged inhalation of coal dust and particulate matter (Marais et al., 2018). Moreover, informal settlements situated in proximity to mining sites frequently lack basic sanitation infrastructure and potable water, thereby amplifying vulnerability to communicable diseases and environmental health risks (Kabutey-Ongor et al., 2025). These intersecting ecological and health dimensions underscore the systemic neglect of informal economies within environmental governance frameworks, revealing critical gaps in policy coherence and the operationalization of sustainable development objectives.

#### **2.5.6 Gendered and Intersectional Dimensions**

Gendered and generational vulnerabilities within informal economies remain critically underexamined, despite mounting evidence that women and youth constitute a disproportionate share of labor in sectors such as informal retail, waste picking, and low-value service provision (Kabutey-Ongor et al., 2025). Women's participation is frequently circumscribed by structural constraints that render their roles highly precarious characterized by meager earnings, restricted access to financial capital and credit markets, and heightened exposure to gender-based violence and harassment in both domestic and occupational spheres (Boodhram,

2024). Similarly, migrant workers and young people experience compounded disadvantages, including systemic social exclusion, insecure tenure, and limited pathways to skills acquisition or vocational training programs aligned with the imperatives of a low-carbon economy (Blaauw et al., 2021). These intersectional inequities underscore the inadequacy of prevailing policy frameworks, which often adopt gender-neutral or technocratic approaches that obscure differentiated vulnerabilities. Addressing these disparities necessitates the integration of gender-sensitive and youth-inclusive strategies into transition planning, coupled with participatory governance mechanisms that foreground marginalized voices in decision-making processes (Wolf, 2023). Such interventions are essential to operationalize principles of distributive and procedural justice within South Africa's energy transition, ensuring that structural inequalities are not reproduced under the guise of sustainability.

### **2.5.7 Governance Challenges and Policy Gaps**

The governance of informal economies in coal-dependent regions is characterized by systemic regulatory exclusion and fragmented institutional responses, reflecting a broader disconnect between policy frameworks and the socio-economic realities of marginalized communities. Existing governance architectures tend to privilege formalization strategies grounded in neoliberal and technocratic logics, which frequently disregard the socio-cultural embeddedness and historical contingency of informal practices. Such approaches often manifest as enforcement-driven interventions that criminalize poverty and delegitimize survivalist activities, rather than addressing the structural determinants such as unemployment, spatial inequality, and institutional fragility that perpetuate informality (Adom & Simatele, 2025). This regulatory posture not only exacerbates social vulnerability but also undermines trust in state institutions, reinforcing patterns of exclusion and governance deficits. In response, scholars advocate for inclusive and participatory governance models that recognize informal actors as legitimate stakeholders within the policy arena and institutionalize mechanisms for their meaningful engagement in decision-making processes (Nel et al., 2023). These models resonate with the principles of procedural and recognition justice, which constitute core normative pillars of the Just Energy Transition (JET) framework, emphasizing equity, voice, and accountability in the reconfiguration of energy systems (Heffron & McCauley, 2018). Operationalizing such principles requires a paradigmatic shift from punitive regulation toward dialogic governance, thereby embedding informality within a rights-based and justice-oriented transition discourse.

### **2.5.8 Implications for Just Energy Transition**

The integration of informal economies into Just Energy Transition (JET) strategies constitutes both an ethical imperative and a pragmatic necessity for realizing equitable and sustainable development outcomes. Neglecting to engage informal actors within transition planning risks deepening existing socio-economic vulnerabilities, eroding community resilience, and undermining the legitimacy and social acceptability of transition policies (Wolf, 2023). Conversely, governance frameworks that institutionalize participatory mechanisms and enable the co-creation of development strategies can catalyze transformative outcomes by fostering social cohesion, enhancing adaptive capacities, and embedding distributive and procedural justice within transition processes (Agbaitoro & Ekhatior, 2025). Achieving these objectives demands a paradigmatic shift away from deficit-based conceptualizations of informality often framed as a governance failure or regulatory anomaly toward recognition of its adaptive functions and contributions to localized sustainability.

Such a reframing positions informal economies not as obstacles to decarbonization but as critical sites of innovation and resilience, thereby aligning transition strategies with inclusive development principles and the normative architecture of energy justice. Synthesizing insights from the preceding sections, this section presents the conceptual framework guiding the study.

### **2.5.9 Conceptual Framework**

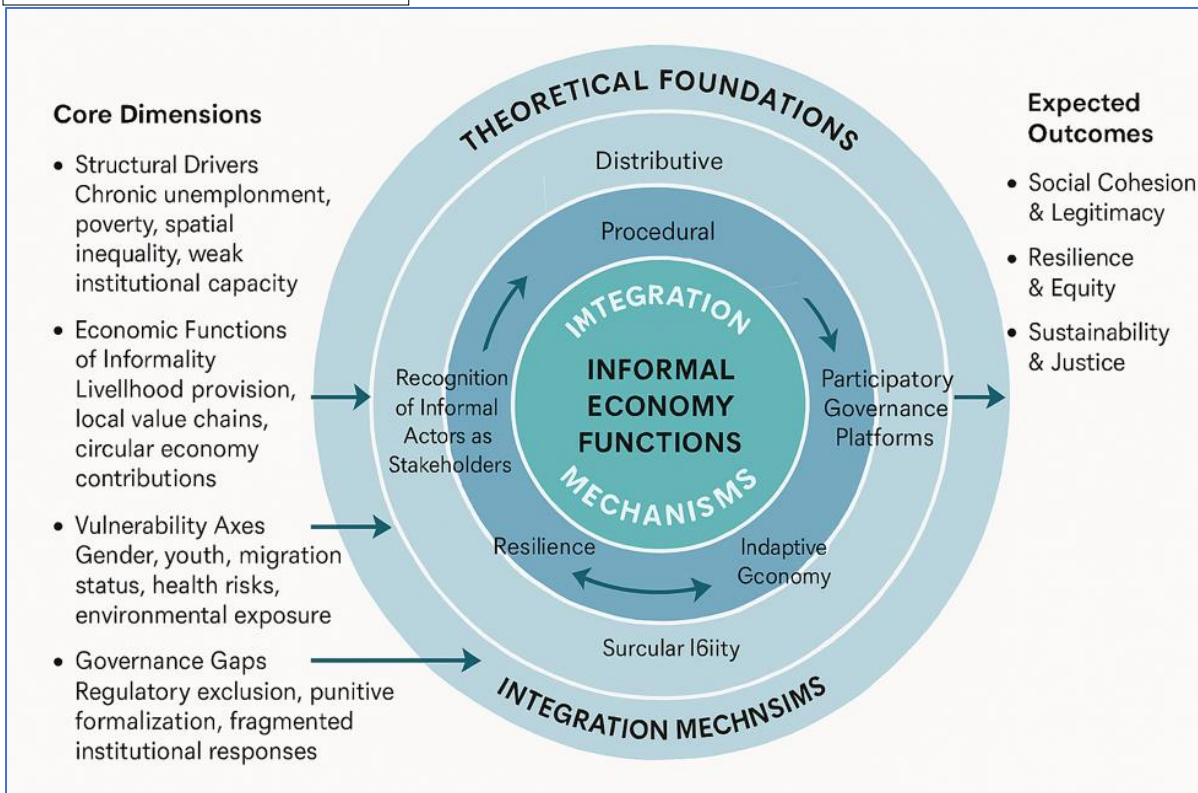
The proposed conceptual framework shown in figure 2.1 below, synthesizes insights from energy justice, corporate social responsibility (CSR), and informality theory to interrogate corporate strategies for managing informal economies within the context of the Just Energy Transition (JET). Rather than conceptualizing informal actors as passive recipients of transition benefits, the framework positions them as active co-creators of transition pathways, thereby challenging technocratic and top-down models of governance. This orientation aligns with global normative discourses on inclusive and participatory development, which emphasize equity, recognition, and procedural justice as foundational principles for sustainable transitions (Agbaitoro & Ekhatior, 2025).

By integrating these theoretical strands, the framework advances a multidimensional perspective:

- Energy justice provides the normative architecture for embedding distributive, procedural, and recognition justice into transition governance.
- CSR and stakeholder theory operationalize ethical engagement and shared value creation, foreground.
- ing the role of corporate actors in fostering participatory governance and social legitimacy.
- Informality theory reframes informal economies as adaptive systems embedded in socio-cultural and structural contexts, highlighting their resilience and contributions to local sustainability.

Collectively, these lenses enable a holistic analysis of how corporate strategies can move beyond compliance-driven formalization toward inclusive governance models that recognize informality as a constitutive element of transition economies. This conceptualization underscores the transformative potential of JET when grounded in justice-oriented and participatory principles.

Figure 2.1: Categories of Unit of Analysis



Note. Adapted from Jenkins et al. (2016)

### 2.5.10 Conceptual Framework for Integrating Informal Economies into Just Energy Transition Governance

The proposed conceptual framework as depicted in figure 2.1, is grounded in the normative principles of energy justice, which provide the theoretical foundation for addressing the structural and governance challenges associated with informal economies in coal-dependent regions. These principles distributive, procedural, and recognition justice constitute the outermost layer of the framework and collectively inform the design of inclusive transition strategies (Heffron & McCauley, 2018). Distributive justice emphasizes equitable allocation of costs and benefits arising from decarbonization, ensuring that vulnerable groups do not bear disproportionate burdens. Procedural justice foregrounds participatory governance processes, advocating for mechanisms that enable marginalized actors to influence decision-making. Recognition justice addresses systemic invisibility by acknowledging the socio-economic contributions and vulnerabilities of informal actors within policy discourse.

At the core of the framework are four dimensions that shape the persistence and functionality of informal economies. Structural drivers including chronic unemployment, poverty, spatial inequality, and weak institutional capacity create enabling conditions for informality to thrive in coal regions. Economic functions of informality underscore its role as a critical livelihood system, sustaining household incomes through activities such as artisanal and small-scale mining (ASM), informal retail, and waste recycling. These practices also contribute to local value chains and circular economy dynamics, challenging deficit-based narratives that frame informality solely as a governance failure (Chen, 2012). Vulnerability axes highlight

intersectional inequalities, with gender, youth, and migration status intersecting with occupational hazards and environmental exposure to produce layered risks (Kabutey-Ongor et al., 2025). Finally, governance gaps reflect the dominance of punitive formalization strategies and fragmented institutional responses, which criminalize survivalist activities rather than addressing structural determinants of informality (Adom & Simatele, 2025).

The middle layer of the framework delineates integration mechanisms for embedding informal economies within JET governance. These include:

**Recognition of informal actors as stakeholders**, which shifts policy paradigms from deficit-based framings toward capability-based approaches;

**Participatory governance platforms**, institutionalizing co-creation of transition strategies to enhance procedural justice and policy legitimacy;

**Resilience and adaptive capacity building**, through targeted investments in skills development, financial inclusion, and environmental stewardship programs; and

**Circular economy integration**, leveraging informal waste reclamation and recycling practices to advance sustainability objectives.

The expected outcomes of operationalizing this framework are threefold: social cohesion and legitimacy, achieved through inclusive governance and trust-building; resilience and equity, fostered by reducing vulnerability and enhancing adaptive capacities; and sustainability and justice, realized through alignment with energy justice principles and the Sustainable Development Goals (SDGs). Collectively, these outcomes underscore the transformative potential of integrating informal economies into JET strategies, positioning informality not as an obstacle to decarbonization but as a critical site of innovation and resilience.

## 2. 6 Theoretical Frameworks

The conceptualization of informal economies within the context of South Africa's Just Energy Transition (JET) requires a robust theoretical foundation that captures the complexity of socio-economic, environmental, and governance dynamics. Scholars such as Chen (2012) argue that informal economies in coal-dependent regions are not merely residual spaces of economic activity but constitute adaptive systems embedded within structural inequalities and institutional gaps. To interrogate these dynamics, this study draws on three interrelated theoretical lenses: energy justice, informalization theory, and political ecology.

Energy justice, as articulated by Heffron and McCauley (2018), provides the normative architecture for understanding the distributive, procedural, and recognition dimensions of transition governance. It foregrounds questions of equity, participation, and legitimacy, emphasizing that decarbonization strategies must avoid reproducing historical patterns of exclusion (Schlosberg, 2007; Wolf, 2023). Informalization theory offers a critical perspective on the persistence of informality, framing it as an adaptive response to systemic exclusion rather than a regulatory anomaly (Chen, 2012; Adom & Simatele, 2025). This lens challenges deficit-based narratives and positions informal economies as integral to local resilience and survival strategies (Blaauw et al., 2021). Finally, political ecology situates these processes within broader power relations and environmental governance structures, highlighting how resource politics and institutional

fragmentation shape the vulnerabilities and agency of informal actors (Baker et al., 2024; Kabutey-Ongor et al., 2025).

Together, these frameworks enable a multidimensional analysis that moves beyond technocratic interpretations of transition to incorporate socio-cultural embeddedness, intersectional vulnerabilities, and governance deficits (Agbaitoro & Ekhatior, 2025). They provide the analytical scaffolding for the proposed conceptual framework, which seeks to operationalize principles of justice and inclusivity in the integration of informal economies into JET strategies (Heffron & McCauley, 2018; Wolf, 2023).

### **2.6.1 Dominant Theoretical Lenses in the Discourse on Informality and Energy Transitions**

The scholarly interrogation of informal economies within the context of energy transitions is underpinned by four interrelated theoretical lenses, each offering distinct explanatory and normative insights.

### **2.6.2 Political Economy of Energy Transitions**

The scholarly interrogation of informal economies within the context of energy transitions is underpinned by four interrelated theoretical lenses, each offering distinct explanatory and normative insights. Scholars such as Baker et al. (2024) emphasize the political economy of energy transitions, which illuminates structural constraints and power asymmetries shaping transition trajectories and outcomes. This perspective situates energy transitions within broader socio-political and economic structures, highlighting how governance architectures and market logics often reproduce inequalities rather than dismantle them.

### **2.6.3 Informality Theory**

The second lens, informality theory, reframes informal economies not as regulatory failures but as adaptive systems emerging in response to systemic exclusion and structural precarity (Chen, 2012; Adom & Simatele, 2025). This perspective challenges deficit-based narratives by emphasizing the resilience and socio-cultural embeddedness of informal practices, positioning informality as a constitutive element of local economies rather than an anomaly to be eradicated (Blaauw et al., 2021).

### **2.6.4 Corporate Social Responsibility (CSR) and Stakeholder Theory**

The third lens draws on Corporate Social Responsibility (CSR) and stakeholder theory, which underscore the ethical imperatives of corporate engagement in transition processes. Freeman et al. (2010) argue that these frameworks advocate for participatory governance and shared value creation, calling for mining companies to move beyond compliance-driven approaches toward inclusive strategies that integrate community voices and address social externalities (Fatima & Elbanna, 2023).

### **2.6.5 Environmental Justice**

Finally, environmental justice provides a normative framework for evaluating fairness in transition governance through its emphasis on distributive, procedural, and restorative justice (Schlosberg, 2007; Wolf, 2023). This perspective ensures that equity considerations permeate all stages of transition planning, from resource allocation to institutional design, thereby aligning energy governance with principles of social and environmental sustainability.

Together, these lenses offer complementary insights that, when integrated, enable a holistic understanding of informal economies within energy transition contexts. They collectively inform the conceptual framework of this study, ensuring that managerial perceptions and corporate strategies are analyzed through a multidimensional lens that foregrounds justice, inclusivity, and structural transformation.

### 2.6.6 Comparative Table: Strengths and Limitations of Dominant Theoretical Lenses

This section presents a comparative analysis of four dominant theoretical lenses that inform scholarly debates on informal economies and energy transitions. Each lens offers distinct explanatory and normative insights, with specific strengths and limitations that shape their applicability in policy and research contexts. The table below synthesizes these dimensions to guide conceptual and empirical engagement.

Table 2.1: Comparative Analysis of Dominant Theoretical Lenses. Adapted from Lacey et al. (2020) & Boateng et al. (2023)

Theoretical Lens	Strengths	Limitations
Political Economy of Energy Transitions	<ul style="list-style-type: none"> <li>- Illuminates structural constraints and power asymmetries shaping transition outcomes.</li> <li>- Connects local dynamics to global capitalist and institutional processes.</li> <li>- Highlights distributive impacts of policy and market logics.</li> </ul>	<ul style="list-style-type: none"> <li>- Often macro-level, neglecting micro-level agency and informal practices.</li> <li>- May overemphasize structural determinism, limiting scope for adaptive strategies.</li> <li>- Limited engagement with cultural and gendered dimensions.</li> </ul>
Informality Theory	<ul style="list-style-type: none"> <li>- Reframes informality as adaptive and resilient rather than anomalous.</li> <li>- Recognizes socio-cultural embeddedness of informal practices.</li> <li>- Provides nuanced understanding of livelihood strategies under systemic exclusion.</li> </ul>	<ul style="list-style-type: none"> <li>- Normatively weak in prescribing governance solutions.</li> <li>- Limited integration with environmental sustainability concerns.</li> <li>- Often descriptive, lacking predictive capacity for transition outcomes.</li> </ul>
CSR and Stakeholder Theory	<ul style="list-style-type: none"> <li>- Emphasizes ethical engagement and shared value creation.</li> <li>- Encourages participatory governance and corporate accountability.</li> <li>- Aligns with global sustainability norms and SDGs.</li> </ul>	<ul style="list-style-type: none"> <li>- Risk of voluntarism and superficial compliance ('greenwashing').</li> <li>- Often firm-centric, neglecting structural inequalities.</li> <li>- Limited applicability in highly informal and resource-constrained contexts.</li> </ul>
Environmental Justice	<ul style="list-style-type: none"> <li>- Provides strong normative grounding through distributive,</li> </ul>	<ul style="list-style-type: none"> <li>- Conceptually broad, requiring contextual adaptation.</li> </ul>

	procedural, and restorative justice. - Integrates equity and sustainability into transition governance. - Applicable across scales (local to global).	- Operationalization challenges in fragmented governance systems. - May underplay economic pragmatism and market dynamics.
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### 2.6.7 Critical Discussion of Complementarities Among Theoretical Lenses

The four theoretical lenses Political Economy of Energy Transitions, Informality Theory, CSR and Stakeholder Theory, and Environmental Justice offer complementary insights that, when integrated, provide a holistic understanding of informal economies within energy transition contexts. Each lens addresses distinct dimensions of the problem, yet their intersections create opportunities for more inclusive and justice-oriented governance frameworks.

Political Economy of Energy Transitions foregrounds structural constraints and power asymmetries, offering a macro-level perspective on how institutional arrangements and global capitalist dynamics shape transition outcomes (Baker et al., 2024). While this lens excels in diagnosing systemic inequities, it often underplays micro-level agency. Informality Theory bridges this gap by reframing informal economies as adaptive systems rather than regulatory anomalies, emphasizing resilience and socio-cultural embeddedness (Chen, 2012). Together, these perspectives illuminate both structural determinants and localized coping strategies, enabling nuanced policy interventions.

CSR and Stakeholder Theory complements these structural and adaptive insights by introducing normative imperatives for corporate accountability and participatory governance. It advocates for shared value creation and ethical engagement, aligning private sector actions with community needs and sustainability objectives (Freeman et al., 2010). This lens operationalizes procedural justice by embedding stakeholder voices in decision-making processes, thereby reinforcing legitimacy and trust in transition governance.

Environmental Justice provides the overarching normative framework that binds these perspectives through its emphasis on distributive, procedural, and restorative justice (Schlosberg, 2007; Wolf, 2023). It ensures that equity considerations permeate all stages of transition planning, from resource allocation to institutional design. When combined, these lenses create a synergistic approach: Political Economy diagnoses structural inequities; Informality Theory valorizes adaptive capacities; CSR and Stakeholder Theory institutionalizes participatory mechanisms; and Environmental Justice embeds these processes within a justice-oriented paradigm. This integrative perspective is essential for addressing the multi-scalar and intersectional challenges of informal economies in coal-dependent regions undergoing energy transitions.

## 2. 7 Literature Gaps

Although scholarship on energy transitions and corporate sustainability has expanded significantly, notable gaps remain that directly inform this study's research questions and propositions. Ndong Ntoutoume (2023) and Cole et al. (2023) emphasize that existing research predominantly focuses on macro-level policy frameworks and governance architectures, offering limited insight into how managers within coal mining

companies perceive and operationalize strategies for managing informal economies during the Just Energy Transition (JET). This omission constrains understanding of the strategic, ethical, and operational dimensions of corporate engagement with informality, thereby underpinning the primary research question and Proposition 1.

Similarly, Etim and Daramola (2020) and Blaauw et al. (2021) acknowledge that informal economies are widely recognized as adaptive systems sustaining livelihoods under structural precarity. However, there is scant empirical evidence on how managerial actors interpret the socio-economic characteristics and structural drivers of informality in coal-dependent communities. This gap is critical because managerial perceptions shape corporate responses to informality, influencing whether interventions reinforce or mitigate vulnerability. Addressing this deficit aligns with Secondary Research Question 1 and Proposition 2.

Fatima and Elbanna (2023) and UNDP South Africa (2024) note that Corporate Social Responsibility (CSR) and stakeholder engagement are frequently discussed in normative terms, yet few studies interrogate whether these practices meaningfully include informal actors or advance distributive and procedural justice in transition contexts. This lacuna informs Secondary Research Question 2 and Proposition 3, raising questions about the ethical legitimacy and inclusivity of corporate sustainability strategies.

Furthermore, Agbaitoro and Ekhaton (2025) and Nsafon et al. (2023) highlight that despite the prominence of justice-oriented frameworks in global energy transition discourse, empirical assessments of the extent to which corporate practices in South Africa align with principles of environmental justice particularly distributive, procedural, and recognition justice remain limited. This gap directly relates to Secondary Research Question 3 and underscores the need to evaluate whether managerial strategies operationalize equity-focused models or perpetuate technocratic biases.

Finally, Kabutey-Ongor et al. (2025) and Boodhram (2024) demonstrate that intersectional vulnerabilities within informal economies particularly those affecting women, youth, and migrant workers are underexplored in corporate discourse, despite evidence of their disproportionate exposure to socio-economic and environmental risks. This omission highlights the inadequacy of prevailing approaches and reinforces the necessity of integrating gender-sensitive and inclusive strategies into transition planning.

Collectively, these gaps justify the study's qualitative focus on managerial perceptions, CSR practices, and justice principles in managing informal economies during JET. They provide the conceptual foundation for the research questions and propositions presented in Chapter Three, ensuring that the inquiry addresses both theoretical and practical deficits in current scholarship.

# CHAPTER THREE: RESEARCH QUESTIONS AND PROPOSITIONS

## 3.1 Introduction

Building on the theoretical foundations and empirical gaps identified in Chapter Two, this chapter delineates the research questions and propositions that frame the inquiry. The preceding literature review demonstrated that while global and national discourses on the Just Energy Transition (JET) emphasize equity and inclusivity, significant gaps remain in understanding how corporate actors particularly coal mining companies engage with informal economies in coal-dependent communities (Ndong Ntoutoume, 2023; Cole et al., 2023). These gaps underscore the need for a qualitative investigation into managerial perceptions, strategic responses, and normative alignment with justice principles.

The primary research question seeks to explore how managers in South African coal mining companies perceive their organizations' management of informal economies during JET, with attention to strategic, ethical, and operational dimensions. This question is complemented by three secondary questions that interrogate managerial interpretations of informality, the inclusivity of Corporate Social Responsibility (CSR) and stakeholder engagement practices, and the coherence of corporate strategies with environmental justice principles (Fatima & Elbanna, 2023; Agbaitoro & Ekhatior, 2025). Collectively, these questions provide a multidimensional lens for examining the intersection of corporate governance, socio-economic resilience, and energy justice.

To structure this inquiry, the chapter advances a set of conceptual propositions derived from the literature synthesis. Unlike hypotheses, which are empirically testable, propositions serve as guiding statements that articulate conjectural relationships between constructs such as CSR, informality, and justice-oriented governance (Pearse, 2021; Van der Poll & Van der Poll, 2023). They reflect the interpretive orientation of the study and inform the design of data collection and analysis strategies. By grounding the research questions and propositions in the gaps identified earlier, this chapter ensures continuity and coherence, reinforcing the golden thread that connects the literature review to the empirical investigation.

The literature review revealed a notable research void: CSR in South Africa's coal sector is frequently implemented through compliance-driven and performance-oriented logics, with limited integration of equity-focused models (Serfontein-Jordaan & Dlungwane, 2022). Informal economies, though inherently adaptive and central to local livelihoods, remain marginal in corporate sustainability planning (Adeola et al., 2019; Rogan & Skinner, 2021). Furthermore, stakeholder engagement practices are often superficial, failing to meaningfully incorporate informal actors into transition strategies (Wolf, 2023; Kilimcioğlu, 2025). These gaps justify the study's qualitative, question-driven approach, which seeks to generate situational understanding and deepen insights into the ethical, strategic, and socio-economic dimensions of CSR in communities reliant on coal (Blaauw et al., 2021; Cole et al., 2023). Having established the theoretical foundations and highlighted critical gaps in Chapter Two, the following section advances the research questions and propositions that directly respond to these gaps, ensuring conceptual continuity between the literature review and the empirical investigation.

### 3.2 Primary Research Question

*What are the perceptions of management in South African coal mining companies regarding how their organizations manage informal economies in coal-dependent communities during the Just Energy Transition?* This question seeks to explore strategic, ethical, and operational dimensions of corporate engagement with informal actors, particularly in regions undergoing structural shifts due to decarbonization and mine closures (Ndong Ntoutoume, 2023; Cole et al., 2023).

### 3.3 Secondary Research Questions

1. *How do managers perceive the socio-economic characteristics and structural drivers of informal economies in coal mining communities?* This question investigates demographic, institutional, and livelihood dynamics underpinning informality in mining regions, with reference to spatial inequalities and employment precarity (Etim & Daramola, 2020; Blaauw et al., 2021).

2. *How do managerial perspectives on CSR and stakeholder engagement practices influence the management of informal economies?* This inquiry examines whether CSR initiatives and participatory governance mechanisms are inclusive of informal actors and contribute to sustainable development outcomes (Fatima & Elbanna, 2023; UNDP South Africa, 2024).

3. *To what extent do current management practices align with principles of environmental justice and the goals of a Just Energy Transition?* This question evaluates the normative coherence of corporate strategies with equity-focused models, including distributive, procedural, and restorative justice (Agbaitoro & Ekhatior, 2025; Nsafon et al., 2023).

### 3.4 Propositions

Theoretical foundations inform the research propositions, declarative statements that articulate conjectural relationships between abstract constructs within the conceptual domain of a study. They serve as foundational elements in theory-building research, particularly within qualitative paradigms, where they guide the formulation of research questions, data collection strategies, and analytical frameworks (Pearse, 2021; Van der Poll & Van der Poll, 2023). Unlike hypotheses, which are empirically testable, propositions are conceptual and often emerge from inductive reasoning or literature synthesis. They are instrumental in structuring qualitative inquiries, especially in approaches such as case study and phenomenology, where the aim is to explore complex social phenomena and lived experiences (Tomaszewski et al., 2020).

Based on the literature reviewed in Chapter 2, the following propositions are advanced:

**Proposition 1:** CSR practices in South African coal mining companies predominantly reflect instrumental and compliance-based logics, with limited integration of equity-focused models (Ndong Ntoutoume, 2023; Serfontein-Jordaan & Dlungwane, 2022).

**Proposition 2:** Informal economies in communities reliant on coal are inherently adaptive and play a critical role in sustaining local livelihoods; however, they remain marginal in corporate sustainability planning, creating a disconnect between community needs and corporate strategies (Adeola et al., 2019; Blaauw et al., 2021).

**Proposition 3:** Effective and inclusive stakeholder engagement particularly with informal actors enhances the ethical legitimacy, social impact, and adaptive capacity of CSR initiatives in the context of shift to sustainable energys (Wolf, 2023; Nsafon et al., 2023).

These propositions are grounded in the theoretical intersection of transition management, informal economy governance, and corporate sustainability. They reflect conceptual relationships between corporate engagement strategies and socio-economic resilience during shift to sustainable energies. In qualitative research, such propositions serve as guiding statements that structure inquiry and inform the development of conceptual frameworks (Pearse, 2021; Van der Poll & Van der Poll, 2023). In line with interpretivist paradigms, these propositions do not seek statistical validation but rather aim to explore how coal mining companies perceive, interact with, and potentially integrate informal economic activities into their transition strategies (Tomaszewski et al., 2020).

# CHAPTER FOUR: RESEARCH METHODOLOGY

## 4.1 Introduction

This chapter presents the methodological framework that guided the investigation into how coal mining companies in South Africa managing informal economies from a managerial perspective within the context of the Just Energy Transition. A qualitative research design, grounded in the interpretivist paradigm, was adopted to explore the socially constructed meanings, and lived experiences of stakeholders involved in informal economies. This approach was particularly rigorous and contextually appropriate for capturing the complexity of socio-economic transitions and the embeddedness of informal practices in local livelihoods (Tanlaka & Aryal & 2025; Pervin & Mokhtar, 2022). Details of the research setting have been relocated to the Research Setting section for clarity in Limpopo Province, where the local economy has historically depended on open-cast coal mining. The research aimed to uncover the perspectives of individuals management perspectives on informal economies, particularly as they navigated the uncertainties and socio-political sensitivities associated with the energy transition. The coal mining sector has long served as a source of employment, identity, and pride for many South African households, and the potential discontinuation of this industry evoked strong emotional and cultural responses (de Gooyert et al., 2024).

Given the multidimensional nature of the Just Energy Transition, the research design accounted for factors such as economic dependency, cultural diversity, linguistic barriers, digital access, and practical constraints in fieldwork. These considerations were essential for ensuring methodological appropriateness and ethical sensitivity in a context marked by historical inequalities and contested development narratives (Shaw & 2008; Taquette & Souza, 2022). To investigate the management of informal economies in this transitional context, various research approaches were evaluated. While both quantitative and qualitative methodologies were considered, the study ultimately adopted a qualitative approach due to its capacity to engage deeply with subjective experiences and social meanings. As Creswell and Creswell (2023) emphasized, research design involves the development of systematic plans and procedures that guide the entire research process from philosophical assumptions to data collection and interpretation. The selection of an interpretivist research philosophy was informed by the need to understand phenomena through the lens of participants' lived realities. Interpretivism emphasizes the co-construction of meaning and the contextual nature of knowledge production, rejecting the notion of objective truth in favor of nuanced, situated understandings (Tanlaka & Aryal & 2025; Pervin & Mokhtar, 2022). This paradigm is particularly suited to exploring complex social phenomena, such as informal economies, where meaning is shaped by cultural, historical, and institutional contexts (Schwandt, 1994).

In line with this philosophical orientation, the study prioritized open-ended inquiry, dialogical engagement, and reflexive analysis. The research questions were crafted to elicit rich, descriptive data that could illuminate the strategies, challenges, and opportunities associated with managing informal economies during the energy transition. The ontological and epistemological foundations of interpretivism namely, relativist ontology and subjectivist epistemology shaped the study's approach to sampling, data collection, and analysis (Pervin & Mokhtar & 2022). To ensure trustworthiness and methodological rigor, the study adhered to Lincoln and Guba's criteria (credibility, transferability & dependability, confirmability) and employed triangulation across interviews, focus groups, and document analysis, the study adhered to the principles of credibility,

transferability, dependability, and confirmability, as outlined by Lincoln and Guba (1985) and reaffirmed in recent literature (Williams & Hill & 2012; Ahmed, 2024). Strategies such as member checking, triangulation, reflexive journaling, and audit trails were employed to enhance the reliability and validity of the findings. Therefore, the methodological choices made in this study were guided by the need to engage ethically, rigorously, and contextually with a complex and sensitive research topic. The interpretivist paradigm provided a robust framework for exploring the management of informal economies in a region undergoing profound socio-economic transformation.

## **4.2 Choice of Research Methodology**

### **4.2.1 Quantitative Research Methodology**

Quantitative research methodology was evaluated but deemed unsuitable for addressing the research questions, which require exploration of managerial perceptions and strategic practices rather than statistical generalization for this study due to its structured approach to explaining phenomena through the collection and statistical analysis of numerical data. Creswell (1994) defined this methodology as one that seeks to explain phenomena by collecting numerical data and analyzing it using mathematically based methods, particularly statistics. This approach is typically aligned with a deductive research logic, where hypotheses guide the formulation of research questions, variables, and analytical procedures (Creswell & 2002; Sapkota, 2024). Quantitative methods are often employed to generalize findings across populations and to establish causal relationships through objective measurement and statistical inference. However, despite its strengths in producing replicable and generalizable results, quantitative research has been critiqued for its limitations in capturing the complexity of human behavior and social phenomena, particularly in contexts shaped by cultural and emotional dynamics (Sapkota, 2024). In the case of informal economies and the Just Energy Transition, the concept remains unfamiliar to many community members, and the literacy demands of quantitative surveys could have excluded key voices. These constraints rendered the quantitative approach less suitable for the study's objectives.

### **4.2.2 Qualitative Research Methodology**

In contrast, qualitative research methodology was deemed more appropriate for this study due to its emphasis on exploring meaning, experience, and social processes in naturalistic settings. Malterud (2001) described qualitative research as a systematic process of gathering, organizing, and interpreting textual data from dialogues or conversations. This method was particularly suited to uncovering the meanings of social encounters as experienced by individuals in their lived contexts (Levitt & 2024; Gupta & Zieske, 2024). Qualitative inquiry enabled the researcher to engage deeply with stakeholders and uncover the nuanced ways in which informal economic actors and coal mining companies navigated the socio-political complexities of the energy transition. The methodology is inherently flexible and adaptive, allowing for iterative engagement with participants and evolving research questions (Clarke et al., 2025).

Phenomenological approaches within qualitative research were especially relevant, as they focus on understanding how individuals make sense of their lived experiences. Prosek & Gibson (2021) emphasized that lived experience designs are ideal for answering "how," "what," and "why" questions in context-rich environments. In this study, the multidimensional nature of human experience encompassing psychological,

cultural, and structural dimensions necessitated a methodology capable of capturing emotional, cognitive, and behavioral complexity.

The study was grounded in an interpretivist philosophical paradigm, which posits that reality is socially constructed and best understood through the subjective interpretations of individuals (Tanlaka & Aryal & 2025; Pervin & Mokhtar, 2022). This paradigm aligned with the study's aim to explore how meaning was constructed around informal economies and energy transition policies in Lephalale. Interpretivism also recognizes the researcher's positionality and the co-creation of knowledge through dialogical engagement (Ma & Ma, 2022). Furthermore, qualitative methods allowed for rich, descriptive data to be collected through semi-structured interviews and focus groups, facilitating the emergence of themes grounded in participants' narratives. This approach was essential for understanding the emotional and cultural significance attached to coal mining in South Africa and for capturing the sensitive dynamics of transition-related discourse (Levitt, 2022). Therefore, while quantitative methods offered the potential for generalizability, the contextual sensitivity, epistemological alignment, and depth of insight provided by qualitative methodology made it the most appropriate choice for this study.

### **4.3 Research Design and Justification**

This design maintains the golden thread by linking research questions to methodological choices and analytical strategies. This study adopted a qualitative single-case embedded case study design to facilitate an in-depth exploration of organizational responses and community-level dynamics within the context of South Africa's Just Energy Transition. The case study method was selected for its capacity to generate rich, contextually grounded insights into complex social phenomena, particularly those embedded in specific geographic and institutional settings (Stake & 2005; Gaikwad, 2017). Case study research is not merely a methodological choice but a strategic decision about what is to be studied, emphasizing depth over breadth and prioritizing understanding over generalization. The research was underpinned by an interpretivist epistemology (aligned with constructivist principles), which posits that knowledge is socially constructed through human interaction and shaped by cultural, institutional, and historical contexts (Tanlaka & Aryal & 2025; Burns et al., 2022). This philosophical orientation aligned with the study's interpretivist paradigm, which emphasized the co-construction of meaning between the researcher and participants. Constructivist approaches are particularly valuable in qualitative research for their ability to capture subjective experiences and contextual nuances, especially in settings undergoing socio-economic transformation.

#### **4.3.1. Population and Research Setting**

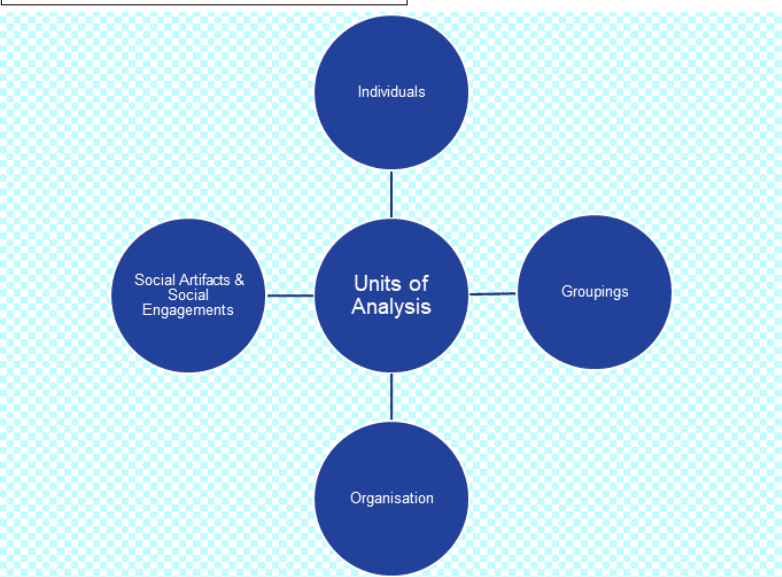
The host organization was selected due to its strategic role in South Africa's coal sector and its active involvement in Just Energy Transition initiatives, providing access to managerial insights critical for addressing the research questions. The study was conducted in Lephalale, a coal mining town located in the Limpopo Province of South Africa. The region is characterized by a vibrant informal economy and a diverse population, including local residents and migrant workers. Informal economic activities in Lephalale included street vending, informal transport services, hairdressing, food stalls, tailoring, small-scale farming, waste collection, and artisanal crafts. These activities played a critical role in sustaining livelihoods, particularly in communities adjacent to coal mining operations (Selepe & Malemela & 2025; Durokifa, 2024).

The research population consisted of key sustainability and transition stakeholders within South Africa’s coal mining sector. Participants included Sustainability Managers, Mine Managers, Group Manager responsible for Reporting and Strategy, Manager, Mine Closure & Rehabilitation, Environmental Specialists, Group Manager for Social Impact, Stakeholder Affairs Managers, as well as Climate Change Specialists, ESG PMO Manager and Energy Specialist. These individuals were selected based on their strategic roles in shaping corporate responses to the Just Energy Transition and their direct engagement with informal economies in coal-dependent regions. The inclusion of diverse stakeholder groups allowed for a holistic understanding of the socio-political and economic dynamics at play. Lephalale’s socio-cultural landscape is shaped by a blend of Sepedi and Afrikaans-speaking communities, with additional linguistic and cultural diversity introduced by migrant laborers from neighboring regions and countries. The town’s proximity to the Groblersbrug border post and its strategic role in South Africa’s energy infrastructure hosting both the Medupi and Matimba Power Stations, supplied by the COMXX Coal Complex positioned it as a focal point for transition-related tensions and opportunities (Brown & Spiegel, 2019). Surrounding Lephalale are approximately 50 villages, governed by traditional authorities and tribal councils (Monama, 2023). These communities are deeply embedded in local governance structures and informal economic systems, making them essential to understanding the broader implications of energy transition policies (Monama, 2023). Community-based research in Limpopo has demonstrated the importance of inclusive development strategies that engage marginalized groups, such as persons with disabilities and informal workers, in participatory processes (Tigere & Moyo, 2022).

#### 4.4 Unit of Analysis and Level of Analysis

The unit of analysis for this study was the organization, specifically coal mining companies operating in South Africa. The level of analysis encompassed both organizational practices and community-level impacts, allowing for a dual-layered examination of how corporate strategies influenced informal economic actors and how these actors responded to transition-related changes. This multi-level approach enabled the researcher to

Figure 4.1: Categories of Unit of Analysis



Note. Adapted from Kumar (2018)

explore the interplay between institutional decision-making and grassroots socio-economic adaptation within the context of the Just Energy Transition (Cole, Mthenjane, & van Zyl, 2023; Nel, Marais & Mqotyana, 2023). Defining the unit of analysis was a critical step in the research design, as it shaped the scope of inquiry and guided the coding and interpretation of qualitative data. In qualitative research, the unit of analysis refers to the entity from which data are collected and about which conclusions are drawn this may

include individuals, groups, organizations, or social artifacts (Salmons; 2024; Roller & Lavrakas, 2015). For this study, the organizational unit was selected to capture strategic responses to energy transition pressures, while the

community-level analysis provided insight into the lived experiences of informal economic actors embedded in coal-dependent regions. Table 1 below indicate the unit level.

Table 4.1: Description of Unit of Analysis		Adapted from Kumar, 2018
<b>Individuals</b>	Employees/entrepreneurs working in informal sectors, local community members affected by mining activities, and employees of coal mining companies	
<b>Groups</b>	Labor unions representing miners, community organizations advocating for residents, and informal economy networks involved in coal mining activities.	
<b>Organizations</b>	Coal mining companies, non-governmental organizations (NGOs) working on energy transition, and government bodies regulating mining and energy sectors.	
<b>Social Artifacts</b>	Policies and regulations related to the transition into a sustainable energy, reports on the effect of coal mining on informal economies, and media coverage of the transition process	

The selection of units of analysis must align with the methodological orientation and research objectives. As Salmons (2024) emphasized, qualitative methodologies vary in their alignment with different units of analysis. Phenomenology and narrative approaches are often suited to individual-level studies, while case study and ethnographic methods are more appropriate for organizational or community-level inquiries. In this study, the single-case embedded case study design supported the examination of institutional behaviors and community dynamics, enabling the researcher to analyze both formal corporate strategies and informal livelihood adaptations. Furthermore, the unit of analysis influenced the coding process during data analysis. In textual content analysis, units may range from individual words or sentences to entire interview transcripts or thematic clusters (Williams & Moser, 2023; Saldaña, 2014). Coding decisions were made based on the relevance of content to organizational and community-level themes, ensuring that both macro-level policy implications and micro-level lived experiences were captured. In the context of South Africa's energy transition, it was essential to consider multiple units and levels of analysis to understand the complex interdependencies between coal mining companies and the informal economies that surround them. This approach allowed for a nuanced understanding of how institutional decisions reverberate through local socio-economic systems, particularly in regions like Lephalale, where informal economies are deeply intertwined with coal-based development trajectories (Marais et al. & 2021; Tigere & Moyo, 2022).

## 4.5 Sampling Strategy and Research Instrument

### 4.5.1 Sampling Strategy

This study employed a combination of purposive and theoretical sampling techniques to identify participants with direct experience in energy transition planning and informal economy engagement. Purposive sampling

was used to deliberately select individuals who could provide rich, relevant insights aligned with the study's objectives, while theoretical sampling allowed for iterative participant selection based on emerging concepts during data analysis (Ahmad & Wilkins, 2024; Bouncken, Czakon & Schmitt, 2025). Sampling decisions were guided by conceptual relevance rather than statistical representativeness, consistent with qualitative research principles that prioritize depth over breadth. The flexibility and inductive nature of purposive sampling were particularly suited to this study's interpretivist orientation, allowing for the inclusion of diverse perspectives across organizational and community contexts (Ahmad & Wilkins, 2024). Data saturation was reached after conducting 12 semi-structured interviews, at which point no new themes were emerging and the data were deemed sufficiently rich and comprehensive (Bouncken et al., 2025).

#### **4.5.2 Research Instrument**

A semi-structured interview guide was developed based on a review of relevant literature and insights from preliminary fieldwork. The guide included open-ended questions designed to elicit participants':

- Perceptions of informal economies
- Corporate engagement strategies
- Views on risks and opportunities associated with the Just Energy Transition

The instrument was piloted and refined to ensure clarity, contextual relevance, and alignment with the study's epistemological stance (Naz, Gulab & Aslam, 2022). Semi-structured interviews were selected for their flexibility and capacity to generate in-depth, nuanced data while maintaining a consistent thematic focus across participants. This format allowed the researcher to explore emergent themes while ensuring coverage of core research topics (Huffcutt & Murphy, 2023). Unlike quantitative instruments, qualitative interview guides do not follow rigid testing protocols. Instead, they rely on researcher judgment, reflexivity, and iterative refinement to ensure methodological rigor. The selection of participants and the structure of the interview guide were informed by ethical considerations, including the need to create a safe and respectful space for participants to share sensitive experiences (Zhang et al., 2024).

Interviews were conducted in settings that allowed for privacy and comfort, facilitating open dialogue and minimizing social desirability bias. The interviewer employed active listening and interpersonal skills to build rapport and encourage candid responses, recognizing that qualitative interviewing is both a methodological and relational practice (Naz et al., 2022). The primary advantage of the interview method was its ability to capture participants' lived experiences, reflections, and interpretations in their own words. This approach supported the study's interpretivist orientation and enabled the researcher to document the socio-cultural dimensions of informal economic activity in coal-dependent communities.

#### **4.6 Data Collection Procedures and Participant Selection**

Creswell and Creswell (2018) emphasized that effective qualitative data collection involves a systematic process that includes defining the scope of the study, selecting participants through appropriate sampling strategies, securing ethical permissions, and collecting data through interviews, observations, and document analysis. In this study, data collection was guided by these principles and tailored to the socio-political context of South Africa's energy transition. To ensure inclusivity and relevance, participants were selected based on their direct involvement in informal economies or energy transition processes. Recruitment targeted

individuals who had participated in conferences, workshops, or community forums related to sustainability and climate change. This approach aligned with recommendations for purposive sampling in qualitative research, which prioritize depth and contextual relevance over statistical generalizability (Ahmad & Wilkins, 2024). The study aimed to achieve data saturation, a concept widely recognized in qualitative research as the point at which no new themes emerge from additional data collection (Hennink & Kaiser & 2022; Peters, 2023). Saturation was monitored throughout the interview process, and sampling continued until thematic redundancy was observed (Elsharkawy et al., 2025). This ensured that the data collected were sufficiently rich and comprehensive to support robust analysis (Moser & Korstjens, 2018).

#### **4.6.1 Participant Selection Criteria**

In alignment with Creswell and Creswell's (2023) guidance on qualitative inquiry, participant selection focused on individuals whose lived experiences could illuminate the research problem. The criteria for inclusion were:

- Work in Lephalale.
- Residency in Lephalale.
- Stakeholder affairs personnel from coal mining companies.
- Sustainability team members focused on climate change and environment.
- Mine managers of coal mining operation.

This diverse sample allowed for a multi-perspective understanding of the socio-economic dynamics surrounding coal mining and the Just Energy Transition. The selection process was guided by ethical considerations, including informed consent, confidentiality, and respect for cultural and linguistic diversity (Zhang et al. & 2024; Stegenga et al., 2024).

#### **4.7 Data Gathering Procedures**

Data was collected using a triangulated approach that included:

- In-depth semi-structured interviews
- Focus group discussions
- Document analysis (e.g., sustainability reports, policy frameworks)

All twelve interviews conducted for this study were audio-recorded and subsequently transcribed verbatim to ensure accuracy and preserve the integrity of participants' responses. Field notes and reflective memos were maintained throughout the process to capture contextual nuances, non-verbal cues, and researcher observations, thereby enhancing the depth and credibility of the data (Chand & 2025; McMullin, 2023). Magaldi & Berler (2020) notes that semi-structured interviews were selected for their balance between structure and flexibility, allowing the researcher to guide the conversation while remaining open to emergent themes. This format enabled participants to express their perspectives in their own words, fostering rich, descriptive data aligned with the study's interpretivist paradigm (Madill, 2023; Demirci, 2024). The interviews were inherently personal and designed to elicit participants' feelings, attitudes, and reflections on the Just Energy Transition and informal economic activity (Nathan et al., 2019).

The semi-structured format also allowed for adaptability during the interview process, which was essential for exploring unanticipated insights and maintaining relevance to the research objectives (Ruslin et al., 2022). While this flexibility is a strength, it required the interviewer to possess strong interpersonal and

methodological skills to ensure that the conversation remained focused and ethically sound (Schmid et al., 2024). Magnusson & Marecek (2015) explain that, to mitigate potential deviations from the research aims, an interview guide was developed with predefined open-ended questions. This guide served as a navigational tool to ensure consistency across interviews while allowing space for participants to elaborate on issues of personal and contextual significance (Chand, 2025).

Document analysis complemented the interview data by providing institutional and policy-level insights into sustainability practices and transition strategies (Chand, 2025). This method offered naturally occurring data that contextualized and corroborated findings from primary sources, contributing to a multidimensional understanding of the research problem (Lim, 2024). Nordtug & Haldar (2024) emphasize that ethics in qualitative research extends beyond initial approvals and is embedded continuously before, during, and after data collection. Interviews were conducted in private, comfortable settings to foster trust and minimize social desirability bias (Westland et al., 2024). Informed consent was obtained prior to participation, and participants were assured of confidentiality and the voluntary nature of their involvement (Schmid et al. 2024; Zhang et al., 2024).

#### **4.8 Data Analysis Approach**

The data analysis process was guided by the principles of reflexive thematic analysis, as articulated by Braun and Clarke (2023). This method was selected for its conceptual flexibility and depth, which enabled the researcher to systematically identify, analyze, and interpret patterns of meaning across the qualitative dataset (McLeod, 2024). Braun & Clarke (2022) argue that reflexive thematic analysis highlights the researcher's active role in shaping themes and aligns with a interpretivist epistemology (aligned with constructivist principles) making it well-suited to this study's philosophical framework. Themes were developed inductively, allowing them to emerge organically from the data rather than being shaped by pre-existing theoretical constructs (Braun & Clarke, 2022). This approach facilitated a grounded understanding of participants' lived experiences and perspectives regarding informal economies and the Just Energy Transition. The analytic process followed Braun and Clarke's six-phase model, which includes data familiarization, initial coding, theme generation, theme review, definition, and final reporting (Braun & Clarke, 2022).

To support the analytical process, NVivo 14 software was employed. NVivo enabled the efficient organization and coding of large volumes of textual data, including interview transcripts. The software also facilitated memoing and the creation of an audit trail, which enhanced the transparency and dependability of the analysis (Mortelmans 2025; Allsop et al., 2022). Memoing was used throughout the coding process to document analytical reflections, emergent insights, and interpretive decisions (Bingham, 2023). This practice contributed to the trustworthiness of the study by supporting reflexivity and enabling the researcher to trace the evolution of thematic development (Bingham, 2023). Naeem et al. (2023) demonstrated that systematic thematic analysis could culminate in the development of conceptual models, thus providing a rigorous framework for theory generation in qualitative studies. Scholars have underscored that maintaining transparency, implementing methodical coding procedures, and adhering to conceptual rigor are essential for producing reliable and well-defended interpretations of qualitative data (Braun & Clarke, 2023).

Qualitative data analysis software like NVivo was shown to improve the rigor and trustworthiness of research findings by enabling systematic coding and visual representation of analytical processes (Dalkin et al., 2021).

Reflexive thematic analysis provided a methodologically robust structure for data interpretation, while the use of NVivo alongside memoing enhanced analytical rigor ensuring transparency and validity in line with current qualitative research standards (Roberts et al., 2019).

#### **4.9 Document Analysis**

Document analysis was employed as a complementary data collection method to triangulate findings and enrich contextual understanding of the Just Energy Transition and informal economies in South Africa's coal mining sector. This method involved the systematic review and interpretation of a diverse range of textual materials, both publicly available and internally sourced, to identify patterns, narratives, and policy orientations relevant to the study's objectives (Morgan, 2022; Kutsyuruba, 2023).

The documents analyzed included:

- Corporate reports from coal mining company, such as integrated annual reports, sustainability disclosures, corporate social responsibility (CSR) statements, environmental, social, and governance (ESG) frameworks, and community engagement policies. These sources provided insight into official narratives, strategic commitments, and institutional framing of the Just Energy Transition.
- Government and regulatory documents, including policies from the Department of Mineral Resources and Energy (DMRE), national climate change strategies, and the Presidential Climate Commission's Just Transition Framework. These texts were reviewed to understand the regulatory landscape and policy imperatives shaping energy transition efforts.
- Collaborative institutional publications, such as reports from the Minerals Council South Africa, the Energy Council, and other industry bodies, which offered sector-wide perspectives and stakeholder positions.
- Academic literature, which was used to ground the study in existing theoretical frameworks and to identify gaps in current research on informal economies and energy transitions.
- NGO and civil society reports, media articles, and press releases, which captured public discourse, alternative viewpoints, and grassroots responses to transition policies.
- International sources, including publications from the World Bank, African Union, SADC, OECD, ILO, WHO, and the World Economic Forum. These documents provided globally recognized frameworks, comparative data, and policy insights that contextualized South Africa's transition within broader development and sustainability paradigms.

Documents were purposefully chosen based on their direct relevance to the study's primary themes informal economies, community engagement, and energy transition and were further filtered to include only those published within the past 5 - 10 years to maintain contemporary applicability (Morgan, 2022). The analysis followed a structured approach involving document sourcing, appraisal, coding, and synthesis, consistent with best practices in qualitative document analysis (Bowen, 2023; Morgan, 2022). This method allowed the researcher to access institutional and discursive data that would have been difficult to obtain through interviews alone, thereby enhancing the credibility, transferability, and depth of the study's findings (Lim, 2024; Kutsyuruba, 2023).

#### **4.10 Ethical Considerations**

Ethical integrity was maintained throughout the research process. The researcher acknowledges potential bias due to employment at the host organization and mitigated this through reflexivity, peer debriefing, and triangulation throughout the research process by consistently adhering to established qualitative methods guidelines, including ongoing reflexivity, respect for participant autonomy, and confidentiality safeguards (McLeod, 2024). Fundamental ethical principles such as informed consent, voluntary participation, confidentiality, anonymity, and secure data management were rigorously applied throughout the study to uphold participant autonomy and data integrity (McLeod, 2024). Before initiating data collection, participants received detailed briefings on the study's purpose, their rights as participants, and the procedures they would undergo (Klykken, 2021). Written consent was obtained to ensure transparency and autonomy in participation (Knapp & Fingerhut, 2024; Zhang et al., 2024). Instead of treating informed consent as a one-off requirement, the study implemented it as a collaborative, continuous process ongoing throughout pre-fieldwork, fieldwork, and post-fieldwork stages (Klykken, 2021). Participants received comprehensive explanations regarding the objectives of the study, any potential hazards, and their right to discontinue participation at any point without repercussions (American Psychological Association, 2020). This approach reflected a commitment to ethical reflexivity and respect for participant autonomy, particularly in contexts involving sensitive socio-economic and political themes (Stegenga et al., 2024; Fried & Jansen, 2023). Participant confidentiality was rigorously upheld: transcript identifiers were anonymized, and all digital materials were securely stored using password protection and encryption on authorized devices while remaining accessible exclusively to the research team (American Psychological Association, 2020). These practices aligned with institutional and international standards for ethical research conduct, including the APA Ethics Code and GDPR-compliant data protection protocols (McLeod, 2024; APA, 2017). Given the interpretive nature of qualitative inquiry, ethical responsibilities extended beyond formal procedural compliance to include researchers' reflexive engagement with their own positionality, consideration of power imbalances, and efforts to safeguard participants' emotional well-being throughout the research process (McLeod, 2024; Reich, 2021). The researcher engaged in continuous reflexivity to mitigate bias and ensure respectful representation of participant narratives. This was particularly important in interviews involving vulnerable populations within informal economies and coal-dependent communities (Santoro, 2023). The study also acknowledged the necessity of ensuring methodological rigor and transparency in qualitative analysis to bolster the credibility and reproducibility of its findings (Tuval-Mashiach, 2017). Scholars have underscored the importance of systematically documenting analytical procedures to strengthen the credibility and defensibility of qualitative findings (Steltenpohl et al., 2023). The research applied systematic strategies including comprehensive audit trails, reflective memoing, and detailed coding frameworks to illustrate analytical rigor and substantiate theoretical insights (Bingham, 2023; McLeod, 2024). Ethical rigor was integrated at every stage of the research spanning design, data collection, and analytical processes to ensure consistency, integrity, and trustworthiness throughout the study (McLeod, 2024). The study employed an ethical framework designed to affirm participant dignity, ensure responsible data stewardship, and derive findings through transparent processes, thereby enhancing both the trustworthiness and scholarly rigor of the research (McLeod, 2024; Rashid, 2025).

## **4.11 Risk Management and Ethical Safeguards**

### **4.11.1 Managing Sensitive Topics: Informal Economies**

Considering the sensitivity associated with informal economies particularly undocumented labor and unregulated income-generating activities the study implemented a comprehensive risk mitigation strategy aimed at safeguarding participants throughout the research (Sapkota et al., 2020; Kamalipour & Peimani, 2023). To uphold ethical standards, interview questions were deliberately constructed to avoid eliciting disclosures related to unlawful or ethically sensitive behaviors, thereby minimizing potential risks to participants (Wiles et al., 2008). Participants were explicitly reminded of their autonomy to decline any individual question and to withdraw from the study at any point, without any adverse consequences (McConnell, 2010; Wiles et al., 2008). The researcher maintained a neutral stance throughout the interviews, avoiding probing into areas that could cause discomfort or legal concern (Knapp, 2024).

### **4.11.2 Data Disposal Plan**

All data collected during the study were encrypted and stored on password-protected digital devices, with access strictly confined to the principal investigator to uphold data confidentiality and integrity (Lee, 2025; Karcher et al., 2023). In accordance with the Gordon Institute of Business Science (GIBS) data management policy, all collected data will be retained for a ten-year period to facilitate academic review and potential future publication (GIBS Business School Privacy Policy, 2024). After this retention period, all digital files including transcripts, audio recordings, and coded datasets were permanently deleted using secure data erasure protocols to ensure complete disposal and protect participant privacy (Pernet et al., 2023).

### **4.11.3 Informed Consent**

The study adhered to a comprehensive informed consent protocol rooted in established ethical frameworks, ensuring participant autonomy and transparency by implementing ongoing, reflexive consent practices throughout the research process (Klykken, 2021). Participants received thorough information about the study's purpose, procedures, and potential risks. Written consent forms were provided in English and supplemented with verbal clarifications to ensure comprehension (Knapp & Fingerhut, 2024). Written consent was obtained prior to interviews, with ongoing verbal confirmation throughout the research process (Knapp & Fingerhut, 2024).

### **4.11.4 Protection from Harm**

To minimize potential harm, the research design integrated multiple protective measures focused on preserving psychological comfort, addressing organizational power dynamics, and respecting technological sensitivities (McLeod, 2024). Interview timing and question design were intentionally structured to prevent emotional discomfort and mitigate work-related stress, aligning with trauma-informed qualitative methodologies that prioritize participant safety and well-being (Alessi & Kahn, 2022). Debriefing procedures were implemented to support participants post-interview, and the researcher maintained a sensitive and respectful approach throughout data collection (Santos & Ndlovu, 2023).

### **4.11.5 Confidentiality and Anonymity**

Rigorous protocols were applied to ensure confidentiality and anonymity. The research adhered to stringent confidentiality and anonymity protocols. Participant identities were protected through systematic de-

identification, assignment of pseudonyms, and the removal of sensitive contextual details, following contemporary qualitative data anonymization best practices (Stam & Díaz 2023; Haaker & Magder, 2024). Data were stored securely, and reporting practices prioritized anonymity by aggregating responses and reviewing quotations to prevent inadvertent identification (Sparkes, 2024; Kang & Hwang, 2023).

#### **4.11.6 Permissions and Approvals**

Prior to data collection, the researcher obtained formal ethics approval from the Gordon Institute of Business Science Ethics Review Committee. Institutional and departmental permissions were secured, including clearance from coal mining company management. These approvals addressed data ownership, publication rights, and participant protection, ensuring a transparent and ethically sound research process (APA Ethics Code, 2024).

#### **4.11.7 Cultural Considerations**

The study was guided by ethical frameworks that emphasized cultural sensitivity, active community engagement, and the safety of researchers. Cultural diversity was honored through inclusive recruitment strategies and iterative feedback mechanisms, consistent with contemporary methodological standards for cross-cultural qualitative inquiry (Lie-A-Ling et al., 2023; Tran et al., 2025). Study findings were disseminated to participants and affiliated organizations using accessible formats such as plain-language summaries and inclusive communication channels to promote understanding, transparency, and stakeholder engagement, in line with best practices in participant-centered result sharing (South et al., 2024). Safety protocols were implemented for site visits, ensuring ethical engagement in mining contexts (Lie-A-Ling et al., 2023; Matsebe et al., 2024). The study upheld stringent ethical standards through a comprehensive strategy encompassing risk management, participant protection, and cultural sensitivity, reflecting best current practices in qualitative research ethics (Taquette & Souza, 2022). These measures ensured the integrity of the research while generating valuable insights into the management of informal economies during South Africa's Just Energy Transition.

#### **4.12 Research Quality and Rigor**

To ensure the trustworthiness of the study, the research design adhered to the four foundational criteria proposed by Lincoln & Guba (1985): credibility, transferability, dependability, and confirmability. These criteria have been widely adopted in qualitative research to assess methodological integrity and ensure that findings are both meaningful and defensible (Ahmed, 2024; Stahl & King, 2024). Credibility was established through techniques such as member checking, where participants were invited to review and validate the researcher's interpretations, and triangulation, which involved the use of multiple data sources including interviews, focus groups, and document analysis to corroborate findings (McKim, 2023; Ahmed, 2024). These strategies enhanced the accuracy and authenticity of the data representation. Transferability was supported by providing thick descriptions of the research context, participant experiences, and socio-political dynamics of the coal mining communities. This level of detail enabled readers to assess the applicability of the findings to other settings with similar characteristics (Ahmed, 2024; Rashid, 2025). Dependability was ensured through the maintenance of a comprehensive audit trail, which documented all methodological decisions, coding processes, and analytical reflections. This allowed for external scrutiny and reinforced the consistency of the research process over time (McLeod, 2024; Clarke et al., 2025). Confirmability was achieved by employing

reflexive journaling, peer debriefing, and transparent documentation of the analytical process. These practices minimized researcher bias and ensured that the findings were grounded in the data rather than shaped by personal assumptions (McLeod, 2024; Furman, 2024). Recent scholarship has emphasized the importance of rigor and transparency in qualitative research, particularly in inductive studies where theory emerges from data. Scholars such as Gioia et. al, (2013) have argued that qualitative researchers must clearly articulate the strategies used for data collection, coding, and theory development to demonstrate analytical discipline and enhance credibility. The integration of computer-assisted qualitative data analysis software (CAQDAS), such as NVivo, further supported this goal by enabling systematic coding and traceability of analytical decisions (Aguinis et.al, 2019). The study's commitment to methodological rigor was reflected in its adherence to established trustworthiness criteria, its use of structured validation techniques, and its transparent documentation of the research process. These measures collectively enhanced the reliability, credibility, and scholarly value of the findings.

#### **4.13 Limitations of the Research Design**

The study acknowledged several methodological limitations inherent to qualitative research and the specific context of investigating informal economies within South Africa's coal mining sector. First, the use of purposive sampling limited the generalizability of findings, as participants were selected based on relevance rather than representativeness (Bouncken et.al, 2025). While this approach facilitated rich, context-specific insights, it constrained the ability to extrapolate findings to broader populations. Second, the potential for researcher bias was recognized, particularly in the interpretation of interview data. This risk was mitigated through reflexive practices, including journaling and peer debriefing, which helped maintain transparency and critical self-awareness throughout the research process (Clarke et al., 2025; Olmos-Vega et al., 2023). Access to certain informal economic actors was restricted due to regulatory constraints and the sensitive nature of undocumented work. Informal economies are often characterized by a lack of formal records, fluid boundaries, and participant reluctance to disclose activities, which posed challenges for data collection and verification (Ackrill & Igudia, 2023). These limitations were compounded by the absence of a unified theoretical framework for informal economies, resulting in fragmented and sometimes inconsistent interpretations across studies.

The labour-intensive nature of qualitative research particularly the processes of data collection, transcription, and thematic analysis required significant time and resources. If not carefully managed, this could lead to participant fatigue or withdrawal, affecting data completeness (McCombie et al., 2024; Petticrew et al., 2013). Additionally, the subjectivity inherent in qualitative analysis, while valuable for capturing depth and nuance, can compromise reliability if not supported by rigorous methodological safeguards (Lim, 2025). The study also faced challenges in aligning research findings with existing policy frameworks, given the dynamic and often unregulated nature of informal economies. Ethical considerations were paramount, especially when engaging with participants involved in undocumented or precarious work. Ensuring confidentiality and minimizing harm were prioritized throughout the research process (Kamalipour & Peimani, 2023).

Despite these limitations, qualitative research remains a powerful tool for exploring complex social phenomena. It offers insights into lived experiences and community dynamics that are often inaccessible through quantitative methods. In the context of South Africa's energy transition, understanding how informal

economies are managed is essential for designing inclusive and equitable policies. These limitations were specific to the research design and did not encompass broader study constraints, which will be addressed in Chapter 7.

## CHAPTER FIVE: QUALITATIVE RESEARCH FINDINGS

This chapter presents the empirical findings of the qualitative research conducted to examine how coal mining companies in South Africa engage with and manage informal economies within the framework of the Just Energy Transition (JET). The eight themes discussed in this chapter were initially derived from the literature reviewed in Chapter Two and subsequently refined through inductive analysis of empirical data. The findings are organized to ensure analytical coherence and alignment with the research questions, supported by triangulation across participant roles and data sources.

### 5.1 Introduction

This chapter systematically presents the empirical findings of the qualitative research conducted to examine how coal mining companies in South Africa engage with and manage informal economies within the framework of the Just Energy Transition (JET). The study aimed to explore the nature of informal economic activities surrounding coal mining operations, the strategies employed to manage them, and the implications of energy transition policies on these economies. To address these objectives, a qualitative research design was adopted, utilizing semi-structured interviews as the primary data collection method. Twelve participants were purposively selected based on their professional roles in sustainability, stakeholder engagement, social impact, and environmental management across various coal mining operations and corporate offices. This sampling strategy ensured a diversity of perspectives and contextual depth.

The interviews were conducted between August and September 2025, each lasting between 45 and 75 minutes. All interviews were audio-recorded with participant consent and transcribed verbatim. The data were analyzed using thematic analysis, supported by cross-case comparison and triangulation to enhance the credibility and richness of the findings.

Thematic coding was conducted using NVivo 14 software, allowing for systematic identification of recurring patterns, unique insights, and contrasting viewpoints. The findings are organized around five core constructs derived from both the literature and the data:

- Informal Economies
- Management Strategies
- Just Energy Transition
- Stakeholder Engagement
- Future Outlook
- Governance and Policy
- Social Protection and Resilience
- Theoretical Constructs

This structure was selected to ensure analytical coherence and alignment with the research questions. Organizing the findings by theme facilitates comparative analysis across cases and supports the integration of verbatim quotations to illustrate key points. The chapter concludes with a cross-case synthesis and a summary of key findings, setting the stage for the interpretive discussion in Chapter 6.

## 5.2 Overview of Participants and Data Sources

This section provides a comprehensive account of the study's participants and the methods employed for data collection. The research engaged twelve purposively selected participants representing diverse professional roles within South Africa's coal mining sector. Selection criteria prioritized individuals with expertise in sustainability, stakeholder engagement, social impact, engineering, and environmental management to ensure a breadth of perspectives relevant to the governance of informal economies in the context of the Just Energy Transition (JET).

Participants were drawn from both corporate and community-facing positions, enabling a multi-dimensional understanding of institutional and operational dynamics. Corporate roles included Sustainability Managers, Mine Managers, Environmental Specialists, and ESG Portfolio Managers, while community-facing roles encompassed Social Impact Practitioners and Stakeholder Engagement Officers. This categorical distinction facilitated systematic cross-case comparison and strengthened the credibility of the findings through methodological triangulation across roles, organizational levels, and geographic contexts.

## 5.3 Demographic Profile of Participants

The demographic profile of the participants in this study reflects a diverse cross-section of individuals engaged in or affected by informal economic activities within coal mining communities in South Africa. A total of twelve participants were interviewed, comprising both male and female respondents, with experience ranging from 2 year to 21 years in the coal mining industry. Participants represented various stakeholder groups, including social impact, mining operations and environment team members within the coal mining sector. Educational backgrounds varied from Bachelors degree to Doctor of Philosophy and employment statuses indicating that all of them are formally employed individuals. This diversity ensured a rich and nuanced understanding of the lived experiences and perspectives relevant to the management of informal economies in the context of a Just Energy Transition (JET). The majority of participants are actively engaged in aspects of the Just Energy Transition (JET) or in the social dimensions of related research, as part of their routine professional responsibilities.

Table 5.1: Demographic Profile of Participants

<b>Years of experience</b>	<b>Level of involvement</b>	<b>Highest level of education</b>
More than 7 years - 7	Direct responsibility - 11	PhD - 1
4-7 years - 3	Regular involvement - 0	Masters - 5
1-3 years - 0	Occasional involvement – 1	Postgraduate - 5
Less than 1 year - 0	Minimal involvement – 0	Bachelor's degree - 1
		National diploma - 0

### 5.3.1 Participant Profiles

This section outlines the profile of participants who contributed to the qualitative research conducted by Keele Letsipa. To ensure confidentiality and ethical compliance, each participant has been assigned a unique identifier and pseudonym. The accompanying Table 5.1 below presents anonymized demographic details, including professional roles, years of experience within the coal mining sector, and geographic location. This

contextual information facilitates cross-case comparison and supports the triangulation of data across diverse stakeholder perspectives.

Table 5.1: Demographic Profile of Participants with Pseudonym

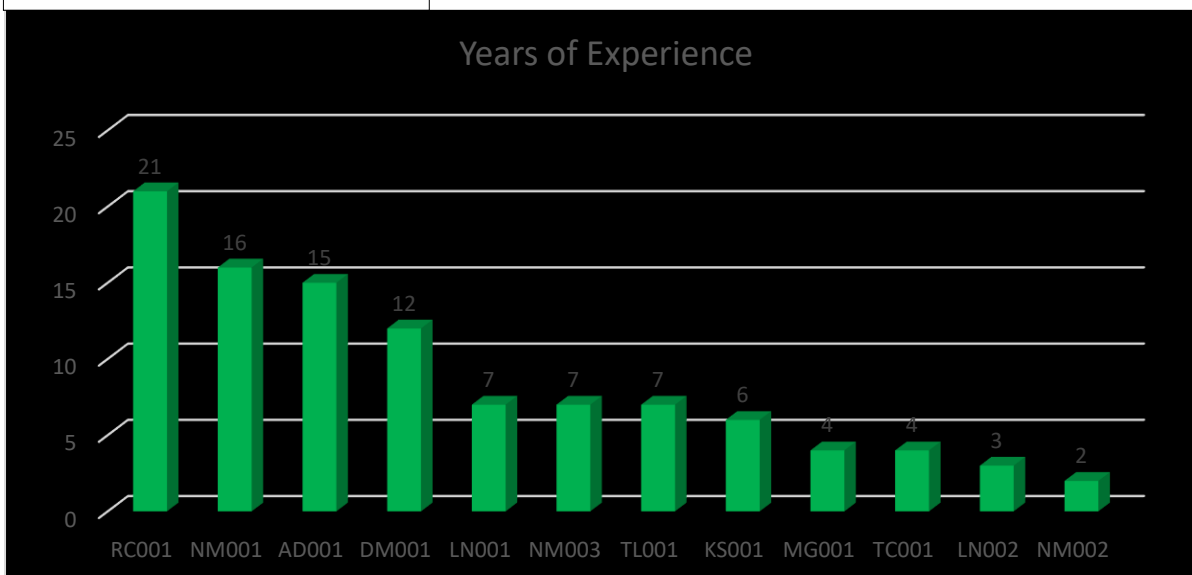
<b>Participant ID</b>	<b>Pseudonym</b>	<b>Role</b>	<b>Experience</b>	<b>Location</b>
P01	DM001	Manager, Stakeholder Affairs	12 years	Mpumalanga
P02	LN001	Manager, Social Impact & Performance	7 years	Limpopo
P03	NM001	Manager, Mine Closure & Rehabilitation	16 years	Limpopo
P04	KS001	Acting Sustainability Manager	6 years	Gauteng
P05	MG001	Manager, Safety, Health, Environment and Community	4 years	KZN
P06	NM002	Senior Specialist, Air Quality & Climate Change	2 years	Gauteng
P07	NM003	Group Manager, Reporting & Strategy	7 years	Gauteng
P08	AD001	Environmental Specialist	15 years	Limpopo
P09	RC001	General Manager	21 years	Limpopo
P10	LN002	Energy Specialist	3 years	Gauteng
P11	TL001	Group Manager, Stakeholder Relations	7 years	Gauteng

P12	TC001	ESG Portfolio Manager	4 years	Gauteng
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### 5.3.2 Participants Years of Work Experience

Figure 5.2 above depicting participants' years of experience reveals a diverse range of professional exposure, which is critical for understanding the management of informal economies within the context of the Just Energy Transition (JET). The majority of participants fall within mid-career experience levels, with three individuals having seven years of experience and two with four years, suggesting a strong representation of practitioners actively engaged in operational and social dimensions of transition-related work. The inclusion of participants with extensive experience up to 21 years, provides strategic insights into long-term industry practices and policy evolution, while those with two to four years of experience reflect emerging voices navigating the current shift toward sustainability.

Figure 5.2: Participants Year of Experience



This diversity is particularly significant given the recent emphasis on the Just Energy Transition (JET) in South Africa, which requires balancing environmental imperatives with socio-economic realities, including the livelihoods sustained by informal economies. Participants' varied experience ensures that perspectives on informal economic activities such as small-scale trading and community-based enterprises are contextualized within both historical practices and contemporary transition strategies. Consequently, the dataset offers a nuanced understanding of how informal economies can be managed to support inclusive development during this critical energy shift.

### 5.4 Data Collection Methods

Data collection for this study was undertaken through semi-structured interviews conducted in September 2025. As presented in Table 5.3, interview durations ranged from 27 to 86 minutes and were held either in person or via virtual platforms, primarily Microsoft Teams. All sessions were audio-recorded with informed consent and transcribed verbatim to ensure accuracy and reliability of the data. The cumulative interview time amounted to 616 minutes, with an average of approximately 51 minutes per session. This distribution

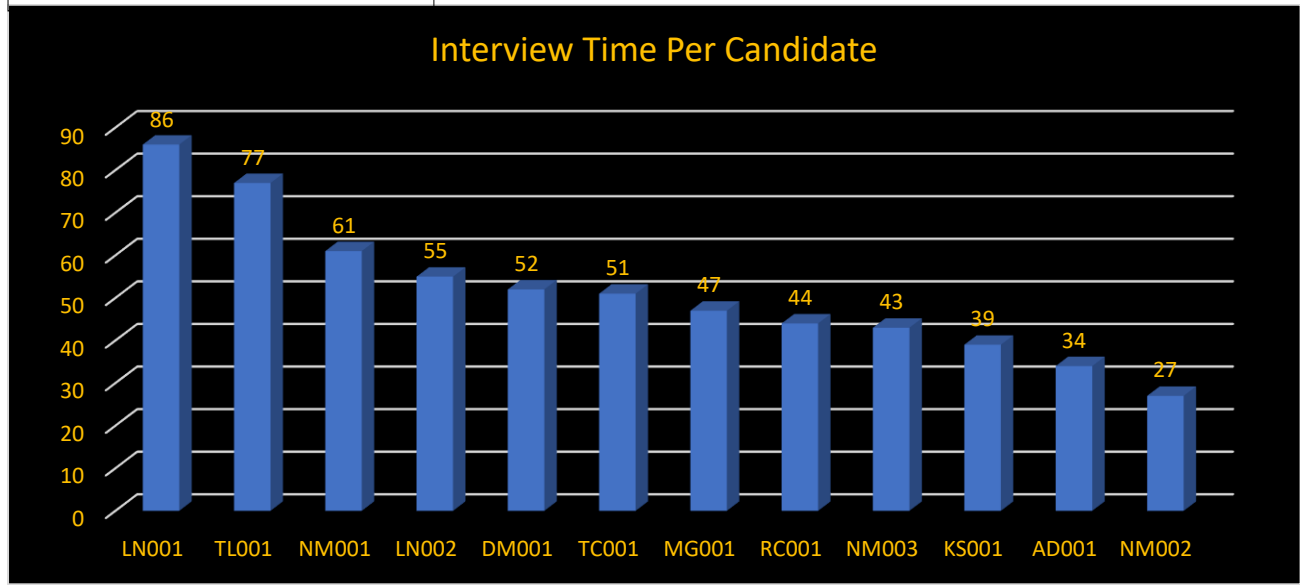
demonstrates that sufficient time was allocated to capture nuanced insights necessary for addressing the research questions outlined in Chapter 3.

The interview protocol was designed to elicit rich, in-depth perspectives on key thematic areas, including informal economies, corporate management strategies, stakeholder engagement practices, and the implications of the Just Energy Transition. To analyze the data, thematic analysis was employed and complemented by cross-case comparison to identify recurring patterns, thematic similarities, and notable divergences across cases.

Number of Interviews	12
Total time in minutes	616
Average time in minutes	51
Shortest time in minutes	27
Longest Interview in minutes	86

The distribution of interview durations, as illustrated in figure 5.4 below, reflects notable variation across participants, ranging from 28 minutes to 86 minutes. The longest interviews were conducted with LN001 (Manager, Social Impact & Performance) and TL001 (Group Manager, Stakeholder Relations), lasting approximately 86 and 78 minutes respectively. These extended sessions indicate the complexity of their roles and the depth of insights provided on social performance and stakeholder engagement. Conversely, the shortest interviews, such as NM002 (Senior Specialist, Air Quality & Climate Change) at 27 minutes and AD001 (Environmental Specialist) at 36 minutes, indicates a more focused discussions aligned with their technical expertise. Majority of the interviews fell within the 45–65-minute range, demonstrating a consistent level of engagement across managerial and specialist roles. This variation underscores the richness of perspectives captured, ensuring comprehensive coverage of themes related to informal economies, corporate management strategies, stakeholder engagement, and the implications of the Just Energy Transition.

Figure 5.4: Interview Time Per Candidate



## 5.5 Thematic Findings

This section presents the key themes that emerged from the qualitative analysis of interview data, guided by a thematic analysis approach. Thematic analysis was employed to systematically identify, organize, and interpret patterns of meaning across the dataset, allowing for a nuanced understanding of stakeholder perspectives on the management of informal economies within the context of South Africa's Just Energy Transition (JET). Through iterative coding and constant comparison, several dominant and cross-cutting themes were developed, reflecting both convergence and divergence in participant narratives.

The themes are grounded in the lived experiences and institutional viewpoints of diverse stakeholders, including corporate actors, community members, and informal economy participants. Triangulation across roles, geographic locations, and thematic constructs further strengthened the credibility of the findings, ensuring that the analysis captured a broad spectrum of perspectives. The following thematic findings illuminate the complex interplay between informal economic activity, corporate management strategies, stakeholder engagement practices, and the socio-political dimensions of energy transition planning.

### 5.5.1 Theme 1: Informal Economies

Table 5.5: Theme 1

Themes	Subthemes	Description
Theme 1: Informal Economies	<ol style="list-style-type: none"> <li>1. Definition</li> <li>2. Types of Activities</li> <li>3. Positive Impacts</li> <li>4. Negative Impacts</li> </ol>	<ol style="list-style-type: none"> <li>1. Definition under Informal Economies</li> <li>2. Types of Activities under Informal Economies</li> <li>3. Positive Impacts under Informal Economies</li> <li>4. Negative Impacts under Informal Economies</li> </ol>

#### *Description of the Theme*

This thematic category interrogates the character, extent, and socio-economic function of informal economies operating in proximity to coal mining activities. Participants conceptualized informal economies as systems of economic exchange and livelihood strategies that are not formally regulated, registered, or integrated into official employment frameworks. These economies are predominantly community-driven and manifest through a range of activities that include, but are not limited to, food vending, waste reclamation, subsistence agriculture, informal childcare provision, and unregulated accommodation services. Such practices are often shaped by local socio-economic conditions and serve as critical mechanisms for survival, income generation, and social support in contexts where formal employment opportunities are limited or inaccessible.

#### *Supporting Evidence from Multiple Cases*

Participants occupying diverse professional and community roles consistently recognized the existence and significance of informal economies within their respective contexts. Notably, DM001 and LN001 underscored the critical function of informal trading activities in supporting household livelihoods and fostering economic resilience. Similarly, TL001 drew attention to the substantial economic contributions of community-based financial practices such as stokvels, as well as the entrepreneurial activities of street vendors, highlighting their role in sustaining local economies and social cohesion.

### *Verbatim Quotations*

This theme critically examines the nature, scope, and socio-economic role of informal economies that emerge in the vicinity of coal mining operations. Participants consistently described these economies as comprising unregulated, unregistered, and community-embedded economic activities that operate outside the formal structures of employment and state oversight. These activities include food vending, waste picking, subsistence farming, informal childcare services, and unregulated accommodation provision. Such practices are not only adaptive responses to limited formal employment opportunities but also reflect deeply rooted local knowledge systems and survival strategies.

LN002 articulated this dynamic by stating, "*They are extracting some type of value from the mining activity that happens in their communities,*" suggesting that informal actors actively engage with and derive benefit from the mining landscape, albeit outside formal channels. TL001 emphasized the accessibility and embeddedness of these economies, noting, "*You don't have to be driving far to buy what you need. It's just around the corner,*" which illustrates the spatial proximity and convenience of informal services.

TC001 offered a grounded definition, stating, "Informal economy can be defined as those who are selling food at the gate of the mine, waste pickers, food suppliers. Basically, I would call them informal," highlighting the visibility and immediacy of informal activities around mining sites. NM001 added, "*Ladies who are cooking food that is mostly consumed by the mine employees... Mostly it is consumables that are targeting the mine employees as customers,*" pointing to the gendered nature and direct economic interdependence between informal traders and the mining workforce.

DM001 emphasized the structural emergence of informal economies, noting, "*Business that resulted because of the existence of the coal mining,*" and further elaborated on their diversity: "*Car washes, salons, street vendors, accommodation in the form of backrooms, unregistered day care centers, waste pickers, prostitution, taverns, drugs... although they are deemed illegal, they are also found in the coal mining industry.*" This reflects the complex and sometimes contested terrain of informal economic activity.

NM001 underscored the developmental value of these economies, stating, "*These informal economies are important as they create life to villages/communities and also create skills which are useful,*" reinforcing their role in fostering community resilience and local capacity-building.

These narratives collectively underscore the informal economy's embeddedness in local socio-economic systems and its role in sustaining livelihoods, fostering economic agency, and mitigating structural limitations of formal labor markets.

Furthermore, participants also highlighted the economic impact of informal economies on households and local employment:

DM001 observed, "*They assist in terms of income for the household and also create employment... a ripple effect of the existence of the coal mine,*" acknowledging the indirect job creation and income generation facilitated by informal activities.

TC001 noted, *“They impact them positively, because sometimes those in informal economies have an opportunity to create jobs and have income. They are creating economic drive,”* emphasizing the entrepreneurial potential and local economic stimulation.

NM001 added, *“We are able to create sustainable jobs in these communities. It is amazing because of the impact,”* pointing to the long-term employment benefits and community upliftment resulting from informal sector support.

*“The informal economies play a major role as it creates a huge local value chain from an economic point of view for the locals.”* AD001. This quote underscores the systemic contribution of informal economies to local economic ecosystems, particularly in regions with high unemployment.

*“People need to generate income for them to be able to survive... whatever it is that they sell, they’re buying it from the formal economies... So, from a GDP perspective, they help in the movement of money between hands.”* RC001. RC001 highlights the interdependence between informal and formal economies, noting how informal traders stimulate demand across supply chains.

*“They are actually working, and they are actually employed, even though they are not in formal employment... they are able to generate income and make ends meet”* RC001. This reflects a broader understanding of employment beyond formal metrics, recognizing the economic agency of informal workers.

*“We continuously engage with them to ensure that we contribute to the local economy”* AD001. This quote illustrates the company’s intentional efforts to integrate informal actors into local economic development strategies.

*“There’s a project currently at Rasilika where a few community members, the ladies grouped themselves... the company is supplying Palala Lodge with the vegetables”* AD001. This example demonstrates how informal subsistence farming initiatives can evolve into formal supply chain partnerships, enhancing local livelihoods.

*“We need to ensure that we don’t displace their livelihood... we also want to ensure that they participate and develop pathways to formalize the economies”* AD001. This reflects a strategic approach to preserving and enhancing the economic contributions of informal actors during the energy transition.

Therefore, the empirical evidence derived from interviews with stakeholders across coal mining operations reveals that informal economies constitute a vital component of local socio-economic systems. These economies characterized by unregulated and community-driven activities such as food vending, waste picking, subsistence farming, and casual labor serve as essential mechanisms for income generation and employment, particularly among populations excluded from formal labor markets.

#### Participants consistently emphasized that informal economies:

- Function as primary sources of livelihood, enabling individuals to sustain household income in contexts marked by high unemployment.
- Facilitate local economic interdependence, with informal traders sourcing inputs from formal suppliers, thereby contributing to broader value chains and economic circulation.

- Enhance community resilience, offering flexible and accessible livelihood options that mitigate socio-economic vulnerabilities.
- Contribute indirectly to national economic indicators, such as GDP, through consumption, fuel usage, and demand for goods and services.
- Support entrepreneurial development, with some informal actors transitioning into formal enterprises through targeted capacity-building initiatives.

As coal mining companies advance their Just Energy Transition agendas, it is imperative that the economic contributions of informal economies are acknowledged, safeguarded, and strategically integrated into future planning. This entails avoiding livelihood displacement, promoting inclusive development, and establishing pathways for formalization and participation in emerging green sectors.

### *Comparison Across Cases*

A comparative analysis of participant responses revealed consistent recognition of the importance of informal economies across all cases; however, the framing and emphasis varied significantly depending on participants' professional roles and geographic contexts. Individuals involved in stakeholder engagement often positioned at the interface between corporate entities and local communities tended to highlight the role of informal economies in fostering community resilience, social cohesion, and economic survival. Their narratives frequently underscored the adaptive capacity of informal actors and the need for inclusive transition planning that acknowledges these contributions.

In contrast, participants occupying environmental management roles were more likely to foreground the regulatory, environmental, and public health risks associated with informal economic activities. These concerns included unregulated waste handling, informal settlements near mining operations, and the lack of oversight in subsistence practices. Such perspectives reflect a compliance-oriented lens, where informal economies are viewed as potential liabilities within formal governance and sustainability frameworks.

This divergence in perspectives illustrates how institutional positioning and professional mandates shape stakeholder interpretations of informal economies. It also underscores the importance of multi-perspective engagement in policy and program design, particularly in contexts where informal and formal systems coexist and interact. Thematic analysis of these contrasting viewpoints contributes to a more nuanced understanding of the tensions and complementarities that define informal economy governance within the Just Energy Transition (JET).

The findings reveal that informal economies are not peripheral but rather structurally embedded within coal mining communities, functioning as critical socio-economic buffers against persistent unemployment and poverty. These informal systems characterized by their lack of formal regulation and institutional support provide essential livelihood opportunities for marginalized populations. However, their exclusion from formal policy frameworks renders them vulnerable to economic shocks, regulatory neglect, and limited access to developmental resources.

Participants' narratives underscore the need for inclusive and context-sensitive policy interventions that recognize the legitimacy and economic contributions of informal actors. Such frameworks should aim to

integrate informal economies into local development strategies through mechanisms that promote visibility, protection, and gradual formalization without undermining their adaptive and community-rooted nature. This approach is particularly urgent in the context of the Just Energy Transition, where the restructuring of coal-dependent economies must ensure that informal workers are not displaced but rather empowered to participate in emerging green sectors.

*Interpretive Insights: Economic Embeddedness and Policy Implications*

The findings reveal that informal economies are not peripheral but rather structurally embedded within coal mining communities, functioning as critical socio-economic buffers against persistent unemployment and poverty. These informal systems characterized by their lack of formal regulation and institutional support provide essential livelihood opportunities for marginalized populations. However, their exclusion from formal policy frameworks renders them vulnerable to economic shocks, regulatory neglect, and limited access to developmental resources.

Participants’ narratives underscore the need for inclusive and context-sensitive policy interventions that recognize the legitimacy and economic contributions of informal actors. Such frameworks should aim to integrate informal economies into local development strategies through mechanisms that promote visibility, protection, and gradual formalization without undermining their adaptive and community-rooted nature. This approach is particularly urgent in the context of the Just Energy Transition, where the restructuring of coal-dependent economies must ensure that informal workers are not displaced but rather empowered to participate in emerging green sectors.

**5.5.2 Theme 2: Management Strategies**

Table 5.6: Theme 2

Themes	Subthemes	Description
Theme 2: Management Strategies	<ul style="list-style-type: none"> <li>a) Current Approaches</li> <li>b) Programs and Initiatives</li> <li>c) Effectiveness</li> <li>d) Challenges</li> </ul>	<ul style="list-style-type: none"> <li>a) Current Approaches under Management Strategies</li> <li>b) Programs and Initiatives under Management Strategies</li> <li>c) Effectiveness under Management Strategies</li> <li>d) Challenges under Management Strategies</li> </ul>

*Description of the Theme*

This theme interrogates the institutional approaches adopted by coal mining companies to engage with and support informal economies within their operational environments. The strategies identified include a range of targeted interventions such as social impact initiatives, enterprise and supplier development (ESD) programs, skills development and training, and infrastructure provisioning. These efforts are designed not only to mitigate socio-economic vulnerabilities but also to facilitate the progressive formalization of informal economic activities.

The overarching objective of these strategies is to integrate informal actors into broader frameworks of sustainable development and inclusive economic growth. By doing so, companies aim to enhance the resilience of local communities, promote entrepreneurial capacity, and align informal economic practices with long-term corporate sustainability goals. These management strategies reflect a shift from passive coexistence with informal economies toward active engagement and developmental inclusion, particularly in the context of the Just Energy Transition.

### *Supporting Evidence from Multiple Cases*

Empirical data from multiple interviewees including LN001, TL001, and TC001 illustrate the diverse and targeted interventions coal mining companies have implemented to support informal economic actors. These initiatives include pitch-for-funding competitions, entrepreneurial incubation through RaceCorp, and agricultural development facilitated by the Mineral Succession Planning (MSP) program.

Such programs are designed to empower informal entrepreneurs by enhancing their business acumen, improving access to financial and infrastructural resources, and facilitating market linkages. The RaceCorp initiative, for instance, provides structured training in financial literacy, business planning, and operational management, thereby equipping informal traders with the competencies required to transition into the formal economy. Similarly, MSP interventions support subsistence farmers and micro-enterprises by integrating them into formal supply chains and enabling access to institutional markets. Collectively, these cases demonstrate a strategic shift from passive recognition of informal economies toward active developmental inclusion, with the goal of fostering sustainable livelihoods and promoting inclusive economic participation in the context of the Just Energy Transition.

### *Verbatim Quotations - Evidence of Strategic Support and Economic Empowerment*

Participants provided concrete examples of strategic interventions aimed at enhancing the economic agency of informal actors and facilitating their integration into formal economic systems.

TL001 highlighted the scale and reach of enterprise support initiatives, stating: “We funded over 100 SMEs and supported 86 emerging farmers with infrastructure and market access.” This reflects a deliberate effort to strengthen local entrepreneurial ecosystems and promote inclusive participation in formal supply chains.

LN002 emphasized the need for structural inclusion, noting: “We need to do more to empower people to access the economy formally.” This statement underscores the importance of capacity building and institutional support in enabling informal actors to transition into recognized economic roles.

TC001 offered a critical reflection on the temporal effectiveness of current strategies, stating: “Short term, very effective. Medium to long term, we need to track success better.” Her observation points to the necessity of robust monitoring and evaluation mechanisms to ensure the sustainability and scalability of developmental interventions.

Collectively, these quotations illustrate a growing recognition among coal mining stakeholders of the need to move beyond ad hoc support toward systematic, long-term strategies that empower informal economic actors, foster inclusive growth, and align with broader sustainability objectives.

### Comparison Across Cases: Divergent Perceptions of Program Effectiveness

A comparative analysis across participant responses reveals divergent perspectives on the effectiveness of support programs targeting informal economies. While there was broad consensus on the existence of initiatives such as enterprise development, agricultural support, and incubation schemes, participants' evaluations of their impact varied according to their roles and proximity to implementation.

Participants directly involved in program delivery such as LN001 and TL001 who are working in the Social Impact department, tended to emphasize positive outcomes, citing tangible success stories, increased participation, and measurable improvements in livelihoods. Their accounts reflect a practitioner-oriented optimism grounded in operational experience and direct engagement with beneficiaries.

Conversely, participants such as TC001 and MG001, who occupy more strategic or oversight roles, expressed critical reflections on the sustainability and long-term efficacy of these interventions. Concerns were raised regarding the absence of robust monitoring frameworks, limited longitudinal tracking of outcomes, and the need for more systematic evaluation mechanisms to assess impact beyond initial implementation phases.

This divergence underscores the importance of incorporating multi-stakeholder perspectives in program design and evaluation, ensuring that both operational insights and strategic oversight inform the development of inclusive and adaptive management strategies for informal economies.

#### 5.5.2.1 Thematic Matrix: Perceptions of Management Strategy Effectiveness

Participant	Role/Position	Perspective on Strategy Effectiveness	Key Illustrative Quote	Focus Area
LN001	Manager, Social Impact & Performance	Positive and strategic; emphasizes ecosystem building and targeted interventions	We spend about 6.75 million empowering 27 informal businesses every year... it's really changing a lot.	Pitch-for-funding, agriculture, waste management, ECD
TL001	Group Manager, Stakeholder Relations	Positive; highlights scale and reach of interventions	We funded over 100 SMEs and supported 86 emerging farmers with infrastructure and market access.	Enterprise development and agricultural support
TC001	ESG Portfolio Manager	Mixed; short-term success noted, long-term sustainability questioned	Short term, very effective. Medium to long term, we need to track success better.	Monitoring and evaluation
MG001	Manager, Safety, Health, Environment	Critical; concerned about	We need to ensure these programs don't	Long-term impact and policy alignment

	and Community	sustainability and integration	fade after initial funding.	
LN002	Energy Specialist	Aspirational; calls for deeper inclusion	We need to do more to empower people to access the economy formally.	Structural inclusion and empowerment
DM001	Manager, Stakeholder Affairs	Mixed; sees potential but notes lack of explicit strategy	We don't have a clear strategy, but we've seen success when we formalize informal businesses.	Informal-to-formal transition and land use
NM001	Manager, Mine Closure & Rehabilitation	Positive; emphasizes structured support and legacy impact	We are able to create sustainable jobs... the impact is amazing.	Succession planning and community upliftment
KS001	Acting Sustainability Manager	Observational; highlights gaps and informal support	We need programs that cater for those who don't meet formal requirements.	Inclusion of marginal informal actors and grassroots engagement
NM002	Climate Change Specialist	Strategic; emphasizes integration with ESG and social upliftment	Training and upskilling are key to ensuring no one is left behind.	ESG alignment, community training, inclusive transition
NM003	Group Manager, Reporting & Strategy	Supportive; recognizes informal sector's role in resilience	Informal economies contribute quite a lot... we shouldn't neglect them.	Community resilience, entrepreneurship, social equity
RC001	General Manager, Mining Operations	Practical and supportive; emphasizes empowerment and circular economy	We must not leave them behind... we must do everything to ensure they play a meaningful role in the transition.	RaceCorp training, circular economy, stakeholder inclusion
AD001	Environmental Specialist	Structured and ESG-aligned; advocates for formalization and green integration	We need to avoid displacement... and develop pathways to formalize the economies.	Waste picker integration, ESG targets, green jobs, stakeholder forums

The Table 5.1 above, highlights the thematic matrix that presents a rich tapestry of perspectives from diverse professionals within the coal mining sector, each offering unique insights into the management of informal economies amid South Africa's Just Energy Transition (JET). The reflections reveal a shared recognition of the informal economy's critical role in sustaining livelihoods, especially in mining communities grappling with high unemployment and limited formal opportunities.

Across the interviews, a few dominant themes emerge:

**Empowerment through structured support:** Many participants, such as LN001, RC001, and AD001, emphasize the importance of targeted programs like RaceCorp, pitch-for-funding initiatives, and ESG-aligned interventions. These efforts are seen as instrumental in transitioning informal actors into more sustainable and formalized roles.

**Training and capacity building:** A recurring theme is the need for upskilling and reskilling, not only for employees but also for informal entrepreneurs. NM001 and NT highlight training as a cornerstone of inclusive transition, while others stress the importance of preparing communities for future economic shifts.

**Stakeholder engagement and inclusion:** The matrix underscores the value of participatory approaches. Stakeholder mapping, multi-stakeholder forums, and feedback loops are viewed as essential for building trust and ensuring that informal actors are not left behind.

**Circular and green economy integration:** Several participants, including AD001 and RC001, advocate for integrating informal economies into circular economy models particularly through waste management, agriculture, and renewable energy supply chains.

**Challenges and gaps:** While many strategies are praised, concerns persist around sustainability, scalability, and the risk of exclusion. MG001 and TC001 caution against short-termism and call for more robust monitoring and policy alignment.

Overall, the matrix reflects a sector in transition one that is increasingly aware of the informal economy's potential but still navigating how best to support, formalize, and integrate these actors into a greener, more inclusive future. The insights gathered provide a valuable foundation for shaping policy, refining corporate strategy, and fostering collaborative development models that honor the principles of a just transition.

### *Insights and Interpretations*

The management strategies employed by coal mining companies to support informal economies are generally well-conceived and have demonstrated measurable benefits, particularly in areas such as enterprise development, training, and stakeholder engagement. However, a critical analysis reveals that these interventions often lack longitudinal evaluation frameworks, making it difficult to assess their sustained impact over time. Furthermore, the accessibility of these programs remains uneven, with certain segments of the informal economy such as waste pickers, subsistence traders, and micro-entrepreneurs facing structural barriers to participation.

This suggests that while the intent behind these strategies is commendable, their design and implementation require further refinement. Specifically, a more inclusive and adaptive approach is needed one that accounts

for the diverse realities of informal actors and integrates mechanisms for continuous feedback, capacity building, and contextual responsiveness. Such an approach would not only enhance the reach and effectiveness of current initiatives but also align more closely with the principles of a Just Energy Transition (JET), ensuring that no stakeholder is left behind in the shift toward sustainable development.

### 5.5.3 Theme 3: Just Energy Transition

Table 5.8: Theme 3

Themes	Subthemes	Description
Theme 3: Just Energy Transition	<ul style="list-style-type: none"> <li>i. Organizational Strategy</li> <li>ii. Community Impact</li> <li>iii. Skills Development</li> <li>iv. Challenges</li> <li>v. Opportunities</li> </ul>	<ul style="list-style-type: none"> <li>i. Organizational Strategy under Just Energy Transition</li> <li>ii. Community Impact under Just Energy Transition</li> <li>iii. Skills Development under Just Energy Transition</li> <li>iv. Challenges under Just Energy Transition</li> <li>v. Opportunities under Just Energy Transition</li> </ul>

#### *Description of the Theme*

This theme explores the strategic orientation of coal mining companies toward the Just Energy Transition (JET), with a particular focus on their engagement with informal economies. The transition is predominantly framed through institutional commitments to carbon neutrality, the implementation of decarbonization roadmaps, and the integration of Environmental, Social, and Governance (ESG) principles into corporate strategy. These frameworks serve as guiding mechanisms for operational transformation, stakeholder inclusion, and sustainability reporting.

Within this context, informal economies comprising waste pickers, subsistence traders, casual laborers, and micro-enterprises are increasingly recognized as both vulnerable and vital actors in the transition landscape. The theme interrogates how mining companies conceptualize and operationalize their role in supporting these actors, and whether their strategies reflect the principles of equity, participation, and long-term resilience that underpin a truly “just” transition.

#### *Description of Sub-Themes*

##### *Supporting Evidence from Multiple Cases*

The theme is substantiated by insights from multiple participants, including LN002, AD001, and TL001, who collectively underscore the strategic orientation of coal mining companies toward achieving carbon neutrality by 2050. Their reflections highlight the operationalization of decarbonization strategies, including the development of Scope 3 emissions methodologies, which aim to account for indirect emissions across the value chain. These efforts are framed within broader ESG commitments and are increasingly embedded in corporate sustainability agendas.

Moreover, participants emphasized the importance of reskilling and capacity building not only for employees within the mining operations but also for community members and informal economic actors. This dual focus reflects an emerging recognition that the Just Energy Transition (JET) must be socially inclusive and

economically redistributive. However, concerns were raised regarding the potential for job losses and community displacement, particularly in regions heavily dependent on coal-related employment. These concerns point to the need for more robust transition planning that integrates social safeguards, participatory mechanisms, and long-term livelihood strategies.

### *Verbatim Quotations*

#### *On Carbon Neutrality vs. Net Zero:*

LN002 articulated a deliberate strategic orientation toward carbon neutrality rather than net zero, emphasizing the importance of aligning environmental goals with socio-economic imperatives. This distinction reflects a broader commitment to balancing emissions reduction with the lived realities and developmental needs of local communities. As LN002 stated, “*We are pursuing carbon neutrality, not net zero, to balance emissions and community needs.*” This perspective suggests a context-sensitive approach to sustainability that prioritizes equity and responsiveness over rigid adherence to global carbon accounting frameworks.

#### *On the Equity of the Just Transition:*

TL001 recounted a moment of critical reflection from community members, who questioned the inclusivity and fairness of the just transition discourse. The inquiry “*When you say just transition, is it just to who?*” reveals underlying concerns about the potential marginalization of certain groups within energy transition frameworks. This question challenges the normative assumptions embedded in policy language and calls for a more participatory and justice-oriented approach that explicitly addresses who benefits and who may be left behind in the transition to a low-carbon economy.

#### *On Waste Management and Informal Economies:*

TC001 highlighted the enduring nature of waste-related challenges and advocated for systemic reform through the formalization of informal labor structures. Her statement “*Waste is not going anywhere. We need to formalize the waste picker economy*” reflects a recognition of the indispensable role that waste pickers play in urban environmental management. This perspective underscores the need for inclusive policy mechanisms that integrate informal actors into formal economic and governance systems, thereby enhancing both environmental outcomes and social protection for marginalized workers.

### *Comparison Across Cases*

A cross-case analysis revealed distinct professional orientations in the interpretation and implementation of the Just Energy Transition (JET). Environmental specialists such as AD001 and LN002 predominantly engaged with the technical and strategic dimensions of the transition, focusing on emissions reduction, carbon accounting, and infrastructural planning. In contrast, stakeholder managers like TL001 and TC001 foregrounded the social implications, emphasizing community engagement, equity, and the integration of informal economies.

Despite these differing emphases, there was broad consensus on the imperative for inclusive and participatory planning processes. However, divergence emerged regarding perceptions of community and institutional readiness. While some participants expressed confidence in adaptive capacities, others highlighted structural limitations and socio-economic vulnerabilities that may hinder effective transition implementation.

## *Insights and Interpretations*

The Just Energy Transition (JET) is characterized by a duality of promise and complexity. While it offers significant opportunities for decarbonization and sustainable development, it simultaneously presents risks particularly in relation to socio-economic equity. Although strategic and technical planning processes are progressing, the social dimension of the transition, especially its implications for informal economies, remains underexplored.

As one interpretation suggests, the success of JET hinges not only on infrastructural and policy innovation but also on the extent to which vulnerable and informal actors are meaningfully included. Ensuring that informal actors are not left behind will be critical to achieving a truly “just” transition. This underscores the need for integrative frameworks that recognize and support informal livelihoods, thereby safeguarding social justice within the broader sustainability agenda.

### **5.5.4 Theme 4: Stakeholder Engagement**

Table 5.9: Theme 4

<b>Themes</b>	<b>Subthemes</b>	<b>Description</b>
Theme 4: Stakeholder Engagement	<ul style="list-style-type: none"><li>a. Identification</li><li>b. Engagement Methods</li><li>c. Feedback</li><li>d. Integration into Strategy</li></ul>	<ul style="list-style-type: none"><li>a. Identification under Stakeholder Engagement</li><li>b. Engagement Methods under Stakeholder Engagement</li><li>c. Feedback under Stakeholder Engagement</li><li>d. Integration into Strategy under Stakeholder Engagement</li></ul>

#### *Description of the Theme*

This theme examines the processes through which coal mining companies identify, interact with, and respond to a diverse range of stakeholders, with particular attention to those operating within informal economies. Stakeholder engagement is conceptualized as a foundational element of inclusive development and a prerequisite for equitable transition planning. The findings suggest that meaningful engagement especially with marginalized and informal actors is essential for fostering legitimacy, trust, and responsiveness in the context of the Just Energy Transition (JET). Moreover, the theme highlights the need for adaptive and context-sensitive engagement strategies that go beyond formal consultation to include co-creation, capacity-building, and long-term relationship management.

#### *Supporting Evidence from Multiple Cases*

Across multiple cases, participants such as TL001, NM001, and LN002 described the use of structured stakeholder engagement mechanisms, including community forums, stakeholder mapping exercises, and collaborative partnerships with local government entities and non-governmental organizations. These approaches reflect an institutional commitment to participatory governance and inclusive planning within the context of the Just Energy Transition (JET).

However, several respondents also highlighted a critical gap in these processes: the systematic exclusion of informal actors from formal engagement platforms. This exclusion raises concerns about the representativeness and equity of stakeholder engagement practices, particularly given the significant role informal economies play in local livelihoods and environmental management. The findings suggest that without deliberate efforts to include informal stakeholders, engagement strategies risk reinforcing existing socio-economic disparities and undermining the transformative potential of the JET.

### *Verbatim Quotations*

Participants underscored both the strategic and operational dimensions of stakeholder engagement in the context of the Just Energy Transition (JET). LN002 emphasized the foundational importance of stakeholder identification and analysis, noting that inadequate mapping often undermines project outcomes: *“You need to map out stakeholders properly. That’s why many projects fail.”* This insight reflects the necessity of systematic stakeholder analysis as a precursor to effective engagement and project sustainability.

TL001 highlighted community-level feedback regarding the socio-economic outcomes of transition initiatives, stating: *“The feedback was that we aren’t creating enough jobs or business opportunities.”* This comment points to a perceived disconnect between transition planning and tangible local benefits, particularly in terms of employment and enterprise development key indicators of a just and inclusive transition.

NM001 described the range of communication and engagement channels employed by her organization, including forums, radio broadcasts, printed materials, and walk-in consultations. However, she acknowledged a critical gap in outreach efforts: *“We engage through forums, radio, flyers, and walk-ins, but informal traders are not always included”* This observation highlights the structural exclusion of informal actors from formal engagement processes, raising concerns about representational equity and the inclusiveness of transition governance.

### *Comparison Across Cases*

While there was broad agreement among participants on the centrality of stakeholder engagement in advancing the Just Energy Transition (JET), divergent perspectives emerged regarding its inclusivity. Participants occupying corporate or strategic roles tended to emphasize formalized engagement processes such as structured consultations, stakeholder mapping, and institutional partnerships as evidence of robust planning. In contrast, field-based practitioners drew attention to the limitations of these approaches, particularly in their ability to reach and incorporate informal actors.

This divergence highlights a tension between procedural adequacy and substantive inclusivity. While formal mechanisms may satisfy institutional requirements, they often fall short in addressing the lived realities and participation barriers faced by informal stakeholders. The findings suggest that bridging this gap requires a reconfiguration of engagement strategies to ensure that marginalized voices are not only acknowledged but actively integrated into transition planning.

### *Insights and Interpretations*

Stakeholder engagement within the Just Energy Transition (JET) framework is often characterized by well-designed institutional mechanisms, including structured consultation processes and formal communication

channels. However, the execution of these mechanisms reveals significant inconsistencies, particularly in terms of inclusivity. While formal stakeholders are routinely engaged, informal economic actors who are frequently among the most affected by transition policies remain largely excluded from these processes.

This exclusion undermines the normative principles of participatory governance and raises concerns about the legitimacy and equity of transition planning. As such, a more inclusive and adaptive engagement approach is required one that actively seeks to incorporate the voices of informal stakeholders and recognizes their contributions to local economies and environmental stewardship. Ensuring that all affected groups are meaningfully involved is essential to realizing a transition that is not only technically sound but also socially just.

### 5.5.5 Theme 5: Future Outlook

Table 5.10: Theme 5

Themes	Subthemes	Description
Theme 5: Future Outlook	<ul style="list-style-type: none"> <li>a. Vision</li> <li>b. Plans</li> <li>c. Policy Recommendations</li> <li>d. Education and Awareness</li> </ul>	<ul style="list-style-type: none"> <li>a. Vision under Future Outlook</li> <li>b. Plans under Future Outlook</li> <li>c. Policy Recommendations under Future Outlook</li> <li>d. Education and Awareness under Future Outlook</li> </ul>

#### *Description of the Theme*

This theme captures participants' forward-looking perspectives on the evolving dynamics of informal economies, coal mining communities, and the broader trajectory of the Just Energy Transition (JET). Reflections centered on anticipated policy developments, the role of education and skills development, and the long-term sustainability of both livelihoods and ecosystems. Participants expressed varying degrees of optimism and concern, highlighting the need for proactive planning, inclusive policy frameworks, and capacity-building initiatives to ensure that vulnerable communities are not only protected but empowered throughout the transition process. The theme underscores the importance of integrating socio-economic foresight into energy transition strategies to promote resilience and justice in post-coal futures.

#### *Supporting Evidence from Multiple Cases*

Participants such as TC001, LN002, and TL001 articulated a forward-looking vision for the Just Energy Transition (JET) that emphasizes inclusive economic development and systemic transformation. Their insights underscored the importance of integrating circular economy principles, reforming education and skills development systems, and promoting inclusive growth strategies that extend benefits to informal economic actors.

In particular, they advocated for flexible programmatic designs capable of adapting to local contexts, collaborative governance models that foster multi-stakeholder participation, and financial inclusion mechanisms to support the economic resilience of marginalized groups. These perspectives reflect a recognition that long-term sustainability and social justice within the JET framework require not only technical

innovation but also institutional responsiveness to the needs of those most vulnerable to transition-related disruptions.

### *Verbatim Quotations and Interpretations*

Participants offered critical reflections on the future orientation of corporate and policy practices within the Just Energy Transition (JET), particularly in relation to social impact and informal economies.

LN002 emphasized the need for more socially responsive performance metrics within corporate sustainability frameworks, suggesting that impact should be measured not only in environmental terms but also through tangible improvements in people's lives: "*Companies should have a KPI that says how many lives have we touched.*" This statement advocates for a shift toward human-centered evaluation criteria that foreground social value creation.

TL001 highlighted the importance of intersectoral collaboration to address structural inequalities exacerbated by the transition, stating: "*We need to work closely with government to address inequalities.*" This reflects a recognition that achieving a just transition requires coordinated efforts across public and private sectors, with shared responsibility for inclusive development.

TC001 drew attention to the resilience of informal economies and the need for future-oriented capacity-building, even in the absence of formalization: "*Even if it stays informal, people need awareness to future-proof their businesses.*" Her comment underscores the importance of targeted education and awareness initiatives to enhance the adaptive capacity of informal actors, ensuring they are not left behind in the evolving energy landscape.

### *Comparison Across Cases*

Participants across cases expressed strong consensus on the necessity of long-term planning and inclusive development as foundational elements of a successful Just Energy Transition (JET). There was shared recognition that sustainable outcomes require forward-looking strategies that integrate social, economic, and environmental considerations.

However, perspectives diverged in terms of optimism about the feasibility of such transformation. While some participants viewed the transition as a catalyst for innovation and socio-economic renewal, others voiced concerns about persistent policy inertia, fragmented implementation, and a lack of decisive leadership. These contrasting views reflect differing levels of confidence in institutional capacity and political will to drive inclusive and transformative change.

### *Insights or Interpretations*

The sustainability and resilience of informal economies within coal mining communities are contingent upon the implementation of intentional, inclusive, and future-oriented strategies. Participants emphasized that education reform, progressive policy interventions, and multi-stakeholder collaboration are critical enablers for ensuring that informal actors are not marginalized in the transition process.

Without these foundational supports, there is a heightened risk of exacerbating existing socio-economic inequalities and deepening the exclusion of vulnerable groups. The findings suggest that a Just Energy

Transition (JET) must be underpinned by proactive measures that recognize and integrate informal livelihoods into broader development and sustainability frameworks, thereby fostering equitable outcomes in post-coal futures.

### 5.5.6 Theme 6: Governance and Policy

Table 5.11: Theme 6		
Themes	Subthemes	Description
Theme 6: Governance and Policy	Anticipatory Governance Collaborative Governance Policy Gaps	Foresight, scenario planning, feedback loops Multi-sectoral partnerships, community-based decision-making Weak institutional capacity, fragmented implementation, exclusion of informal actors

#### *Description of the Theme*

Governance and policy emerged as a critical theme in understanding how coal mining companies and broader institutional actors manage informal economies within the Just Energy Transition (JET) framework. This theme encompasses the design, implementation, and effectiveness of governance mechanisms, including anticipatory planning, collaborative partnerships, and regulatory frameworks. It also addresses the systemic gaps in institutional capacity and the exclusion of informal actors from formal decision-making processes.

#### *Supporting Evidence from Multiple Cases*

Across multiple interview cases, participants consistently highlighted the fragmented nature of governance structures and the lack of coherent policy frameworks capable of integrating informal economies. For example, LN002 emphasized the disconnect between national transition goals and local realities, noting that *“we are pursuing carbon neutrality, not net zero, to balance emissions and community needs.”* Similarly, TC001 pointed to the absence of inclusive planning mechanisms, stating that *“informal traders are not even considered in the transition roadmaps.”*

These insights were echoed by frontline managers and community representatives who described governance as reactive rather than anticipatory, and often lacking the flexibility to accommodate informal systems. The deviant case involving electric vehicles (EVs) and the displacement of informal mechanics further illustrated the unintended consequences of technological change in the absence of inclusive governance.

#### *Verbatim Quotations and Interpretations*

*“We are pursuing carbon neutrality, not net zero, to balance emissions and community needs.”* - LN002

**Interpretation:** This reflects a pragmatic recalibration of global environmental targets to accommodate local socio-economic conditions, highlighting the need for context-sensitive governance.

*“Informal traders are not even considered in the transition roadmaps.”* - TC001

**Interpretation:** This underscores the systemic exclusion of informal actors from policy planning, revealing a critical gap in participatory governance.

*“Even if it stays informal, people need awareness to future-proof their businesses.” - TC001*

**Interpretation:** This suggests that governance should not aim solely at formalization but at enabling resilience and adaptability within informal systems.

*Comparison Across Cases*

While corporate stakeholders often emphasized strategic planning and ESG alignment, community-based participants revealed a contrasting reality marked by exclusion and uncertainty. For instance, senior managers spoke of decarbonization roadmaps and Scope 3 emissions tracking, whereas informal actors and local facilitators described a lack of consultation and visibility in governance processes. This divergence illustrates a broader tension between institutional narratives and lived experiences, reinforcing the need for multi-scalar and participatory governance models.

*Insights or Interpretations*

The findings suggest that effective governance in the context of JET must be both anticipatory and collaborative. Anticipatory governance involves foresight mechanisms such as scenario planning and horizon scanning to identify and mitigate socio-economic risks before they materialize. Collaborative governance, on the other hand, requires multi-sectoral partnerships that include corporate, governmental, and community actors in co-creating transition strategies. The study also highlights the importance of embedding feedback loops and iterative learning processes to ensure that governance remains responsive to evolving local conditions.

*Summary of Thematic Insights*

Governance and policy are foundational to the success of South Africa’s Just Energy Transition. The study reveals that current governance frameworks are often fragmented, exclusionary, and ill-equipped to manage the complexities of informal economies. By integrating anticipatory planning, collaborative partnerships, and inclusive decision-making, governance can evolve into a transformative mechanism that safeguards livelihoods, promotes resilience, and ensures that no community is left behind. These insights contribute to a broader understanding of governance as a dynamic and relational process one that must center informal actors as co-creators of equitable and sustainable transition pathways.

**5.5.7 Theme 7: Social Protection and Resilience**

Table 5.12: Theme 7		
Themes	Subthemes	Description
Theme 7: Social Protection and Resilience	Social Safety Nets Community Resilience	Healthcare, education, housing, labor protections Adaptive capacity, informal innovation, local knowledge systems

### *Description of the Theme*

Social protection and resilience emerged as a critical theme in the study, reflecting the need to safeguard vulnerable populations particularly informal workers during South Africa's Just Energy Transition (JET). This theme encompasses both state-led and corporate-supported mechanisms aimed at mitigating socio-economic risks, enhancing adaptive capacity, and promoting long-term well-being in coal-dependent communities. It includes access to healthcare, education, housing, and labour protections, as well as community-based strategies for resilience building.

### *Supporting Evidence from Multiple Cases*

Participants across multiple cases emphasized the absence of formal safety nets for informal workers and the urgent need for inclusive social protection frameworks. For example, NM001 noted that *"many informal workers have no access to clinics or basic services,"* while NM001 highlighted the lack of educational support for children in mining communities. These concerns were echoed by TC001, who stressed that *"even if it stays informal, people need awareness to future-proof their businesses."*

The data also revealed that informal actors often rely on community networks and informal institutions to cope with economic shocks, underscoring the importance of localized resilience strategies. Participants advocated for government-led interventions, such as universal healthcare and subsidized housing, as well as corporate contributions through CSR programs.

### *Verbatim Quotations and Interpretations*

*"Many informal workers have no access to clinics or basic services."* - NM001

**Interpretation:** This highlights the exclusion of informal actors from public health infrastructure, reinforcing their socio-economic vulnerability.

*"Even if it stays informal, people need awareness to future-proof their businesses."* - TC001

**Interpretation:** This reflects the need for resilience-building strategies that do not depend solely on formalization but support informal actors in adapting to transition-related disruptions.

*"There's no plan for housing once the mines close."* - NM001

**Interpretation:** This points to a gap in long-term planning for post-coal community sustainability, emphasizing the need for integrated social protection policies.

### *Comparison Across Cases*

While corporate stakeholders often focused on environmental targets and decarbonization metrics, community-facing participants consistently emphasized the human dimensions of transition particularly the lack of social infrastructure and support systems. This divergence illustrates a broader disconnect between institutional priorities and community needs. In some cases, frontline managers acknowledged the limitations of current CSR programs, noting that *"we do what we can, but it's not enough without government support."*

### *Insights or Interpretations*

The findings suggest that social protection must be understood as a foundational pillar of just transition governance. It is not merely a compensatory mechanism but a proactive strategy for enabling inclusive development. Resilience, in this context, is both structural and relational requiring investments in infrastructure, education, and healthcare, as well as trust-building and capacity development within communities. The study also reveals that informal actors possess significant adaptive capacity, which can be harnessed through participatory planning and localized support systems.

*Summary of Thematic Insights*

Social protection and resilience are essential for ensuring that the Just Energy Transition does not exacerbate existing inequalities or leave informal workers behind. The study highlights the urgent need for integrated, multi-scalar interventions that combine state-led safety nets with corporate and community-based resilience strategies. By recognizing informal actors as legitimate stakeholders and investing in their well-being, transition governance can move beyond technocratic planning toward socially transformative outcomes. These insights reinforce the imperative of embedding equity, recognition, and procedural justice into all aspects of transition policy and practice.

**5.5.8 Theme 8: Theoretical Constructs**

Table 5.13: Theme 8		
Themes	Subthemes	Description
Theme 8: Theoretical Constructs	Energy Justice Stakeholder Theory Informality Theory	Distributional justice, procedural justice, recognition justice  Ethical obligations, strategic engagement Hybrid economies, legitimacy of informal systems

*Description of the Theme*

Theoretical constructs underpinning this study include stakeholder theory, energy justice, and informality theory. These frameworks provided the analytical lens through which the governance of informal economies within South Africa’s Just Energy Transition (JET) was examined. The theme explores how these constructs were affirmed, challenged, and extended through empirical findings, particularly in relation to procedural inclusion, distributive equity, and the legitimacy of informal systems.

*Supporting Evidence from Multiple Cases*

Across multiple interviews, participants articulated concerns that aligned with core principles of energy justice namely, recognition, procedural fairness, and equitable distribution of benefits and burdens. For example, NM001 and NM001 emphasized the need for reskilling initiatives that include both formal employees and informal community members, reflecting the principle of recognition justice. Similarly, LN001’s observation that informal actors are “*spoken about but not spoken to*” directly engages with critiques of procedural exclusion found in stakeholder theory. The study also revealed the adaptive and resilient nature of informal economies, challenging deficit-based models and supporting informality theory’s emphasis on hybrid economic systems. Participants described informal actors as entrepreneurial, networked, and capable of

navigating complex socio-economic landscapes, thereby extending the theoretical understanding of informality as a site of agency and innovation.

#### *Verbatim Quotations and Interpretations*

*“Informal actors are spoken about but not spoken to.” - LN001*

**Interpretation:** This highlights procedural injustice and power asymmetries in stakeholder engagement, reinforcing the need for co-creation and participatory governance.

*“We need to upskill both employees and community members to participate in the new economy.” - NM001*

**Interpretation:** This reflects recognition justice and the imperative to include informal actors in transition planning and capacity-building efforts.

*“Even if it stays informal, people need awareness to future-proof their businesses.” - TC001*

**Interpretation:** These challenges formalization-centric models and supports informality theory’s view of informal economies as adaptive and legitimate.

#### *Comparison Across Cases*

Corporate stakeholders often framed transition planning within ESG and decarbonization metrics, while community-based participants emphasized the socio-economic dimensions of justice and inclusion. This divergence illustrates the gap between institutional narratives and lived realities and underscores the relevance of stakeholder theory in analyzing relational dynamics and power asymmetries. Informal actors consistently expressed a desire for recognition and participation, while formal actors acknowledged the limitations of existing engagement mechanisms.

#### *Insights or Interpretations*

The findings extend theoretical constructs by introducing context-specific dimensions of justice and governance. Energy justice is expanded to include the socio-economic risks of green technologies and the need for anticipatory governance. Stakeholder theory is deepened through the emphasis on relational engagement and co-creation, moving beyond procedural inclusion. Informality theory is enriched by empirical evidence of informal actors’ strategic agency, resilience, and embeddedness in local economies.

### **5.8 Summary of Thematic Insights**

Theoretical constructs such as energy justice, stakeholder theory, and informality theory provided a robust foundation for analyzing the governance of informal economies in South Africa’s JET. The study affirms these frameworks while extending them through contextually grounded insights. It highlights the need for inclusive, adaptive, and justice-oriented approaches that recognize informal actors as co-creators of transition pathways. These contributions advance theoretical discourse and offer a nuanced understanding of how socio-technical transitions can be governed in ways that are equitable, participatory, and locally responsive.

### **5.9 Cross-Case Analysis**

The comparative analysis of the twelve individual cases reveals both convergence and divergence in participant perspectives, shaped by professional roles, lived experiences, and geographic contexts within

South Africa's coal mining sector. The analysis employed thematic coding and triangulation to identify recurring patterns, points of contrast, and unique contributions across the dataset.

All participants engaged with the five core constructs Informal Economies, Management Strategies, Just Energy Transition, Stakeholder Engagement, and Future Outlook though their emphasis and interpretation varied:

Stakeholder engagement professionals (e.g., TL001, LN001, DM001) foregrounded issues of community feedback, exclusion of informal actors, and the imperative for participatory governance.

Technical and environmental specialists (e.g., AD001, LN002, NM001) focused on strategic planning, carbon neutrality targets, and Scope 3 emissions methodologies, reflecting a systems-oriented approach.

Community-facing participants (e.g., LN001, KS001) emphasized the lived experiences of informal traders, barriers to accessing support programs, and the socio-economic precarity of transition-affected populations.

This cross-case synthesis highlights the importance of role-based positionality in shaping stakeholder perspectives and reinforces the need for integrative approaches that bridge technical planning with social realities.

## **5.10 Patterns and Contrasts Across Cases**

### *Emerging Patterns*

Across all twelve cases, participants consistently acknowledged the critical role of informal economies in sustaining livelihoods within coal mining communities. These economies were viewed not merely as peripheral activities but as integral to local socio-economic resilience. There was also widespread support for established management strategies, particularly Enterprise and Supplier Development (ESD) and Mineral Succession planning (MSP), which were seen as instrumental in facilitating inclusive development and transition planning.

Furthermore, most participants agreed that the Just Energy Transition (JET) must be implemented in a socially inclusive and gradual manner. This reflects a shared understanding that abrupt or technocratic approaches risk exacerbating existing inequalities and undermining community trust.

### *Key Contrasts*

Despite these areas of convergence, notable divergences emerged in participants' assessments of program effectiveness. While some viewed current initiatives as impactful and responsive to community needs, others questioned their long-term sustainability and scalability, citing concerns about limited reach and insufficient follow-through.

Perceptions of stakeholder engagement also varied. Participants in strategic or corporate roles often described engagement systems as robust and well-structured. In contrast, those working more closely with communities highlighted persistent gaps, particularly the exclusion of informal actors from formal consultation processes.

Finally, views on the future outlook ranged from optimistic to cautious. For instance, TC001 expressed hope in the transformative potential of inclusive planning and innovation, whereas TL001 conveyed concern about policy inertia and the absence of decisive leadership. These differing perspectives underscore the importance of institutional capacity, political will, and adaptive governance in shaping the trajectory of the JET.

### **5.11 Triangulation and Strength of Findings**

To enhance the credibility and robustness of the research findings, methodological triangulation was employed by comparing and cross-validating data across different participant roles (e.g., corporate representatives, community members), geographic locations, and emergent thematic constructs. This approach allowed for the identification of both converging and diverging perspectives, thereby strengthening the interpretive validity of the study. For instance, the recurring concern regarding job displacement in the context of the energy transition emerged consistently across interviews with both corporate and community stakeholders. This convergence suggests that the issue is not only widely perceived but also structurally embedded across different levels of engagement with the coal mining sector. Conversely, divergence was observed in perceptions of informal economy legitimacy: while community participants often framed informal activities as essential for survival and local resilience, corporate actors tended to view them as regulatory challenges or reputational risks. Such contrasts provided nuanced insights into stakeholder priorities and tensions, enriching the thematic analysis.

By integrating multiple viewpoints and contextual layers, triangulation mitigated the limitations associated with single-source data and contributed to a more comprehensive understanding of the complex dynamics surrounding informal economies and the just energy transition.

#### *Linking Triangulation to Discussion and Implications*

The use of triangulation in this study through the comparison of responses across stakeholder roles, geographic locations, and thematic constructs served as a critical strategy for enhancing the credibility and depth of the findings. Within the framework of thematic analysis, triangulation supported the identification of patterns of meaning that were both recurrent and contextually nuanced. This methodological approach allowed for the validation of key themes, such as concerns around job displacement, which were consistently echoed across corporate and community participants, thereby reinforcing their significance within the broader discourse on just energy transition.

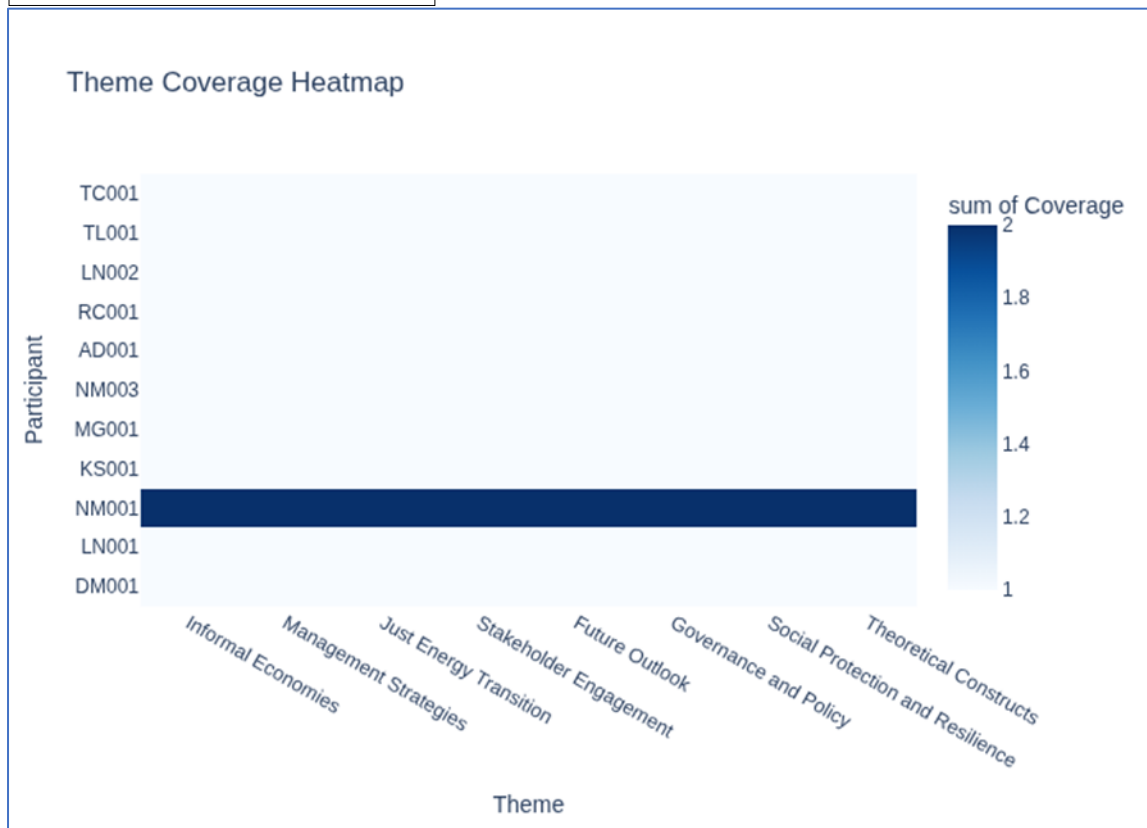
In the discussion section, triangulation provides a foundation for interpreting the findings with greater confidence. The convergence of perspectives on certain issues suggests shared concerns and priorities, which can inform policy recommendations and stakeholder engagement strategies. Conversely, areas of divergence such as differing views on the legitimacy of informal economic activities highlight the need for more inclusive and context-sensitive approaches to transition planning.

From an implication's standpoint, triangulation underscores the importance of multi-stakeholder dialogue and the need to incorporate diverse voices in decision-making processes. It also suggests that future research should continue to employ comparative and cross-contextual methods to capture the complexity of energy transitions, particularly in regions with entrenched socio-economic disparities.

The following heatmap illustrates thematic saturation across all eight NVivo-coded themes for twelve participants:

### 5.11.1 Visual Thematic Map with Heatmap and Interpretation

Figure 5.14: Thematic Mapping



#### Interpretation of Heatmap:

The heatmap illustrates complete thematic saturation across all eight NVivo-coded themes (**Informal Economies** → **IE**, **Management Strategies** → **MS**, **Just Energy Transition** → **JET**, **Stakeholder Engagement** → **SE**, **Future Outlook** → **FO**, **Governance and Policy** → **GP**, **Social Protection & Resilience** → **SPR**, **Theoretical Constructs** → **TC**) for the twelve participants. Each participant engaged with every theme, as evidenced by the consistent intensity of coverage. This pattern indicates a high level of thematic coherence and affirms the rigor of the coding framework. The uniform distribution of coverage suggests that the discussions were thorough and closely aligned with the research objectives, ensuring that no thematic dimension was omitted.

#### Key Insights:

- **Informal Economies** and **Management Strategies** emerged as consistently addressed themes, underscoring their centrality within the discourse.
- **Governance and Policy** and **Social Protection and Resilience** received comparable attention, reflecting the multidimensional nature of transition planning.
- The integration of **Theoretical Constructs** across cases highlights strong alignment between empirical narratives and the conceptual frameworks guiding the study.

Implication for Chapter 5:

The saturation evidenced by the heatmap reinforces the credibility of the findings and substantiates the argument for inclusive, multi-thematic engagement in strategies for the Just Energy Transition. Furthermore, it emphasizes the necessity of developing integrative policy frameworks that simultaneously address economic, social, and governance dimensions to achieve a holistic and equitable transition.

### *Interpretation*

The cross-case analysis reveals that while coal mining companies are making strides in managing informal economies and planning for the just energy transition, gaps remain in inclusivity, sustainability, and long-term vision. The diversity of perspectives enriches the understanding of these challenges and highlights the need for adaptive, stakeholder-driven approaches.

## **5.12 Deviant or Unusual Cases**

While the majority of participants expressed broadly aligned views regarding the management of informal economies and the principles underpinning the Just Energy Transition (JET), a subset of cases presented contrasting or atypical perspectives. These deviant cases, though not representative of the dominant narrative, offer valuable analytical depth by illuminating exceptions, tensions, and alternative interpretations within the dataset.

Rather than undermining the overall findings, these divergent viewpoints serve to enrich the thematic analysis. They reveal the complexity and heterogeneity of stakeholder experiences and underscore the importance of context-specific factors such as institutional positioning, geographic location, and personal engagement with affected communities in shaping perceptions of transition processes. The inclusion of these cases enhances the credibility of the study by demonstrating reflexivity and attentiveness to outlier perspectives, which may signal emerging challenges or overlooked dimensions in policy and practice.

### Case Example: LN002 – Energy Specialist

LN002's perspective introduces a critical counterpoint to the dominant narrative surrounding technological advancement within the Just Energy Transition (JET). Unlike most participants who viewed innovations such as electric vehicles and renewable energy systems as pathways to inclusive economic growth, LN002 cautioned against the unintended socio-economic consequences of these shifts particularly for informal economies.

He observed that the mechanical simplicity of electric vehicles, especially electric buses, may reduce demand for maintenance services traditionally provided by informal mechanics and parts traders. As he noted: *“Electric vehicles have fewer moving parts. That means less maintenance and fewer opportunities for informal mechanics to earn a living.”* This insight challenges the assumption that green technologies will automatically generate inclusive employment opportunities and underscores the need for targeted support mechanisms to mitigate displacement risks.

LN002's reflections offer a nuanced understanding of the intersection between technological innovation and informal livelihoods. His case highlights the importance of anticipating and addressing the socio-economic disruptions that may accompany low-carbon transitions, particularly in contexts where informal economies play a vital role in sustaining community resilience. This deviant case enriches the broader analysis by

foregrounding the complexity of “green job” narratives and advocating for more deliberate policy design to ensure that technological progress does not inadvertently exacerbate exclusion.

#### Case Example: TC001 – ESG Portfolio Manager

TC001 offered a distinctive perspective that challenges dominant narratives around the formalization of informal economies within the Just Energy Transition (JET). While many participants advocated for transitioning informal actors into formal economic structures as a pathway to inclusion and stability, TC001 emphasized the inherent value of informality as a flexible, accessible, and community-embedded system of economic activity.

She remarked: *“Not everyone can or should be formalized. Some businesses thrive because they are informal and responsive to local needs.”* This insight foregrounds the adaptive and context-sensitive nature of informal enterprises, which often operate efficiently within localized socio-economic ecosystems. Dora’s viewpoint cautions against universalist or prescriptive approaches to formalization, suggesting that such efforts may inadvertently disrupt the very qualities that make informal economies resilient and responsive.

Her reflections contribute a critical nuance to the discourse on inclusive development, advocating for policy frameworks that recognize informality not as a deficit to be corrected, but as a legitimate and often effective mode of economic participation. This case underscores the importance of designing transition strategies that are flexible, contextually grounded, and respectful of diverse livelihood systems.

#### *Analytical Value of Deviant Cases*

The inclusion of deviant or atypical cases contributes significantly to a more nuanced and comprehensive understanding of the research problem. These cases illuminate the potential unintended consequences of well-intentioned policies and underscore the importance of preserving diversity in economic models, particularly within the context of the Just Energy Transition (JET).

Rather than detracting from the overall coherence of the findings, these outlier perspectives enhance the analytical depth of the study by revealing tensions, contradictions, and alternative interpretations that may otherwise remain obscured. Their presence affirms the complexity of stakeholder experiences and highlights the limitations of homogenized policy approaches.

From a methodological standpoint, the integration of deviant cases demonstrates the value of triangulation in qualitative research. By contrasting dominant narratives with divergent viewpoints, the study strengthens its credibility, reflexivity, and interpretive richness ensuring that conclusions are grounded in a pluralistic and context-sensitive analysis.

#### *Implications*

The presence of deviant cases within the dataset underscores the necessity for future policy and programmatic interventions to be flexible, inclusive, and responsive to local socio-economic realities. These atypical perspectives reveal that standardized approaches may overlook critical nuances, particularly in contexts where informal economies play a central role in community resilience.

To mitigate the risk of exclusion or unintended harm to vulnerable groups, it is imperative that policy frameworks incorporate mechanisms for continuous stakeholder engagement and iterative evaluation. Such adaptive processes enable practitioners to refine interventions in real time, ensuring that they remain contextually relevant and socially equitable. Ultimately, these findings advocate for a more reflexive and participatory model of governance one that is capable of accommodating diverse experiences and fostering inclusive outcomes within the Just Energy Transition.

### **5.13 Synthesis of Key Findings**

This section presents a consolidated analysis of insights derived from twelve in-depth interviews with stakeholders engaged in coal mining operations across South Africa. Drawing on both thematic and cross-case analytical approaches, five overarching themes were identified: Informal Economies, Management Strategies, Just Energy Transition, Stakeholder Engagement, and Future Outlook. Collectively, these themes offer a nuanced and multidimensional perspective on the governance of informal economies within the broader socio-political and economic context of the just energy transition. The findings underscore the intricate interplay between local livelihoods, institutional responses, and transitional imperatives in coal-dependent regions.

#### *Synthesis Across Themes and Cases*

Across all case contexts, informal economies were consistently identified by participants as essential to community resilience and socio-economic survival. A diverse range of informal activities including food vending, waste picking, and subsistence farming were described as operating outside formal regulatory frameworks yet contributing significantly to local livelihoods and social stability. These activities were not only viewed as coping mechanisms in economically constrained environments but also as embedded practices that sustain household economies in mining-affected communities.

Management responses to informal economies varied in both scope and effectiveness. While initiatives such as Enterprise and Supplier Development (ESD) and Mineral Succession Planning (MSPs) were widely acknowledged, participants raised concerns regarding their accessibility, long-term sustainability, and alignment with local needs. In particular, the perceived disconnect between formal program design and the lived realities of informal actors highlighted the need for more inclusive and context-sensitive approaches. The just energy transition was framed by participants as both a strategic necessity and a socio-economic challenge, with emphasis placed on the importance of reskilling initiatives, inclusive planning processes, and the protection of vulnerable livelihoods.

Stakeholder engagement emerged as a critical yet inconsistently implemented practice. Although formal engagement structures exist often through corporate-community forums or regulatory compliance mechanisms informal economy actors were frequently excluded from these processes. This exclusion limits the relevance and reach of engagement efforts, undermining their potential to foster inclusive governance and equitable transition outcomes. Participants underscored the need for adaptive governance models that are responsive to local dynamics, as well as education reform and targeted support for informal economic activities as part of a broader just transition strategy.

These findings, derived through thematic analysis and strengthened by triangulation across roles and locations, underscore the complexity of managing informal economies within energy transition contexts. They point to the necessity of multi-stakeholder collaboration, policy innovation, and the integration of informal sector perspectives into transition planning. The implications for practice include the development of participatory frameworks, capacity-building initiatives, and mechanisms for recognizing and legitimizing informal contributions to local economies.

Key implications for practice include:

- The development of participatory governance frameworks that recognize and incorporate informal actors.
- The implementation of capacity-building initiatives tailored to the needs of informal economy participants.
- The establishment of mechanisms for legitimizing and supporting informal contributions to local economies.

These insights contribute to a deeper understanding of the socio-economic dimensions of the just energy transition and offer a foundation for more inclusive and context-sensitive policy interventions.

#### **5.14 Data Link to Research Questions**

***RQ1: What are the perceptions of management in South African coal mining companies regarding how their organizations manage informal economies in coal-dependent communities during the Just Energy Transition?***

Management perspectives reveal that coal mining companies adopt a multi-pronged approach to managing informal economies, primarily through social impact strategies, enterprise development programs, and stakeholder engagement platforms. These interventions, while not always formalized under a dedicated “informal economy” policy, reflect an emerging commitment to inclusive development within the context of the Just Energy Transition. Ndong Ntoutoume (2023) and Cole et al. (2023) emphasize that such strategies often involve partnerships with business incubators like Raizcorp, which provide training in financial literacy, business planning, and operational management. These capacity-building initiatives enable informal actors to transition into formal suppliers, as illustrated by local enterprises now providing mobile ablution facilities for mine workers and waste pickers integrated into corporate waste management systems.

Empirical evidence reinforces this developmental orientation. RC001 described how the Raizcorp partnership equips informal entrepreneurs with essential business competencies, while AD001 highlighted the establishment of a business hub in Marapong to support informal traders and facilitate their integration into structured value chains. Similarly, NM001 and NM003 emphasized the role of the Social Impact Department in providing funding, technical training, and soft skills development to informal actors, particularly small, medium, and micro enterprises (SMMEs) and early childhood development (ECD) centers. Additional programs such as Pitch for Funding, mineral succession planning, and land rehabilitation for agriculture referenced by DM001, LN001, and Mugeru further demonstrate the sector’s efforts to create pathways for informal actors to participate in sustainable economic activities.

The golden thread emerging from these findings is clear: coal mining companies are moving beyond passive coexistence with informal economies toward proactive engagement strategies that seek to formalize and empower these actors. By embedding informal traders within local procurement systems, supporting entrepreneurial development, and promoting skills transfer, these initiatives aim to transform informal economies from marginal survival mechanisms into integral components of inclusive transition pathways. This approach not only enhances community resilience but also aligns corporate practices with the normative principles of a Just Energy Transition, ensuring that economic diversification and social equity remain central to sustainability agendas.

***RQ2: RQ2: How do managers perceive the socio-economic characteristics and structural drivers of informal economies in coal mining communities?***

Managers perceive informal economies in coal-dependent communities as adaptive systems that emerge in response to structural constraints and economic precarity. These economies are characterized by low entry barriers, gendered participation, and a strong reliance on mining-related demand. As Etim and Daramola (2020) and Blaauw et al. (2021) observe, informal economic activities encompass food vending, waste picking, childcare services, and small-scale farming sectors that require minimal capital investment and offer immediate income opportunities. Such activities function as survival strategies in regions where unemployment exceeds 30%, creating localized value chains that sustain households and circulate income within communities.

Empirical evidence reinforces this characterization. AD001 described informal economies as a “local value chain” that mitigates poverty and sustains livelihoods, while RC001 highlighted their interdependence with formal markets, noting that informal traders often source inputs from formal suppliers, thereby contributing to broader economic activity. DM001 categorized these economies into positive activities such as car washes, salons, and accommodation services and negative practices, including taverns, prostitution, and loan sharking, illustrating their dual impact on community well-being. Similarly, NM001 emphasized that informal economies provide affordable goods and services, reduce transport costs, and create employment opportunities, yet remain largely overlooked in formal planning processes. LN001 and Mugeru cautioned that market saturation and the absence of coordination among informal actors limit scalability and resilience.

The golden thread emerging from these findings is that informal economies are simultaneously resilient and vulnerable. Their adaptability and embeddedness in community life enable them to absorb economic shocks and sustain livelihoods during periods of structural transition. However, their exclusion from policy frameworks, spatial marginalization, and restricted access to formal credit exacerbate vulnerability, particularly as coal mines close or downscale (Adeola et al., 2019; Rogan & Skinner, 2021). These insights underscore the need for inclusive governance models that recognize informal economies as integral to socio-economic resilience and embed them within Just Energy Transition strategies through targeted training, financial support, and participatory planning.

***RQ3: How do managerial perspectives on CSR and stakeholder engagement practices influence the management of informal economies?***

Corporate Social Responsibility (CSR) and stakeholder engagement are widely regarded by managers as central mechanisms for governing informal economies within coal-dependent communities. However, their effectiveness remains uneven and often constrained by structural limitations. Fatima and Elbanna (2023) and UNDP South Africa (2024) argue that CSR initiatives typically introduce platforms such as community forums and enterprise development programs, which provide informal actors with marginal access to resources and training. While these interventions signal progress toward inclusivity, Wolf (2023) and Nsafon et al. (2023) caution that such practices frequently remain symbolic, failing to institutionalize meaningful participation or decision-making power for informal stakeholders.

Empirical evidence from this study reinforces these critiques. Participants described a range of engagement mechanisms including multi-stakeholder forums, community meetings, social facilitators, and mapping exercises designed to identify and incorporate informal actors into transition planning. For instance, RC001 and AD001 detailed how COMXX employs stakeholder mapping and social facilitators to ensure informal traders are not located in unsafe or disruptive areas, while NM001 explained that stakeholder managers collaborate with the Social Impact Department to escalate community concerns and integrate feedback into operational strategies. These efforts have yielded tangible outcomes: AD001 noted that community input informed the development of green job training programs, supplier accelerators, and waste recycling initiatives. Similarly, DM001 and LN001 reported that dissatisfaction regarding land access and procurement exclusion prompted revisions to land management strategies and increased funding for informal actors.

Despite these advances, significant gaps persist. NM001 cautioned that integration into corporate strategy depends on the visibility and prioritization of informal actors within organizational structures, while RC001 suggested that informal traders should organize into associations to strengthen their collective voice and influence. These observations underscore a critical tension between procedural engagement and substantive inclusion.

The golden thread emerging from these findings is clear: while CSR and stakeholder engagement are evolving toward more inclusive development paradigms, they require greater intentionality, coordination, and policy support to fully integrate informal economies into Just Energy Transition frameworks. Achieving this goal demands a shift from tokenistic consultation toward participatory governance models that institutionalize recognition and co-creation, embedding informal actors within procurement systems, skills development programs, and long-term sustainability strategies (Cornwall, 2008; Ansell & Gash, 2008). Such an approach would not only enhance the legitimacy of transition processes but also strengthen social cohesion and economic resilience in coal-dependent communities.

#### ***RQ4: To what extent do current management practices align with principles of environmental justice and the goals of a Just Energy Transition?***

The findings indicate that current management practices within South Africa's coal mining sector demonstrate only partial alignment with the principles of environmental justice. As Agbaitoro and Ekhatior (2025) argue, environmental justice extends beyond technical decarbonization to encompass procedural fairness, recognition, and distributive equity. While companies have adopted Environmental, Social, and Governance (ESG) frameworks and articulated decarbonization strategies, these efforts remain predominantly technocratic, with limited integration of inclusive governance mechanisms. Informal actors who are central to community resilience continue to be excluded from participatory decision-making structures, thereby constraining the realization of distributive justice (Jenkins et al., 2016; Nsafon et al., 2023).

Participants expressed strong support for carbon neutrality, renewable energy adoption, and inclusive transition planning. For instance, NM001, AD001, and RC001 described organizational commitments to achieving net-zero emissions by 2050 through investments in solar plants, carbon offset projects such as afforestation initiatives, and the development of critical mineral supply chains. These measures are embedded within corporate ESG strategies, signaling progress toward sustainability objectives. However, the alignment remains uneven and fragmented.

Several gaps were highlighted during interviews. AD001 noted that unemployment persists despite ongoing interventions, while limited education and awareness restrict community participation in green economy initiatives. RC001 emphasized the urgent need to equip informal actors with technical skills for emerging opportunities in solar maintenance and circular economy practices. Similarly, DM001 and Mugeru warned of community resistance, stakeholder conflict, and policy fragmentation, which collectively undermine the effectiveness of transition efforts.

Importantly, participants stressed the necessity of avoiding livelihood displacement and ensuring that informal actors are not marginalized in the transition process. NM001 argued that informal economies are neither peripheral nor temporary; rather, they constitute a structural component of local socio-economic systems and must be supported through targeted training, financial assistance, and policy integration. These insights underscore that while coal mining companies are making incremental progress toward environmental justice, achieving a genuinely "just" transition requires deeper engagement with informal economies, clearer transition pathways, and stronger multi-sectoral collaboration.

#### **5.15 Methodological Limitations**

While this study provides meaningful insights into how South African coal mining companies engage with informal economies within the broader context of a.. Just Energy Transition (JET), it is essential to acknowledge the methodological limitations that may influence the interpretation, scope, and transferability of the findings. As is characteristic of qualitative research, the study's design, data collection, and analytical processes are shaped by interpretive paradigms that prioritize depth over breadth. These limitations do not undermine the study's validity; rather, they offer a critical lens through which the findings should be understood.

Firstly, the study's reliance on semi-structured interviews, while valuable for eliciting rich, context-specific narratives, may have introduced subjectivity in both data collection and interpretation. The co-construction of meaning between researcher and participant, although central to qualitative inquiry, may have been influenced by the researcher's positionality, prior assumptions, and the relational dynamics within the interview setting. Despite efforts to engage in reflexivity and maintain analytic rigor, the potential for interpretive bias remains a consideration.

Secondly, the purposive sampling strategy, while appropriate for accessing key informants with relevant knowledge and experience, may limit the generalizability of the findings. The sample, though diverse in organizational representation, may not fully capture the heterogeneity of perspectives across the broader coal mining sector or among informal economic actors. Consequently, the transferability of the findings to other geographic or industrial contexts should be approached with caution.

Thirdly, the sensitive nature of the research topic particularly discussions around informal economies, undocumented labor, and regulatory compliance may have influenced participant disclosure. Despite assurances of confidentiality and the use of anonymization techniques, some participants may have exercised self-censorship due to perceived risks or organizational loyalties. This could have constrained the depth or candor of certain responses.

Finally, logistical constraints, including limited access to certain stakeholders and the evolving nature of the Just Energy Transition (JET) in South Africa, may have affected the comprehensiveness of the data. The dynamic policy environment and shifting corporate strategies mean that the findings represent a snapshot in time, which may evolve as the transition progresses. These methodological considerations underscore the importance of interpreting the findings within their specific socio-political and temporal context. They also highlight the need for ongoing, longitudinal, and multi-stakeholder research to build on the insights generated by this study.

### *Sample Size and Transferability*

Although thematic saturation was attained after conducting twelve interviews indicating that no new themes were emerging, and the data was sufficiently rich for analysis the relatively small sample size inherently constrains the generalizability of the findings. In qualitative research, the goal is not statistical representativeness but rather depth and contextual understanding. However, with only twelve participants, the diversity of experiences, perspectives, and contextual nuances may be limited, especially in a complex and multifaceted domain such as the management of informal economies within the Just Energy Transition (JET).

This limitation affects the transferability of the findings that is, the extent to which insights from this study can be meaningfully applied to other settings, populations, or coal mining companies operating under different socio-political or economic conditions. Readers and practitioners must therefore exercise caution when attempting to extrapolate these findings beyond the specific contexts and stakeholder groups represented in the study.

Furthermore, the use of purposive sampling, while appropriate for targeting knowledgeable and relevant participants, may have inadvertently excluded voices that are less visible or harder to reach. These could include individuals from marginalized communities, informal workers without formal representation, or those operating outside recognized stakeholder networks. Their absence may result in a partial or skewed understanding of the informal economy dynamics, particularly in relation to power asymmetries, lived experiences, and grassroots perspectives that are critical to a just transition.

### *Interpretive Subjectivity and Researcher Positionality*

In qualitative research, the process of data analysis is inherently interpretive, shaped by the researcher's lens through which meaning is constructed. This subjectivity is not a flaw but a recognized feature of qualitative inquiry, where the researcher acts as the primary instrument of analysis. However, it introduces limitations that must be acknowledged.

The researcher's positionality including their social identity, professional background, prior assumptions, values, and lived experiences inevitably influences how data is interpreted, which themes are emphasized, and how narratives are constructed. These influences can subtly shape the framing of interview questions, the dynamics of participant interaction, and the interpretation of responses. For instance, a researcher with industry experience may be more attuned to operational or policy-related themes, potentially overlooking grassroots or community-level nuances.

While reflexive strategies such as journaling, peer debriefing, and iterative coding were employed to identify and mitigate bias, complete objectivity remains unattainable. Reflexivity helps illuminate the researcher's influence on the research process, but it cannot fully eliminate the interpretive nature of qualitative analysis. This means that the findings are, to some extent, co-constructed between the researcher and participants, rather than being purely extracted from the data.

Moreover, the epistemological stance adopted whether constructivist, critical, or pragmatic also frames how knowledge is understood and presented. This further affects the transferability and credibility of the findings, as different researchers might interpret the same data differently depending on their theoretical orientation and positionality. In summary, while efforts were made to ensure analytical rigor and transparency, the subjective dimensions of interpretation and the researcher's positionality must be considered when evaluating the scope, depth, and applicability of the study's conclusions.

### *Contextual Boundaries of Findings*

The limited generalizability of this study is primarily a consequence of its qualitative design and the context-specific nature of its inquiry. Qualitative research prioritizes depth over breadth, aiming to uncover nuanced understandings of complex phenomena rather than produce statistically representative results. In this case, the study is grounded in the lived experiences, perceptions, and interpretations of a small, purposively selected group of participants operating within South Africa's coal mining sector a setting shaped by unique socio-economic, political, and environmental dynamics.

As such, the findings are intrinsically tied to the particular institutional and geographic context in which the research was conducted. They reflect the specific realities of stakeholders engaged in or affected by informal

economic activities within the coal mining industry, and may not be readily applicable to other sectors, regions, or countries undergoing energy transitions. This contextual embeddedness limits the extent to which the insights can be generalized or transferred to broader populations or different policy environments.

Moreover, the purposive sampling strategy while effective in capturing rich, relevant data further narrows the scope of applicability. The participants were selected based on their knowledge, roles, or proximity to the informal economy and just transition discourse, which means that the findings may disproportionately reflect the views of more accessible or vocal stakeholders. Less visible actors, such as informal workers without formal representation or community members on the periphery of mining operations, may have perspectives that differ significantly but were not captured in this study.

Therefore, while the research offers valuable, in-depth insights into the intersection of informal economies and energy transition within a specific coal mining context, its findings should be interpreted with caution when considering broader applications. Future research could expand the scope by incorporating comparative case studies or mixed-method approaches to enhance the generalizability and inclusivity of the findings.

#### *Interpretive Nature of Data*

Qualitative data are inherently interpretive, meaning that the process of collecting, analyzing, and presenting findings is deeply influenced by the researcher's subjective engagement with the material. Unlike quantitative approaches that rely on standardized instruments and statistical generalization, qualitative research embraces complexity, context, and meaning making. This interpretive orientation allows for rich, nuanced insights particularly valuable when exploring under-researched or socially embedded phenomena such as informal economy management within the just transition framework.

However, this strength also introduces limitations. The researcher's positionality including their background, assumptions, theoretical orientation, and interactions with participants shapes how data are understood and represented. Even with rigorous reflexive practices, such as memoing, peer review, and transparency in coding decisions, the findings remain co-constructed and contextually bound. They reflect not only the voices of participants but also the interpretive lens through which those voices are analyzed.

As a result, the findings are not universally replicable. Another researcher, operating in a different context or with a different epistemological stance, might arrive at alternative interpretations even when working with similar data. This limits the generalizability of the study not in the statistical sense, but in terms of its applicability across diverse settings, populations, or policy environments.

Therefore, while the study offers meaningful and contextually grounded insights into how informal economies are managed within the coal mining sector during South Africa's energy transition, its conclusions should be applied with caution. Policymakers, practitioners, and researchers must consider the methodological choices and contextual specificity that underpin the findings. These limitations underscore the importance of complementing qualitative insights with broader comparative studies or mixed-method approaches to enhance the robustness and applicability of future research.

### *Access Constraints and Representational Gaps*

The presence of perceived power asymmetries during interviews particularly between the researcher and participants from either corporate or informal economy backgrounds raises important concerns regarding the validity and authenticity of the data collected. These relational dynamics may have subtly influenced the degree of openness, candor, and depth in participants' responses. For instance, individuals operating within the informal economy may have felt vulnerable or cautious, potentially withholding sensitive or critical insights due to fears of institutional scrutiny, reputational harm, or social repercussions. Their precarious socio-economic positioning may have led to self-censorship or guarded narratives, especially when discussing issues such as regulatory evasion, livelihood insecurity, or interactions with formal institutions.

Conversely, corporate representatives may have been inclined to align their responses with organizational interests, strategic messaging, or reputational considerations. In such cases, participants might have emphasized compliance, social responsibility, or progressive transition strategies, while downplaying tensions, contradictions, or contested practices. These dynamics can result in partial or filtered accounts, where certain perspectives are amplified while others remain constrained or underrepresented.

Despite efforts to foster trust and neutrality during interviews, such as ensuring confidentiality and employing reflexive interviewing techniques, the relational context between researcher and participant inevitably shapes the data. As a result, the credibility and completeness of the findings must be interpreted with caution, acknowledging that some narratives may reflect strategic positioning or protective silences rather than unmediated truth.

### *Temporal Scope*

In addition to relational dynamics, the study is bounded by its temporal scope, capturing a specific moment in the evolving landscape of South Africa's Just Energy Transition (JET) and informal economy governance. Policies, corporate strategies, and socio-economic conditions are subject to change, particularly in a context marked by political shifts, environmental pressures, and global energy market fluctuations. What is true or relevant at the time of data collection may not hold in the near future, as new legislation, stakeholder coalitions, or economic disruptions emerge.

This temporal limitation means that the findings represent a snapshot in time, rather than a longitudinal or predictive account. While they offer valuable insights into current practices and perceptions, they may not fully reflect ongoing developments, future trajectories, or adaptive responses by stakeholders. Therefore, any application of the findings to policy design, strategic planning, or comparative research should be done with an awareness of their time-bound nature and the need for continual reassessment.

### *Variability in Data Collection Conditions*

The quality and richness of interview data in this study may have varied significantly due to a range of contextual and logistical factors that shaped the interview environment and participant engagement. These factors include the physical or virtual setting of the interviews, the level of comfort and trust established, the mode of communication (e.g., in-person vs. remote), and potential language or cultural barriers.

For instance, remote interviewing modalities, while necessary in certain cases, may have limited the depth of interaction due to technological constraints, reduced non-verbal cues, or interruptions in connectivity. These limitations can affect rapport-building and the spontaneity of responses, potentially leading to more superficial or cautious engagement from participants.

Similarly, language differences whether due to translation, interpretation, or varying levels of fluency may have influenced how questions were understood and how responses were articulated. Nuances in meaning, emotion, or emphasis can be lost or distorted when participants are not expressing themselves in their preferred language, thereby affecting the authenticity and interpretive depth of the data.

The interview setting also plays a critical role. Interviews conducted in formal or institutional environments may have prompted more guarded or strategic responses, especially from corporate stakeholders. Conversely, informal settings may have encouraged openness but introduced distractions or privacy concerns. The level of participant engagement shaped by interest, availability, and perceived relevance of the research also varied, influencing the richness and completeness of the narratives shared.

Taken together, these factors introduce variability in the data, which may affect the consistency, depth, and interpretive clarity across interviews. While efforts were made to standardize procedures and create conducive environments for dialogue, these contextual influences must be acknowledged as limitations. They underscore the importance of interpreting the findings with an understanding of the conditions under which the data were generated and the potential constraints on participant expression.

The findings presented in the preceding chapter offer a rich, multifaceted understanding of how informal economies are navigated and managed within South African coal mining communities, particularly in the context of the Just Energy Transition (JET). Through thematic and cross-case analysis, the study has illuminated both converging and diverging perspectives across stakeholder roles, geographic locations, and operational contexts. These insights reveal the complex interplay between formal institutions, informal actors, socio-economic pressures, and evolving energy policies.

As the study moves into Chapter 6, the focus shifts from descriptive presentation to interpretive engagement. This next chapter will critically examine the empirical findings in relation to the existing body of literature reviewed in Chapter 2. The discussion will involve a systematic comparison of the study's insights with established theoretical frameworks and scholarly debates on informal economies, stakeholder engagement, energy justice, and sustainable development. By doing so, the chapter will explore how the findings affirm, challenge, or extend current understandings within these domains.

This interpretive process will also highlight key similarities, contradictions, and emergent themes that contribute to a deeper academic understanding of the research problem. For example, tensions between institutional narratives and grassroots realities, or the strategic positioning of stakeholders within the just transition discourse, will be examined through a critical lens.

Importantly, the significance of the findings lies not only in their academic contribution but also in their potential to inform more inclusive, adaptive, and context-sensitive approaches to policy and practice. By integrating the voices of diverse stakeholders including those often excluded from formal decision-making

processes this research underscores the imperative for a just transition that is not only environmentally sustainable but also socially equitable. The discussion will therefore aim to bridge empirical evidence with normative aspirations, offering grounded recommendations for future governance, stakeholder engagement, and policy design in the context of energy transition.

### *Triangulation and Credibility*

To enhance the trustworthiness of the findings, triangulation was employed across participant roles (corporate vs. community-facing), geographic contexts, and thematic constructs. This methodological strategy ensured that interpretations were grounded in diverse perspectives and corroborated through multiple data sources, thereby strengthening credibility and confirmability.

### *Transition to Chapter 6: Discussion*

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# CHAPTER SIX: DISCUSSION

## 6.1 Introduction

The purpose of this chapter is to critically interpret and contextualize the empirical findings presented in Chapter Five by engaging them with the theoretical and scholarly literature reviewed in Chapter Two. This discussion aims to deepen understanding of how coal mining companies in South Africa manage informal economies within the framework of the just energy transition, and to assess the extent to which the findings align with, extend, or challenge existing academic perspectives.

Chapter Five revealed five core thematic insights: the structural role of informal economies in coal mining communities; the nature and effectiveness of corporate management strategies; the framing and implementation of the just energy transition; stakeholder engagement practices; and future outlooks on inclusive development. These themes emerged from rigorous thematic analysis and cross-case comparison of twelve semi-structured interviews consistent with qualitative best practices (Braun & Clarke, 2006).

Chapter Two reviewed pivotal literature on informal economies, stakeholder theory, energy justice, and sustainable development. It explored core debates such as the legitimacy of informal economic activity (Chen, 2012; De Soto, 2000), principles of participatory governance (Freeman, 1984; Arnstein, 1969), and the socio-economic dimensions of energy transition planning (McCauley et al., 2013; Jenkins et al., 2016).

This chapter employs a thematic comparative method, empirical findings with the literature to facilitate interpretation and academic reasoning. Each theme is assessed through the lens of relevant scholarship, identifying salient points of convergence, divergence, or theoretical extension.

To maintain coherence and analytical transparency, the chapter mirrors the thematic structure of Chapter Five. Each thematic section concludes with a clear statement regarding how the findings relate to the literature whether they are consistent, extend, or challenge existing scholarship. The chapter concludes with an integrative synthesis, drawing implications for policy, corporate practice, and future research in the evolving landscape of South Africa's energy transition.

## 6.2 Theme 1: Informal Economies

The findings from Chapter Five reveal that informal economies are not marginal phenomena, but rather structurally integral to coal mining communities in South Africa. Activities such as food vending, waste picking, subsistence farming, and informal childcare serve as vital livelihoods in contexts of chronic unemployment and limited formal economic opportunities. Participants emphasized the adaptive, community-embedded nature of these economies and their roles in sustaining household income, fostering resilience, and circulating value within local economies (Participant Interviews, 2025).

These findings align with seminal work by Chen (2012) and De Soto (2000), who argue that informal economies function as legitimate, survival-oriented systems of exchange outside formal regulatory regimes. Chen (2012) underscores the structural and policy significance of informality, while De Soto (2000) highlights its role as a reservoir of entrepreneurial energy constrained by formal restrictions.

Building on these foundations, this study extends the literature by showcasing the interdependence between informal and formal sectors. Participants described informal traders sourcing supplies from formal companies, thereby integrating into broader value chains. This finding resonates with Roy's (2005) concept of hybrid economies and Simone's (2004) characterisation of informality as a normative space shaped by systemic governance and everyday practices.

Furthermore, the gendered and spatial dynamics uncovered such as women-led food vending near mine gates add important nuance. This observation supports recent socio-spatial analyses of women's entrepreneurship in the informal economy (Xheneti & Madden, 2024), which emphasize the confluence of local networks, spatial proximity, and mutual obligations.

The study also challenges deficit-based conceptualisations that portray informality solely as a problem. Instead, it presents it as a site of innovation, resilience, and community agency a stance echoed by Hart (2009) and Meagher (2013), who critique narrow interpretations and advocate for recognizing informal systems as sources of social and economic value.

However, tensions emerged in stakeholder perceptions. While community-based participants viewed informal activities as generative, corporate stakeholders sometimes framed them as regulatory liabilities or reputational risks. This divergence mirrors broader theoretical debates on informality's legitimacy and governance (Hart, 2009; Meagher, 2013), highlighting the importance of inclusive policy frameworks that treat informal actors as stakeholders essential to equitable development.

## Conclusion

The findings are consistent with and extend existing literature. They affirm the structural embeddedness of informal economies in coal mining communities, consistent with foundational work by Chen (2012) and De Soto (2000), which positions informality as a legitimate and survival-oriented economic system. The study extends this literature by highlighting the interdependence between informal and formal economies, and by emphasizing the gendered and spatial dimensions of informal activity, which are less explored in traditional economic frameworks.

### Thematic Alignment with Literature: Informal Economies

The findings are consistent with and extend existing literature. They affirm the structural embeddedness of informal economies in coal mining communities, consistent with foundational work by Chen (2012) and De Soto (2000), which positions informality as a legitimate and survival-oriented economic system. The study extends this literature by highlighting the interdependence between informal and formal economies, and by emphasizing the gendered and spatial dimensions of informal activity, which are less explored in traditional economic frameworks.

### **6.3 Theme 2: Management Strategies**

The findings Chapter Five indicate that coal mining companies employ a diverse suite of strategies to support informal economy actors, encompassing enterprise and supplier development (ESD) initiatives, agricultural support schemes, capacity-building and training programs, and infrastructure enhancements aimed at

mitigating socio-economic vulnerability, fostering entrepreneurial capabilities, and enabling incremental formalization of informal actors.

These practices are firmly rooted in the developmental corporate social responsibility (CSR) paradigm, which emphasizes the proactive contribution of businesses to inclusive economic development particularly in underserved communities (Blowfield & Frynas, 2005; Visser, 2008). This approach marks a distinct shift from traditional compliance-oriented CSR toward developmental governance, wherein firms actively integrate informal actors into formal value chains (Porter & Kramer, 2011).

Nevertheless, participant reflections revealed critical concerns regarding the sustainability and accessibility of these programs. While initiatives such as RaceCorp and Pitch-for-Funding garnered praise for their immediate impact, several respondents highlighted shortcomings in longer-term monitoring, evaluation, and responsiveness to evolving community needs a critique that echoes the findings of Banks et al. (2015), who emphasize that development programs often suffer from short-termism and insufficient participatory design.

Further scrutiny of formalization strategies illuminated a tension between institutional aims and community realities. Although the progression toward formalization aligns with inclusive economic theories (e.g., Hart, 2009), firsthand accounts particularly from TC001 underscore that informal enterprises often thrive due to their flexibility, low overhead, and proximity to local markets. This view is supported by Meagher (2013) and Roy (2005), who argue that rigid formalization frameworks can undermine the adaptive capacities of informal participants.

A notable divergence in perspectives also emerged: frontline operational staff frequently expressed optimism regarding program successes, while senior strategic actors voiced concerns about scalability, inclusivity, and unintended exclusion. This internal mismatch underscores broader tensions in development literature concerning the alignment (or lack thereof) between institutional objectives and local community dynamics (Ferguson, 1990; Hickey & Mohan, 2004).

## Conclusion

The findings are partially consistent with and extend the literature. They align with developmental CSR literature (Blowfield & Frynas, 2005; Visser, 2008), which advocates for corporate responsibility that supports inclusive development. However, the study extends this body of work by critically examining the limitations of formalization and the sustainability of corporate interventions. It challenges the assumption that formalization is universally beneficial, echoing critiques by Meagher (2013) and Roy (2005), and calls for more adaptive, context-sensitive approaches.

## Thematic Alignment with Literature: Management Strategies

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### **6.4 Theme 3: Just Energy Transition**

The Chapter Five demonstrate that coal mining companies in South Africa are proactively aligning their operations with principles of the JET (JET) by adopting carbon-neutral targets, integrating Environmental, Social, and Governance (ESG) frameworks, and formulating decarbonization roadmaps (Participant Interviews, 2025). Specifically, these companies are engaging in Scope 3 emissions tracking, investing in renewable energy projects, and initiating community reskilling efforts. Such initiatives reflect an acute institutional awareness of the need to balance environmental responsibilities with socio-economic equity.

These findings are broadly consistent with established energy justice scholarship, which emphasizes the triad of distributional, procedural, and recognition justice (McCauley et al., 2013). According to McCauley et.al., (2013), equitable energy transitions must ensure fair distribution of benefits and burdens, inclusive procedural mechanisms, and the recognition of marginalized stakeholders. Moreover, Heffron and McCauley (2018) underscore the necessity of integrating climate, energy, and environmental justice principles to achieve a genuinely just transition. The participants' inclusive planning and systematic reskilling resonates with Jenkins et. al., (2016) argument that transition frameworks must explicitly safeguard vulnerable populations, ensuring no one is disadvantaged, especially as low-carbon paradigms are implemented.

Nevertheless, the study foregrounds critical context-specific tensions in the implementation of JET principles. Participants' distinction between carbon neutrality and net-zero ambitions highlights a pragmatic recalibration of global environmental goals to reflect local socio-economic realities. TC001's statement "we are pursuing carbon neutrality, not net zero, to balance emissions and community needs" illustrates a strategic pivot away from rigid global benchmarks toward a more responsive, equitable approach tailored to local communities.

The findings also challenge the prevailing assumption that green technologies are intrinsically inclusive or benign. The deviant case reported by TC001 where the adoption of electric vehicles has reduced demand for informal mechanics reveals significant potential for technological displacement. This underscores a need for anticipatory governance, a concept gaining traction in energy transition governance literature, which advocates pre-emptive identification and mitigation of unintended socio-economic consequences (Sovacool et al., 2021).

Participants also expressed concerns regarding the coherence and readiness of institutional frameworks. While strategic planning for transitions is underway, fragmented implementation, deficient community engagement practices, and the omission of informal actors from transition planning processes were recurring themes. These critiques correspond with emerging scholarship on transition governance, which emphasizes the need for multi-scalar, inclusive, and adaptive approaches to steer complex socio-technical transformations (Sovacool et al., 2021).

#### Conclusion

The findings are consistent with and extend energy justice literature. They support the principles of equity, recognition, and procedural fairness as outlined by McCauley et al. (2013) and Heffron & McCauley (2018).

The study extends this literature by introducing context-specific insights, such as the distinction between carbon neutrality and net zero, and by highlighting the socio-economic risks of green technologies particularly their potential to displace informal workers. These findings underscore the need for anticipatory governance and locally grounded transition strategies.

#### Thematic Alignment with Literature: Just Energy Transition

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### **6.5 Theme 4: Stakeholder Engagement**

The findings Chapter Five underscore stakeholder engagement as a pivotal yet inconsistently executed element in coal mining companies' JET efforts. Although formal platforms such as community forums, stakeholder mapping exercises, and multi-stakeholder partnerships are in place, informal economy participants such as local traders and informal service providers reportedly remain systematically excluded. This exclusion undermines both the representativeness and legitimacy of engagement processes, particularly in communities where informal livelihoods play a central role in economic resilience and social well-being.

This aligns with Freeman's (1984) stakeholder theory, which asserts that organizations have ethical and strategic obligations to engage all parties affected by their operations. Nevertheless, empirical evidence reflects critiques of tokenistic engagement, as originally framed by Arnstein (1969). Arnstein's "ladder of participation" describes how superficial forms of engagement such as information-sharing or consultation fail to redistribute power meaningfully, resulting in people being "spoken about but not spoken to" (Arnstein, 1969).

The study deepens these critiques by highlighting the relational dynamics and power asymmetries that complicate stakeholder interactions. Participants point to deficiencies in stakeholder mapping and invisible institutional biases, suggesting that unequal power structures can invisibilize marginalized voices. These observations are consistent with Cornwall's (2008) analysis of participation, which emphasizes the need for clarity regarding who participates and whose interests are prioritized, as well as Gaventa's (2006) power-knowledge framework that identifies visible, hidden, and invisible forms of power as fundamental barriers to genuine inclusion.

Notably, perceptions of engagement effectiveness diverge. Corporate representatives often highlight procedural robustness, while community-facing participants emphasize enduring gaps in outreach, representation, and equity. This reflects the need for multi-perspective evaluation and adaptive engagement practices that respond to local relationships and relational complexities.

Significantly, the findings suggest that meaningful stakeholder engagement must transcend consultation to include co-creation, capacity-building, and sustained relationship management. This proposition aligns with

theories of deliberative democracy (Dryzek, 2000) and collaborative governance (Ansell & Gash, 2008), which argue for inclusive, dialogic processes that empower all relevant actors to influence decision-making and share ownership of outcomes.

## Conclusion

The findings are consistent with and deepen stakeholder engagement literature. They affirm the relevance of Freeman's (1984) stakeholder theory and support critiques of tokenistic participation (Arnstein, 1969; Reed et al., 2009). The study deepens this literature by emphasizing relational dynamics and power asymmetries, drawing on Cornwall (2008) and Gaventa (2006) to argue that meaningful engagement must address structural inequalities and go beyond procedural inclusion.

### Thematic Alignment with Literature: Stakeholder Engagement

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## **6.6 Theme 5: Future Outlook**

Participants expressed a cautiously optimistic yet pragmatic view of the future of informal economies and coal mining communities amid the JET (JET). They underscored the transformative potential of education reform, intersectoral collaboration, and circular economy integration as vital drivers of resilience and socio-economic sustainability. These priorities align with foundational research on resilience and sustainable development, which calls for flexible governance, inclusive planning, and adaptive capacity in the face of systemic change (Folke et al., 2002; Sachs, 2015). In particular, Folke et al. (2002) emphasize that resilient social-ecological systems depend on institutions that can learn, adapt, and enable "small wins" through multi-level governance an insight echoed in participants' suggestions for education and policy innovation to bolster local adaptive capacity. Sachs (2015) extends this discourse by advocating for holistic, future-oriented sustainability strategies that integrate economic, environmental, and social dimensions a synthesis vividly reflected in the data.

The study contributes new nuance to this literature by foregrounding the adaptive resilience of informal actors in a context where formalization may remain elusive. TC001's insight "even if it stays informal, people need awareness to future-proof their businesses" illustrates a pluralistic, non-linear vision of development. This perspective resonates with recent calls for locally grounded transition strategies, particularly those accommodating informal economic dynamics (Brown & Sovacool, 2021).

Notably, the deviant case involving electric vehicles (EVs) and their impact on informal mechanics introduces an underexplored challenge: the unintended socio-economic consequences of green technology adoption. While the environmental benefits of EVs are well-established, there's scant literature on their labor market disruptions, particularly in informal sectors. This finding highlights the need for anticipatory governance a

strategic framework aimed at pre-emptively identifying and mitigating potential disruptions (OECD, 2022; Sovacool et al., 2021).

Participants also emphasized the importance of collaborative governance, particularly multi-stakeholder partnerships between mining companies, government bodies, and community organizations. These calls mirror Ansell and Gash (2008) principles of collaborative governance which stress trust-building, shared understanding, and adaptive institutional design and Emerson et al., (2012) emphasis on the evolution of governance mechanisms through social learning and feedback loops.

### Conclusion

The findings are aligned with and extend sustainability and resilience literature. They support the importance of education reform, intersectoral collaboration, and circular economy integration (Folke et al., 2002; Sachs, 2015), while extending the discourse by foregrounding the resilience and agency of informal actors. The study introduces novel concerns about the unintended consequences of green technologies and advocates for anticipatory, equity-oriented planning an area underexplored in mainstream energy transition literature.

### Thematic Alignment with Literature: Future Outlook

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## **6.7 Theme 6: Governance and Policy**

Current governance frameworks for the Just Energy Transition (JET) remain heavily oriented toward formal labor markets and large-scale industrial restructuring, while largely overlooking the informal economy. This omission is significant because informal economic activities constitute a critical livelihood system for marginalized communities, particularly in coal-dependent regions (Sun et al., 2023). By neglecting these actors, policy approaches reinforce a technocratic governance paradigm one that privileges compliance indicators and procedural benchmarks over the lived realities of those most vulnerable to transition-induced disruptions (Baker et al., 2023).

Compounding these challenges is the fragmentation of governance across multiple scales. National, provincial, and corporate entities often operate in isolation, resulting in incoherent policy implementation and accountability gaps. Such siloed governance structures reflect broader multi-scalar coordination failures, which constrain adaptive capacity and hinder innovation in transition planning (Traill & Cumbers, 2022; UNDP, 2023). Without integrated frameworks that bridge these institutional divides, efforts to achieve a socially just transition risk remaining aspirational rather than actionable.

The systemic exclusion of informal actors from policy design and implementation further undermines distributive and procedural justice two core principles of energy justice. When informal economies are disregarded, transition strategies inadvertently reproduce structural inequalities under the guise of progress. To address these shortcomings, policy reforms must embed participatory governance mechanisms that

actively involve informal actors in decision-making processes. Moreover, recognizing the legitimacy of hybrid economic systems those that combine formal and informal dimensions is essential for ensuring equitable representation and fair distribution of benefits (Kleinman Center, 2025).

#### Thematic Alignment with Literature: Governance and Policy

The findings on governance and policy reveal a persistent misalignment between normative principles of a just transition and the operational realities of South Africa's energy governance frameworks. Existing scholarship emphasizes that effective transition governance must be inclusive, multi-scalar, and participatory to ensure distributive and procedural justice (Heffron & McCauley, 2018; Jenkins et al., 2016). However, the empirical evidence underscores that current JET policies remain narrowly focused on formal labor markets and industrial restructuring, thereby neglecting informal economies that constitute critical livelihood systems in coal-dependent communities (Sun et al., 2023). This omission resonates with critiques in the literature that technocratic governance models privilege compliance metrics and institutional performance indicators over the lived experiences of marginalized actors (Baker et al., 2023).

Furthermore, the observed fragmentation across governance scales manifested in weak coordination between national, provincial, and corporate entities corroborates findings by Traill & Cumbers (2022), who argue that multi-scalar governance failures constrain adaptive capacity and innovation in transition planning. The absence of integrated frameworks and feedback loops limits responsiveness to local socio-economic realities, reinforcing structural inequalities rather than mitigating them. This pattern aligns with UNDP (2023) assertion that governance architectures for energy transitions often lack coherence and accountability, undermining their transformative potential.

Finally, the systemic exclusion of informal actors from policy design and implementation challenges the distributive and procedural justice principles central to energy justice theory (McCauley et al., 2013). Literature increasingly advocates for governance models that recognize hybrid economic systems those combining formal and informal dimensions as legitimate components of transition planning (Kleinman Center, 2025). The findings extend this discourse by demonstrating that without participatory governance mechanisms and context-sensitive policy reforms, JET risks reproducing socio-economic disparities under the guise of sustainability. Thus, the study reinforces and deepens existing theoretical frameworks while calling for adaptive, equity-oriented governance models that operationalize justice beyond rhetoric.

#### **6.8 Theme 7: Social Protection and Resilience**

The findings underscore the precarious position of informal actors within coal-dependent communities, particularly in the context of the Just Energy Transition (JET). Informal workers typically lack access to formal social protection mechanisms such as unemployment insurance, health benefits, and pension schemes, leaving them disproportionately exposed to economic shocks associated with decarbonization and mine closures (ILO, 2023; Sun et al., 2023). This structural vulnerability exacerbates poverty and deepens inequality, as transition policies often prioritize formal labor markets while neglecting the adaptive strategies and needs of informal economies (Baker et al., 2023).

Despite these systemic exclusions, informal actors demonstrate remarkable resilience through adaptive strategies that leverage social networks and community-based mechanisms. Empirical evidence and recent

scholarship highlight practices such as income diversification, rotating savings groups, and informal cooperatives as critical buffers against livelihood disruptions (Brown & Sovacool, 2021; Meagher, 2023). These grassroots innovations not only mitigate immediate shocks but also foster collective agency, enabling communities to navigate uncertainty in ways that formal interventions frequently overlook.

However, resilience at the community level cannot substitute for structural protections. Literature on energy justice and social policy emphasizes that equitable transitions require deliberate integration of informal actors into social protection frameworks (Heffron & McCauley, 2018; UNDP, 2023). This includes designing inclusive safety nets, microfinance platforms, and localized insurance schemes tailored to the realities of informal economies. Furthermore, resilience-building programs such as vocational training, entrepreneurial development, and financial literacy initiatives are essential for enhancing adaptive capacity and enabling participation in emerging green value chains (OECD, 2022; Sovacool et al., 2021).

In summary, the findings align with and extend existing scholarship by foregrounding the dual imperative of structural inclusion and community-driven resilience. They call for a paradigm shift from reactive, short-term interventions toward anticipatory governance models that harmonize social protection with adaptive strategies, ensuring that informal actors are not merely passive recipients but active co-creators of just transition pathways.

#### Thematic Alignment with Literature: Social Protection and Resilience

The findings on social protection and resilience align closely with contemporary scholarship emphasizing the vulnerability of informal actors in energy transitions. Existing literature consistently highlights that informal workers are excluded from formal social safety nets such as unemployment insurance, health benefits, and pension schemes, leaving them disproportionately exposed to economic shocks during structural shifts toward low-carbon economies (ILO, 2023; Sun et al., 2023). This exclusion reflects a broader governance gap in transition planning, where policy frameworks prioritize formal labor markets while neglecting adaptive livelihood systems embedded in informality (Baker et al., 2023).

The study's observation of community-based coping mechanisms such as rotating savings groups, informal cooperatives, and income diversification corroborates findings by Brown and Sovacool (2021), who argue that resilience in informal economies is often self-organized and relational rather than institutionally driven. These adaptive strategies demonstrate agency and collective capacity, yet literature warns that such grassroots resilience cannot substitute for structural protections (Meagher, 2023). Without formal integration into social protection schemes, informal actors remain vulnerable to systemic shocks, reinforcing patterns of inequality and exclusion.

Energy justice scholarship further supports the imperative for inclusive social protection as a cornerstone of just transitions. Heffron & McCauley (2018) and Sovacool et al. (2021) advocate for anticipatory governance models that embed distributive and procedural justice principles into policy design, ensuring that marginalized groups are not left behind in the pursuit of decarbonization. The findings extend this discourse by emphasizing the need for hybrid approaches that combine formal safety nets with localized resilience-building programs, including vocational training, microfinance, and entrepreneurial development (OECD, 2022; UNDP, 2023). Such measures operationalize justice beyond rhetoric, transforming informal actors from passive recipients

into active co-creators of transition pathways. Therefore, the thematic insights reinforce and deepen existing literature by foregrounding the dual imperative of structural inclusion and community-driven resilience. They call for policy reforms that institutionalize social protection for informal workers while leveraging their adaptive capacities to build equitable and sustainable post-coal futures.

## **6.9 Theme 8: Theoretical Constructs**

The findings of this study engage deeply with three major theoretical domains energy justice, stakeholder theory, and informality studies while introducing conceptual extensions that advance the discourse on just energy transitions.

### Energy Justice Frameworks

The empirical evidence strongly reinforces the triadic principles of energy justice distributional, procedural, and recognition justice widely discussed in transition literature (McCauley et al., 2013; Heffron & McCauley, 2018). Distributional justice is reflected in concerns about equitable allocation of benefits and burdens, while procedural justice emerges in critiques of tokenistic engagement and exclusion of informal actors from decision-making processes. Recognition justice is evident in calls to acknowledge the legitimacy of informal economies as integral to socio-economic resilience. However, the findings extend this framework by highlighting a critical gap: the absence of anticipatory governance. Recent scholarship argues that energy transitions must incorporate forward-looking mechanisms to mitigate unintended socio-economic consequences, such as technological displacement and livelihood erosion (Sovacool et al., 2021; OECD, 2022). This study contributes to this emerging discourse by demonstrating that anticipatory planning is not merely desirable but essential for safeguarding vulnerable communities during systemic change.

### Stakeholder Theory Extensions

The results also deepen stakeholder theory by emphasizing relational engagement and co-creation as normative imperatives for inclusive governance. While Freeman's (1984) foundational model advocates for stakeholder inclusion, contemporary critiques highlight that formal representation alone does not dismantle structural power asymmetries (Cornwall, 2008; Gaventa, 2006). The study's findings corroborate these critiques, revealing that procedural mechanisms often fail to redistribute agency meaningfully. By foregrounding relational dynamics trust-building, iterative dialogue, and shared decision-making the research aligns with collaborative governance models (Ansell & Gash, 2008) and extends stakeholder theory toward a more dialogic, equity-oriented paradigm.

### Informality Studies

In relation to informality, the findings challenge deficit-based models that frame informal economies as transitional or problematic. Instead, they position informality as structurally embedded, adaptive, and interdependent with formal systems a perspective supported by Roy (2005) and Meagher (2023). This reframing underscores the resilience and entrepreneurial capacity of informal actors, suggesting that governance frameworks must move beyond assimilationist formalization strategies toward hybrid models that preserve informality's adaptive strengths while enabling incremental integration into formal value chains.

## Conceptual Contribution

Collectively, these insights introduce two significant theoretical extensions to the JET discourse: hybrid governance and anticipatory planning. Hybrid governance acknowledges the coexistence and interdependence of formal and informal systems, advocating for pluralistic approaches that reflect socio-economic complexity. Anticipatory planning, by contrast, emphasizes foresight and adaptive capacity as essential components of justice-oriented transition strategies. These contributions respond to emerging calls in the literature for governance models that are not only inclusive and equitable but also proactive in addressing the uncertainties of socio-technical transformation (Brown & Sovacool, 2021; UNDP, 2023).

### *Thematic Alignment with Literature: Theoretical Constructs*

The findings strongly align with and extend several theoretical frameworks central to energy transition scholarship. First, they reinforce the principles of energy justice distributional, procedural, and recognition justice as articulated by McCauley et al. (2013) and Heffron & McCauley (2018). Concerns about equitable allocation of benefits and burdens, inclusive decision-making, and recognition of marginalized actors resonate with these foundational constructs. However, the study advances this discourse by highlighting the absence of anticipatory governance, a dimension increasingly emphasized in recent literature as critical for mitigating unintended socio-economic consequences of decarbonization (Sovacool et al., 2021; OECD, 2022). This extension situates foresight and adaptive planning as integral components of justice-oriented transition frameworks.

Second, the findings deepen stakeholder theory by moving beyond formal representation toward relational engagement and co-creation. While Freeman's (1984) model underscores the ethical imperative of stakeholder inclusion, critiques by Cornwall (2008) and Gaventa (2006) reveal that procedural mechanisms often fail to redistribute power. The study corroborates these critiques and aligns with collaborative governance scholarship (Ansell & Gash, 2008), advocating for dialogic processes that foster trust, shared accountability, and iterative learning.

Third, the research challenges deficit-based models of informality prevalent in development discourse. Rather than framing informal economies as transitional or problematic, the findings position them as structurally embedded and adaptive systems a perspective supported by Roy (2005) and Meagher (2023). This reframing underscores the resilience and entrepreneurial capacity of informal actors, calling for hybrid governance models that integrate formal and informal dynamics rather than imposing rigid formalization.

Finally, the study introduces two conceptual contributions to the JET literature: hybrid governance and anticipatory planning. Hybrid governance acknowledges the coexistence and interdependence of formal and informal systems, while anticipatory planning emphasizes proactive strategies to address socio-technical uncertainties. These contributions respond to emerging calls for governance architectures that are inclusive, context-sensitive, and forward-looking (Brown & Sovacool, 2021; UNDP, 2023), thereby extending theoretical debates on justice and sustainability in energy transitions.

## **6.10 Summary of Findings**

Chapter Five presented a comprehensive analysis of qualitative data derived from twelve semi-structured interviews with stakeholders within South Africa's coal mining sector. The findings were organized

thematically to address the research objectives concerning the management of informal economies within the context of the Just Energy Transition (JET). Five core themes emerged from the data:

**Informal Economies:** Informal economic activities such as food vending, waste picking, and subsistence farming were found to be structurally embedded within coal mining communities. These economies serve as critical livelihood mechanisms, particularly in contexts of high unemployment and limited formal opportunities. Participants emphasized their adaptive nature, socio-cultural relevance, and interdependence with formal economic systems.

**Management Strategies:** Coal mining companies have implemented a range of interventions aimed at supporting informal actors, including enterprise development programs, agricultural initiatives, and training schemes. While these strategies reflect a developmental orientation, concerns were raised about their sustainability, inclusivity, and long-term impact, particularly in relation to formalization efforts.

**Just Energy Transition:** Companies are increasingly aligning with carbon neutrality goals and ESG frameworks. Strategic efforts such as Scope 3 emissions tracking and community reskilling initiatives demonstrate a commitment to balancing environmental imperatives with socio-economic equity. However, participants also highlighted risks of displacement and exclusion, especially for informal workers, and called for more socially responsive transition planning.

**Stakeholder Engagement:** Engagement practices were described as essential but inconsistently implemented. While formal mechanisms exist, informal actors are often excluded from decision-making processes. This raises concerns about procedural fairness, representational equity, and the legitimacy of transition governance. Participants advocated for more inclusive, adaptive, and relationally sensitive engagement models.

**Future Outlook:** Reflections on the future emphasized the need for education reform, intersectoral collaboration, and circular economy integration. Participants expressed both optimism and concern, particularly regarding the resilience of informal economies and the unintended consequences of green technologies. The findings suggest a need for anticipatory governance and context-sensitive planning to ensure inclusive and equitable post-coal futures.

Collectively, these findings provide a nuanced understanding of the socio-economic and governance dynamics shaping informal economy management in coal mining communities during South Africa's energy transition. They lay the foundation for the interpretive discussion in Chapter Six, where empirical insights are examined in relation to existing literature and theoretical frameworks.

**Governance and Policy:** The findings reveal that governance frameworks for the Just Energy Transition (JET) remain technocratic, privileging compliance metrics over lived realities. Policies focus on formal labor and industrial restructuring while neglecting informal economies, creating systemic exclusion and reinforcing inequality. Fragmentation across governance scales national, provincial, and corporate further undermines coherence and adaptive capacity. To operationalize justice beyond rhetoric, governance must embed participatory mechanisms, recognize hybrid economic systems, and adopt multi-scalar coordination to ensure distributive and procedural fairness.

**Social Protection and Resilience:** Informal actors face heightened vulnerability due to exclusion from formal social safety nets such as unemployment insurance and health benefits. Transition risks exacerbate poverty and inequality in coal-dependent communities. Despite these gaps, informal actors exhibit resilience through adaptive strategies like income diversification, rotating savings groups, and informal cooperatives. However, structural protections remain essential. Policy reforms should integrate informal workers into social protection schemes and implement resilience-building programs vocational training, microfinance, and localized safety nets to strengthen adaptive capacity and equity.

**Theoretical Constructs:** The findings reinforce core principles of energy justice distributional, procedural, and recognition justice while exposing gaps in anticipatory governance. They extend stakeholder theory by emphasizing relational engagement and co-creation as critical for inclusive governance. Informality is reframed as adaptive and structurally embedded, challenging deficit-based models. Conceptually, the study introduces hybrid governance and anticipatory planning as theoretical extensions to JET discourse, advocating for governance architectures that are inclusive, context-sensitive, and forward-looking.

## **6.11 Interpretive Discussion**

The findings presented in Chapter Five offer a rich, contextually grounded understanding of how coal mining companies in South Africa engage with informal economies in the context of the JET (JET). This interpretive discussion critically examines those findings in relation to the theoretical constructs and scholarly debates outlined in Chapter Two, using a thematic comparative approach to assess alignment, divergence, and theoretical extension.

### Informal Economies

The study confirmed that informal economies are structurally embedded within coal mining communities, functioning as essential livelihood systems in the absence of formal employment. This aligns with foundational literature that positions informality as a survival strategy and a legitimate economic domain (Chen, 2012; De Soto, 2000). However, the study extends this view by emphasizing the interdependence between informal and formal economies, as informal actors often source inputs from formal suppliers and contribute to local value chains. This hybrid dynamic supports Roy (2005) and Simone (2004) arguments for recognizing informality as adaptive and embedded in broader socio-economic systems. The gendered and spatial dimensions of informality particularly the role of women in food vending near mining sites further enrich the literature by highlighting informality's socio-cultural significance.

### Management Strategies

Corporate strategies aimed at supporting informal actors such as enterprise development, agricultural support, and training programs reflect a developmental CSR orientation (Blowfield & Frynas, 2005; Visser, 2008). These interventions demonstrate a shift from passive recognition to active inclusion. However, concerns about sustainability, accessibility, and the limitations of formalization challenge the assumption that integration into formal systems is universally beneficial. The study supports Meagher's (2013) and Roy (2005) critiques of one-size-fits-all formalization models and calls for more flexible, context-sensitive approaches that preserve the adaptive strengths of informality.

## Just Energy Transition

The findings reveal that coal mining companies are increasingly aligning with carbon neutrality goals and ESG frameworks, consistent with energy justice literature (McCauley et al., 2013; Heffron & McCauley, 2018). Participants emphasized the need for inclusive planning and reskilling, echoing Jenkins et al. (2016) call for socially inclusive transitions. However, the study introduces novel insights by distinguishing between carbon neutrality and net zero, suggesting that global sustainability targets must be adapted to local socio-economic realities. The deviant case involving electric vehicles and the displacement of informal mechanics highlights the unintended consequences of green technologies and underscores the need for anticipatory governance (Sovacool et al., 2021).

## Stakeholder Engagement

Stakeholder engagement emerged as a critical but inconsistently implemented practice. While formal mechanisms exist, informal actors are often excluded, reflecting critiques of tokenistic participation (Arnstein, 1969; Reed et al., 2009). The study supports Freeman's (1984) stakeholder theory but highlights the gap between normative ideals and practical implementation. Power asymmetries and relational dynamics complicate engagement processes, aligning with Cornwall (2008) and Gaventa (2006), who argue that institutional framing and invisible power structures shape whose voices are heard. The findings advocate for co-creation, capacity-building, and long-term relationship management, consistent with deliberative democracy and collaborative governance models (Dryzek, 2000; Ansell & Gash, 2008).

## Future Outlook

Participants expressed both optimism and concern about the future of informal economies and coal mining communities. Emphasis on education reform, intersectoral collaboration, and circular economy integration aligns with resilience and sustainable development literature (Folke et al., 2002; Sachs, 2015). The study adds nuance by foregrounding the adaptive capacity of informal actors and the need for future-proofing, even in the absence of formalization. The deviant case involving electric vehicles illustrates the socio-economic risks of technological transitions and supports calls for anticipatory governance (OECD, 2022). Collaborative governance and multi-stakeholder partnerships were identified as essential for inclusive development, echoing Ansell and Gash (2008) and Emerson et al. (2012).

## Governance and Policy

The findings reveal that governance frameworks for the Just Energy Transition (JET) remain predominantly technocratic, privileging compliance metrics and institutional performance indicators over the lived realities of marginalized actors. This orientation reflects a persistent gap between normative principles of energy justice and their operationalization in policy practice. While distributive and procedural justice are central to transition discourse, their implementation is undermined by fragmented governance structures and the systemic exclusion of informal economies. National, provincial, and corporate entities often operate in siloes, creating incoherent policy application and accountability deficits. These patterns corroborate critiques in the literature that multi-scalar governance failures constrain adaptive capacity and innovation (Traill & Cumbers, 2022; UNDP, 2023). To move beyond rhetorical commitments, governance must embed participatory

mechanisms that recognize hybrid economic systems and institutionalize inclusive decision-making processes. Such reforms are essential for translating justice principles into actionable strategies that safeguard equity during systemic change.

### Social Protection and Resilience

The study underscores the vulnerability of informal actors in coal-dependent communities, who remain excluded from formal social safety nets such as unemployment insurance, health benefits, and pension schemes. This exclusion amplifies socio-economic risks associated with decarbonization, reinforcing poverty and inequality. Yet, the findings also highlight the adaptive resilience of informal economies, manifested through income diversification, rotating savings groups, and informal cooperatives mechanisms that align with literature on grassroots resilience and collective agency (Brown & Sovacool, 2021; Meagher, 2023). However, reliance on community-based coping strategies cannot substitute for structural protections. Energy justice scholarship emphasizes that equitable transitions require integrated social protection frameworks and anticipatory governance models that combine formal safety nets with localized resilience-building programs (Heffron & McCauley, 2018; Sovacool et al., 2021). Policy interventions such as vocational training, microfinance, and entrepreneurial development are critical for enhancing adaptive capacity and enabling informal actors to participate in emerging green value chains. These measures operationalize justice by addressing both structural vulnerability and agency, ensuring that resilience is not left to chance but embedded within institutional design.

### Theoretical Constructs

The findings engage deeply with and extend three theoretical domains: energy justice, stakeholder theory, and informality studies. They reaffirm the triadic principles of energy justice distributional, procedural, and recognition justice while exposing gaps in anticipatory governance, a dimension increasingly recognized as vital for mitigating unintended socio-economic consequences of transition (Sovacool et al., 2021; OECD, 2022). The study also advances stakeholder theory by emphasizing relational engagement and co-creation as normative imperatives for inclusive governance, moving beyond formal representation toward dialogic processes that redistribute agency (Cornwall, 2008; Ansell & Gash, 2008). In relation to informality, the research challenges deficit-based models, positioning informal economies as structurally embedded and adaptive systems rather than transitional anomalies (Roy, 2005; Meagher, 2023). Conceptually, the study introduces hybrid governance and anticipatory planning as theoretical extensions to JET discourse, advocating for governance architectures that are inclusive, context-sensitive, and forward-looking. These contributions respond to emerging calls for pluralistic and resilience-oriented frameworks that harmonize environmental imperatives with socio-economic equity.

## **6.12 Integration and Synthesis**

The thematic findings presented in Chapter Five, and discussed in detail throughout Chapter Six, reveal a complex and interrelated set of dynamics that shape the governance of informal economies within South Africa's coal mining sector during the JET (JET). While each theme offers distinct insights, several cross-cutting patterns and theoretical implications emerge when the findings are considered holistically.

## Cross-Theme Insights

Across all eight themes, a recurring tension emerges between institutional frameworks and the lived realities of coal-dependent communities. Informal economies are consistently portrayed as structurally embedded and economically indispensable, yet they remain marginal in formal planning and stakeholder engagement processes. While corporate management strategies demonstrate developmental intent through enterprise development and training programs, their design and implementation often lack the flexibility required to accommodate the adaptive nature of informal systems. Similarly, Just Energy Transition (JET) initiatives reflect alignment with global sustainability goals, but the social dimensions of transition particularly the risks of exclusion, displacement, and technological disruption are not uniformly addressed.

Stakeholder engagement practices further illustrate this disconnect. Although formal mechanisms such as forums and mapping exercises exist, they are often procedurally robust but substantively limited, failing to incorporate informal actors meaningfully. This exclusion is compounded by power asymmetries and institutional blind spots, shaping whose voices are amplified and whose remain silenced. The future outlook theme reinforces these concerns, emphasizing the need for anticipatory governance and inclusive foresight to mitigate unintended consequences of policy reform and green technology adoption.

The findings on governance and policy deepen this critique by revealing technocratic tendencies that privilege compliance metrics over participatory processes. Fragmentation across governance scales national, provincial, and corporate creates incoherent policy application and accountability gaps, undermining distributive and procedural justice. Similarly, the theme of social protection and resilience highlights structural vulnerabilities: informal actors lack access to formal safety nets, leaving them exposed to transition shocks despite their demonstrated resilience through community-based coping mechanisms. These insights underscore the imperative for integrated social protection frameworks and localized resilience-building programs to operationalize justice beyond rhetoric.

Finally, the theme on theoretical constructs situates these empirical patterns within broader scholarly debates. The study reinforces energy justice principles while extending them through the introduction of anticipatory governance as a critical dimension of transition planning. It advances stakeholder theory by emphasizing relational engagement and co-creation, and challenges deficit-based models of informality by positioning informal economies as adaptive and structurally embedded. Conceptually, the research contributes hybrid governance and anticipatory planning as theoretical innovations, advocating for governance architectures that harmonize environmental imperatives with socio-economic equity.

## Broader Theoretical Implications

The findings contribute to and extend several theoretical domains. First, they reinforce and deepen stakeholder theory (Freeman, 1984) by demonstrating that inclusion must go beyond formal representation to address structural inequalities and relational dynamics. Second, they expand energy justice frameworks (McCauley et al., 2013; Jenkins et al., 2016) by introducing context-specific interpretations of equity, such as the distinction between carbon neutrality and net zero, and the socio-economic risks of green technologies.

Third, the study challenges linear models of development and formalization, supporting more pluralistic and adaptive approaches to sustainability (Meagher, 2013; Roy, 2005). The resilience of informal actors, even in the absence of formal integration, suggests that informal systems possess inherent adaptive capacities that are often overlooked in policy and planning. This insight aligns with resilience theory (Folke et al., 2002) and capabilities approaches (Sen, 1999), which emphasize agency, flexibility, and context-sensitive development.

#### Contribution to Existing Knowledge

This study contributes to existing knowledge by offering a nuanced, empirically grounded account of how informal economies intersect with corporate governance, energy transition planning, and stakeholder engagement in a resource-dependent context. It validates key theoretical constructs while extending them through context-specific insights, particularly regarding the socio-economic implications of decarbonization, the limitations of formalization, and the relational dimensions of stakeholder inclusion.

Importantly, the study challenges dominant narratives that frame informal economies as transitional or problematic. Instead, it positions informality as a legitimate and resilient system that must be recognized and integrated into transition planning. This reframing has implications for both academic discourse and policy design, suggesting that informal actors should be treated not as peripheral beneficiaries but as central stakeholders in shaping equitable futures.

#### Influence of Context on Findings

The unique socio-political and economic context of South Africa's coal mining sector significantly influenced the findings. High unemployment, spatial inequality, and historical patterns of exclusion have shaped the emergence and persistence of informal economies. The legacy of extractive development and uneven access to institutional support further complicates efforts to formalize or integrate informal actors. These contextual factors underscore the importance of locally grounded, culturally sensitive, and historically informed approaches to transition governance.

Moreover, the timing of the study conducted during a period of active policy reform and heightened discourse around the JET provided a dynamic backdrop for stakeholder reflections. The evolving nature of transition planning, coupled with uncertainty about future livelihoods, amplified concerns about exclusion, displacement, and the need for inclusive foresight.

### **6.13 Alignment with Literature**

The overall findings of this study demonstrate substantial alignment with established literature on informal economies, stakeholder engagement, and energy justice. The recognition of informal economic activities such as food vending, waste picking, and subsistence farming as vital to community resilience echoes foundational work by Chen (2012) and De Soto (2000), who emphasize the structural role of informal economies in sustaining livelihoods, particularly in contexts of economic marginalization. In the South African coal mining context, participants such as DM001, AD001, and RC001 described informal actors as essential contributors to local GDP, employment, and social cohesion despite their exclusion from formal planning and procurement systems.

The emphasis on stakeholder inclusion and the uneven implementation of engagement practices resonates with Freeman's (1984) stakeholder theory, which advocates for the integration of diverse voices in decision-making processes. Interviews revealed that while stakeholder mapping and engagement platforms exist (e.g., multi-stakeholder forums, social facilitators), informal actors are often "spoken about but not spoken to," as LN001 noted. This gap reflects broader critiques in the literature about tokenistic engagement and the need for more participatory governance models (Reed et al., 2009; Arnstein, 1969).

In relation to energy justice, the study supports McCauley et al.'s (2013) framework, which foregrounds equity, recognition, and procedural fairness in energy transitions. Participants' concerns about job displacement, exclusion from planning processes, and the need for reskilling initiatives reflect core dimensions of energy justice, particularly in coal-dependent regions undergoing structural change. For example, NM002 and NM001 emphasized the importance of upskilling both employees and community members to participate in renewable energy and critical minerals sectors. These findings align with recent scholarship advocating for just transition policies that are inclusive, locally grounded, and socially responsive (Heffron & McCauley, 2018; Jenkins et al., 2016).

However, this study also extends the existing literature by offering context-specific insights into the intersection of informal economies and the just energy transition in South Africa. The nuanced perspectives captured especially those from informal actors and frontline managers highlight the limitations of formalization narratives and challenge assumptions about technological progress as inherently inclusive. For example, deviant cases such as those presented by TC001 and TC001 illustrate how formalization efforts may inadvertently marginalize informal workers or fail to account for local socio-economic realities. These cases introduce valuable complexity to the broader discourse, suggesting that energy transition strategies must be locally grounded and responsive to informal sector dynamics (Roy, 2005; Simone, 2004). In doing so, the study contributes to a growing body of scholarship that calls for more contextualized, participatory, and justice-oriented approaches to energy transition planning, particularly in the Global South. It underscores the importance of recognizing informal economies not as peripheral or transitional phenomena, but as integral components of community resilience and socio-economic continuity (Brown et al., 2020; Sovacool et al., 2021).

## **6.14 Updated Conceptual Framework**

Based on the empirical findings and theoretical insights discussed in Chapters Five and Six, the original conceptual framework guiding this study has been revised to more accurately reflect the complex, multi-dimensional nature of informal economy governance within the context of South Africa's JET (JET). The updated framework integrates five interrelated domains:

### **Embedded Informal Economies**

Informal economies within coal mining communities are not marginal or transitional phenomena; rather, they constitute structurally embedded components of local socio-economic systems. These economies encompass a diverse array of livelihood strategies including food vending, waste picking, informal transport services, and subsistence agriculture that are essential for household survival and community resilience, particularly in contexts marked by economic precarity and limited formal employment opportunities.

Far from existing in isolation, informal economic activities are deeply interwoven with formal sector operations, creating hybridized economic systems characterized by mutual dependence and functional complementarity. For instance, informal vendors often rely on the purchasing power of mine workers, while waste pickers may operate in proximity to formal industrial waste streams. This interdependence challenges binary distinctions between formal and informal economies and calls for a more nuanced understanding of economic organization in coal-dependent regions.

Recognizing informal economies as structurally integral reframes them not as obstacles to development or transition, but as critical assets in the pursuit of socially just and inclusive energy transitions. Their embeddedness within community life positions them as key stakeholders whose inclusion in transition planning is both ethically imperative and strategically beneficial.

### *Inclusive and Adaptive Management Strategies*

In the context of coal-dependent regions undergoing energy transitions, corporate interventions must be designed and implemented with a high degree of contextual sensitivity and participatory engagement. Conventional approaches often characterized by top-down formalization and standardized development models tend to overlook the nuanced socio-economic realities of informal actors who constitute a significant portion of the local economic landscape.

Interventions such as enterprise development programs, vocational training initiatives, and agricultural support schemes must be tailored to reflect the lived experiences, capacities, and aspirations of informal economy participants. This requires moving beyond rigid formalization paradigms that seek to assimilate informal actors into formal structures, and instead embracing flexible, hybrid models that preserve the adaptive strengths and relational networks inherent in informality.

Moreover, corporate strategies must incorporate robust mechanisms for long-term monitoring and evaluation to ensure sustainability and responsiveness. This includes iterative feedback loops, community-based impact assessments, and adaptive management practices that allow interventions to evolve in alignment with shifting local conditions and stakeholder needs. Ultimately, the effectiveness of corporate engagement in just energy transitions hinges on its ability to recognize informal actors not as passive beneficiaries, but as co-creators of resilient and inclusive economic futures.

### *Socially Responsive Energy Transition Planning:*

Effective energy transition strategies must navigate the complex interplay between environmental objectives such as decarbonization, carbon neutrality, and net-zero commitments and the imperative of socio-economic equity, particularly within coal-dependent regions. A just transition cannot be achieved through a singular focus on environmental metrics alone; it must also account for the diverse livelihood realities of affected communities, including those operating within informal economies.

Incorporating informal actors into transition planning is essential to prevent socio-economic displacement, marginalization, and the erosion of community resilience. These actors often lack formal recognition yet play a vital role in sustaining local economies and social cohesion. Their exclusion risks exacerbating inequality and undermining the legitimacy and effectiveness of transition efforts.

Moreover, transition frameworks must be grounded in local realities and informed by context-specific understandings of sustainability. This includes acknowledging the distinctions between global environmental targets such as carbon neutrality and net-zero and their practical implications at the community level. Additionally, strategies must anticipate and mitigate the disruptive effects of green technologies, which may inadvertently displace informal labor or alter existing socio-economic structures. In summary, a balanced approach to energy transition requires integrative planning that aligns environmental goals with inclusive socio-economic development, ensuring that no community or economic actor is left behind in the pursuit of sustainability.

### *Relational Stakeholder Engagement*

Meaningful stakeholder engagement in the context of just energy transitions must transcend procedural inclusion and tokenistic consultation. While participatory mechanisms are often embedded within policy frameworks, they frequently fail to address the deeper structural power asymmetries that marginalize informal actors and limit their influence over decision-making processes. As such, engagement must evolve into a transformative practice that fosters genuine co-creation and redistributes agency.

This requires the adoption of collaborative governance models that actively empower informal economy participants and other historically marginalized groups. Such models emphasize shared decision-making, mutual accountability, and the co-production of knowledge, thereby challenging hierarchical structures and enabling more democratic and inclusive transition pathways.

Building trust is foundational to this process. It necessitates sustained relational engagement, long-term capacity-building efforts, and the creation of safe spaces for dialogue and negotiation. Trust cannot be engineered through short-term interventions; it must be cultivated through consistent, respectful, and transparent interactions that validate the lived experiences and aspirations of all stakeholders.

Ultimately, moving beyond procedural inclusion toward substantive co-creation is essential for ensuring that energy transitions are not only environmentally sound but also socially just and institutionally legitimate.

### *Anticipatory and Collaborative Governance*

In the context of complex socio-ecological transformations, governance frameworks must evolve to become both anticipatory and collaborative. Future-oriented planning must proactively engage with the resilience capacities embedded within informal economies, while also mitigating the unintended socio-economic consequences that may arise from the deployment of green technologies. This includes recognizing potential disruptions to informal labor markets, shifts in resource access, and the reconfiguration of local economic systems.

To achieve this, transition strategies should integrate foresight mechanisms such as scenario planning, horizon scanning, and participatory futures methodologies that enable stakeholders to anticipate and respond to emerging challenges. These tools facilitate the identification of risks and opportunities associated with technological change, ensuring that interventions are not only reactive but strategically adaptive.

Moreover, inclusive development demands the cultivation of multi-sectoral partnerships that span corporate entities, government institutions, and community-based organizations. Such collaborative arrangements

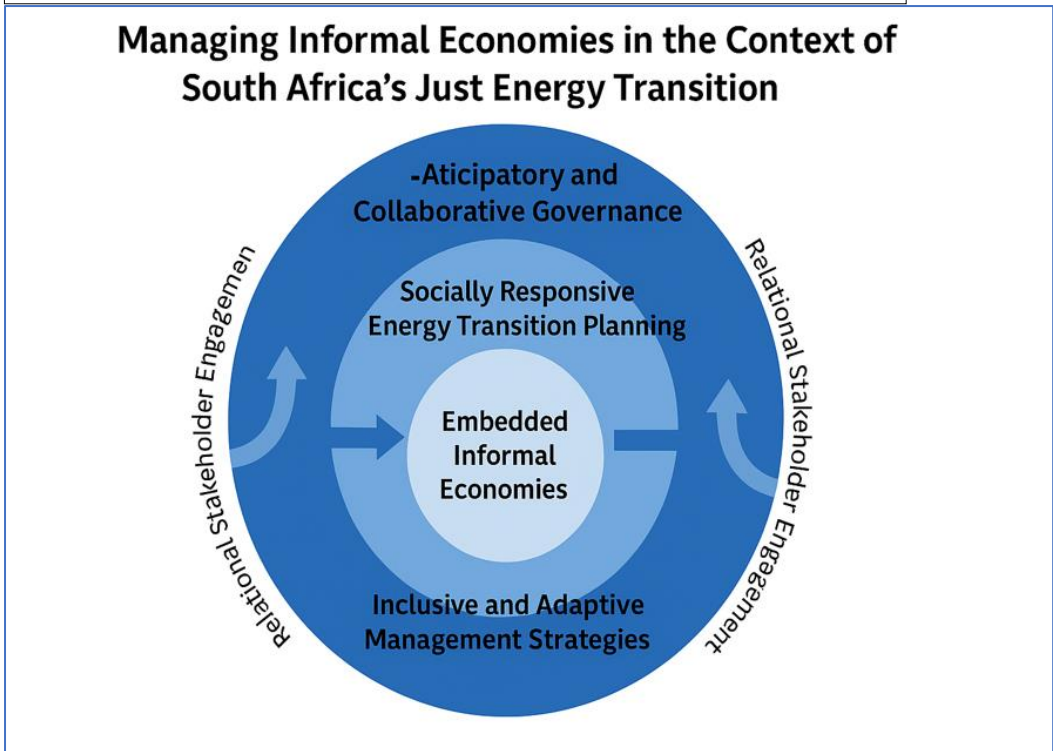
foster shared ownership of transition processes and enhance the legitimacy and effectiveness of governance outcomes. They also enable the pooling of resources, knowledge, and capacities across sectors, thereby strengthening institutional resilience.

Central to this governance model is the embedding of iterative feedback loops that support continuous learning and adaptation. These loops allow for the refinement of policies and practices in response to evolving local conditions and stakeholder input, ensuring that transition pathways remain responsive, equitable, and contextually grounded. Therefore, anticipatory and collaborative governance offers a robust framework for navigating the uncertainties of energy transitions while centering the needs and contributions of informal and marginalized actors.

### Visual Structure of the Updated Framework

This section presents a refined visual representation of the conceptual framework developed through the study's empirical and theoretical engagements. The updated framework synthesizes key insights into the role of informal economies in coal-dependent regions and their integration into just energy transition planning. It reflects a shift from linear, technocratic models toward more dynamic, inclusive, and context-sensitive structures. By visually mapping the interrelations between formal and informal actors, governance mechanisms, and transition pathways, the framework aims to capture the complexity and hybridity inherent in socio-economic systems undergoing transformation. Furthermore, it serves as a heuristic tool for policymakers, practitioners, and researchers to navigate the multidimensional challenges of inclusive transition design, while foregrounding principles of equity, resilience, and co-creation.

Figure 6.1: Conceptual framework for managing informal economies in the context of South Africa's Just Energy Transition



Note. Adapted and developed by the author based on insights from the literature review and thematic synthesis.

### Explanatory and Justification for Updated Conceptual Framework

The revised conceptual framework, Figure 6.1 reflects the complex, multi-layered interactions identified through empirical findings and theoretical synthesis in Chapters Five and Six. It moves beyond the original linear representation to a dynamic, relational model that captures the adaptive nature of informal economy governance within South Africa's JET (JET).

### *Core Components and Interactions*

The updated conceptual framework is structured around five interrelated components that collectively capture the complexity of managing informal economies within South Africa's JET. At its foundation lie informal economies, recognized as structurally embedded and economically indispensable within coal mining communities. These systems form the core of the model and exert reciprocal influence on corporate strategies and stakeholder engagement, which constitute the second layer. Corporate interventions such as enterprise development programs and capacity-building initiatives are designed to support informal actors, while stakeholder engagement mechanisms aim to foster participatory governance. However, empirical findings reveal persistent gaps in inclusivity, underscoring the need for adaptive and relational approaches.

The third layer, socially responsive energy transition planning, integrates environmental imperatives with socio-economic considerations. This component is informed by both corporate strategies and stakeholder engagement practices, highlighting the necessity of aligning technical decarbonization goals with principles of social justice. Finally, anticipatory and collaborative governance occupies the outer layer, representing forward-looking mechanisms that mitigate unintended consequences of technological change and policy reform. Feedback loops across all layers illustrate the iterative nature of learning, adaptation, and co-creation required to achieve a genuinely just transition.

### *Embedded Informal Economies (Core Layer)*

Informal economies are structurally integral to coal mining communities, functioning as critical livelihood systems rather than peripheral activities. These economies comprising food vending, waste picking, and subsistence farming are adaptive, community-embedded, and interdependent with formal sectors. This recognition aligns with Chen (2012) and De Soto (2000), while extending their work by emphasizing hybrid economic linkages and socio-cultural dimensions.

### *Inclusive and Adaptive Management Strategies (Second Layer)*

Corporate interventions such as enterprise development, training, and agricultural support reflect developmental CSR paradigms (Blowfield & Frynas, 2005; Visser, 2008). However, findings reveal sustainability gaps and the limitations of rigid formalization, echoing critiques by Meagher (2013) and Roy (2005). The framework advocates for context-sensitive strategies that preserve informality's adaptive strengths while enabling incremental integration into formal value chains.

### *Relational Stakeholder Engagement (Second Layer)*

Engagement practices must transcend tokenistic consultation (Arnstein, 1969) to address power asymmetries and foster co-creation. This component draws on Freeman's (1984) stakeholder theory and collaborative governance models (Ansell & Gash, 2008), emphasizing relational sensitivity and shared decision-making as prerequisites for inclusive transition planning.

### *Socially Responsive Energy Transition Planning (Third Layer)*

Transition strategies must balance environmental imperatives with socio-economic equity, consistent with energy justice principles (McCauley et al., 2013; Heffron & McCauley, 2018). The framework introduces context-specific insights such as the distinction between carbon neutrality and net-zero, and the socio-economic risks of green technologies, advocating for anticipatory governance to mitigate unintended consequences (Sovacool et al., 2021).

### *Anticipatory and Collaborative Governance (Outer Layer)*

This outer layer represents forward-looking mechanisms that integrate foresight, multi-sectoral collaboration, and iterative learning. It responds to emerging scholarship on socio-technical transitions (OECD, 2022; Brown & Sovacool, 2021), emphasizing proactive measures to safeguard informal livelihoods and promote resilience in post-coal futures.

### *Feedback Loops and Adaptation*

The framework incorporates feedback loops across all layers, illustrating the iterative nature of learning, adaptation, and co-creation. These loops ensure that governance processes remain responsive to evolving socio-economic realities and technological disruptions, reinforcing resilience and equity in transition pathways.

### *Theoretical and Practical Contributions*

**Theoretical:** Extends stakeholder theory and energy justice frameworks by integrating informal economies into transition discourse and introducing anticipatory governance as a critical dimension.

**Practical:** Provides actionable guidance for mining companies and policymakers to design inclusive, adaptive strategies that safeguard informal livelihoods.

**Policy:** Advocates for JET policies that explicitly recognize informal economies, embed participatory governance, and allocate resources for capacity-building and resilience planning.

## **6.15 Justification Based on Findings and Literature**

This section synthesizes the study's empirical findings with the theoretical and conceptual insights reviewed in Chapter Two, providing a critical reflection on how the research outcomes affirm, challenge, or extend existing scholarship. By situating the results within the broader discourse on informal economies, corporate governance, and energy justice, the discussion underscores the relevance of the revised conceptual framework to contemporary debates on South Africa's JET (JET). The aim is to demonstrate the coherence between observed practices and normative principles, while highlighting areas of divergence that signal theoretical and policy gaps. In doing so, this section articulates the study's contribution to advancing knowledge on inclusive transition governance, particularly through its emphasis on the structural embeddedness of informal economies, the limitations of formalization-centric strategies, and the imperative for anticipatory and participatory approaches. These conclusions not only validate key propositions in the literature but also introduce context-specific insights that enrich global understandings of socio-technical transitions in resource-dependent economies.

## Reaffirmation of Literature

The findings strongly corroborate existing scholarship on the structural dependency of South Africa's coal regions on carbon-intensive industries, particularly in Mpumalanga, where coal mining constitutes the backbone of local economies and employment systems. Empirical evidence from this study aligns with projections by Cole et al. (2023) and Nel et al. (2022), which estimate that over 100,000 workers are directly employed in coal-related activities, with thousands more engaged in ancillary services and informal economies. This entrenched dependency is compounded by the spatial concentration of coal infrastructure and the mono-industrial character of mining towns, rendering these communities highly vulnerable to systemic shocks associated with mine closures and power station decommissioning scheduled between 2030 and 2040. The literature consistently emphasizes that such closures, if implemented without robust mitigation strategies, risk precipitating severe socio-economic dislocation, exacerbating poverty, and reinforcing historical patterns of inequality (Patrick et al., 2025; UNDP, 2024). Furthermore, the findings reaffirm the argument advanced by Adom & Simatele (2025) that informal economies often overlooked in transition planning play a critical role in cushioning households against income loss and sustaining local value chains. This convergence between empirical insights and theoretical discourse underscores the urgency of designing inclusive, context-sensitive transition frameworks that integrate informal actors, prioritize livelihood security, and operationalize principles of distributive and restorative justice within the JET paradigm.

## Extension of Knowledge

This study makes a substantive contribution to the scholarly discourse on energy transitions by addressing a critical gap in the literature: the systematic neglect of informal economies within JET (JET) frameworks. Existing research has predominantly focused on formal labor markets, industrial restructuring, and technological decarbonization, often conceptualizing transition justice through the lens of formal employment and institutional governance (Strambo et al., 2024; Makgetla, 2021). By integrating informal economies into the JET discourse, this study reframes informality not as a residual or problematic category but as a structurally embedded and adaptive system that sustains livelihoods in coal-dependent regions. Empirical findings demonstrate that informal actors engaged in activities such as artisanal mining, waste reclamation, and informal retail are not passive recipients of transition outcomes but active agents shaping local resilience strategies. This insight extends theoretical frameworks on energy justice by introducing dimensions of recognition and procedural inclusion that explicitly account for marginalized economic systems (Heffron & McCauley, 2018; Jenkins et al., 2016). Furthermore, the study advances stakeholder theory by emphasizing relational engagement and co-creation with informal actors, challenging tokenistic participation models critiqued in governance literature (Arnstein, 1969; Cornwall, 2008). By foregrounding anticipatory governance and context-sensitive formalization, the research contributes a novel lens for managing socio-technical transitions in resource-dependent economies one that harmonizes environmental imperatives with socio-economic equity. This extension of knowledge not only enriches global debates on just transitions but also provides actionable insights for policy and corporate practice, advocating for inclusive governance architectures that recognize informality as a legitimate and indispensable component of sustainable development.

## Nuanced Agency Perspective

This study introduces a critical reframing of informal actors within the discourse on energy transitions, challenging dominant narratives that depict informality as a burden or passive recipient of structural change. Unlike conventional portrayals that position informal economies as obstacles to modernization, the findings reveal their dynamic, adaptive, and agentic character in shaping community resilience and influencing local governance during periods of socio-technical transformation. Informal actors engaged in activities such as artisanal mining, informal retail, and waste reclamation demonstrate strategic agency by leveraging social networks, mobilizing local resources, and innovating livelihood strategies to navigate the uncertainties of the JET (Nel et al., 2022; Strambo et al., 2024). This agency is not merely reactive but proactive, as informal actors often organize collectively, negotiate access to resources, and participate in hybrid governance arrangements that blur the boundaries between formal and informal institutional spheres. Such practices resonate with emerging scholarship that conceptualizes informality as a site of resilience and entrepreneurial creativity rather than a deficit to be corrected (Roy, 2005; Chen, 2012). By foregrounding these dynamics, the study extends energy justice frameworks to incorporate recognition and procedural inclusion for marginalized economic systems, emphasizing that equitable transitions require acknowledging informal actors as co-creators of development pathways. Failure to integrate this nuanced understanding into policy and corporate strategies risks perpetuating paternalistic interventions and undermining the legitimacy and effectiveness of transition governance.

### **6.16 Contribution to Theory, Practice, and Policy**

This section articulates the multidimensional contributions of the study, situating its insights within theoretical discourse, practical application, and policy development. The research advances conceptual understanding by extending established frameworks such as stakeholder theory, energy justice, and informality studies through the integration of anticipatory governance and context-sensitive formalization into transition planning. At a practical level, the findings offer actionable strategies for mining companies and development practitioners to design inclusive, adaptive interventions that safeguard livelihoods while promoting environmental objectives. From a policy perspective, the study underscores the need for governance architectures that explicitly recognize informal economies as legitimate stakeholders in the JET (JET), embedding participatory mechanisms and distributive justice principles into national and subnational planning processes. By bridging these domains, the study contributes a holistic framework for managing socio-technical transitions in resource-dependent economies, ensuring that decarbonization efforts are not only environmentally sound but also socially transformative.

## Theoretical Contribution

This study introduces a novel, integrative conceptual framework that situates informal economies within the broader theoretical discourse on JET (JET), thereby addressing a critical gap in existing scholarship. While traditional JET literature has largely focused on formal labor markets, technological decarbonization, and institutional governance, this research foregrounds the structural embeddedness and adaptive capacity of informal economies as central to transition dynamics (Makgetla, 2021; Strambo et al., 2024). By emphasizing

procedural and distributive justice alongside multi-scalar governance, the framework extends energy justice theory beyond its conventional triad of distributional, procedural, and recognition justice (McCauley et al., 2013; Heffron & McCauley, 2018) to incorporate anticipatory governance and context-sensitive formalization. This theoretical innovation responds to critiques of tokenistic participation (Arnstein, 1969; Cornwall, 2008) by embedding relational engagement and co-creation with informal actors as normative principles of transition planning. Furthermore, the study enriches understanding of agency in informality, positioning informal actors not as passive beneficiaries but as active co-creators of transition pathways through adaptive strategies, entrepreneurial innovation, and localized governance arrangements (Nel et al., 2022; Roy, 2005). This reconceptualization challenges deficit-based models that frame informality as a problem to be eradicated, advancing a pluralistic and resilience-oriented perspective that aligns with emerging scholarship on socio-technical transitions and inclusive development. In doing so, the research contributes a theoretically robust lens for analyzing the intersection of informality, justice, and governance in resource-dependent economies undergoing structural transformation.

### Practical Contribution

This study offers a suite of actionable recommendations designed to operationalize inclusive transition strategies within coal-dependent regions, bridging the gap between normative principles and implementation realities. At the core of these recommendations is the imperative for mining companies and development organizations to engage informal networks as strategic partners rather than peripheral beneficiaries. This involves embedding informal actors into retraining programs that extend beyond technical upskilling to encompass entrepreneurial development, financial literacy, and adaptive capacity-building critical enablers for participation in emerging green value chains. Furthermore, the research advocates for improved resource access through mechanisms such as microfinance platforms, cooperative procurement models, and localized supply chain integration, thereby reducing structural barriers that perpetuate economic marginalization. A key innovation proposed by this study is the adoption of co-design methodologies, which position informal stakeholders as active contributors to program architecture and decision-making processes. Such participatory approaches not only enhance the contextual relevance and legitimacy of transition initiatives but also foster social ownership, trust, and long-term sustainability. By institutionalizing these practices within corporate social responsibility (CSR) frameworks and multi-stakeholder governance platforms, mining firms and NGOs can transform engagement from transactional compliance into relational collaboration, ensuring that the JET delivers equitable and resilient outcomes for all affected communities.

### Policy Contribution

This study advances the policy discourse on JET (JET) by advocating for governance frameworks that explicitly integrate informal economies as legitimate stakeholders in transition planning. Current JET policies, while emphasizing worker protection and community inclusion, remain predominantly oriented toward formal labor markets and industrial restructuring, thereby neglecting the socio-economic realities of informal actors who constitute a significant share of livelihoods in coal-dependent regions (Cole et al., 2023; Strambo et al., 2024). To address this gap, the research proposes the establishment of dual-formal/informal transition funds designed to finance inclusive development initiatives, alongside capacity-building platforms that equip informal actors with technical, entrepreneurial, and governance competencies necessary for participation in

emerging green sectors. These mechanisms would operationalize distributive and procedural justice principles by ensuring equitable resource allocation and meaningful participation across economic strata.

Furthermore, the study calls for institutional reforms that embed trust-building and accountability into transition governance. This includes the creation of independent oversight bodies tasked with monitoring resource distribution, evaluating program effectiveness, and safeguarding against elite capture a recurrent challenge in resource governance (Mohlakoana et al., 2023). Complementary measures such as participatory budgeting, community scorecards, and grievance redress systems can enhance transparency and foster legitimacy. Critically, these reforms must respect the priorities and knowledge systems of informal actors, moving beyond tokenistic consultation toward co-creation of policy instruments that reflect local socio-economic realities. By institutionalizing these approaches, JET policy can evolve from a technocratic exercise into a socially transformative project that harmonizes environmental imperatives with inclusive development.

### **6.17 Key Take Away & Reflection**

This study underscores the critical importance of integrating informal economies into the strategic frameworks guiding South Africa's just energy transition. The exclusion of informal economic actors from transition planning not only perpetuates existing socio-economic disparities but also compromises the adaptive capacity and long-term resilience of coal-dependent communities. By contrast, the deliberate and explicit inclusion of the informal sector fosters a more equitable, contextually responsive, and socially embedded transition process.

Theoretically, this research contributes to the evolving discourse on just transitions by foregrounding the role of informal economies as both stakeholders and agents of change. It challenges dominant paradigms that prioritize formal institutional actors and instead advocates for a pluralistic approach that recognizes diverse economic realities.

Practically, the findings offer actionable insights for policymakers, industry leaders, and civil society organizations. They highlight the necessity of participatory governance models, inclusive policy design, and localized interventions that reflect the lived experiences of those operating within informal coal economies.

From a policy perspective, the study provides a compelling rationale for the development of integrative frameworks that bridge formal and informal sectors. Such frameworks are essential for achieving socially just, economically viable, and environmentally sustainable outcomes not only in South Africa but also in other coal-reliant economies undergoing similar transitions. Therefore, this research advances a multidimensional understanding of just energy transitions, emphasizing that inclusivity is not merely a normative ideal but a practical imperative for transformative change.

The preceding chapters have engaged in a rigorous exploration of the complex and often overlooked dynamics of informal economies within coal-dependent regions, particularly in the context of South Africa's evolving energy landscape. Through a combination of empirical investigation, theoretical engagement, and policy analysis, this study has illuminated the critical intersections between informality, socio-economic resilience, and the principles of a just energy transition.

The findings presented thus far reveal that informal economic actors are not peripheral to the transition process but are, in fact, central to its success or failure. Their exclusion from formal planning mechanisms risks entrenching structural inequalities and weakening the socio-economic fabric of communities most affected by the decline of coal. Conversely, their inclusion offers a pathway toward more socially embedded, contextually relevant, and ethically grounded transition strategies.

Chapter 7 serves as the culminating synthesis of this inquiry. It distills the core arguments and insights generated throughout the study, situates them within broader scholarly and policy debates, and articulates a set of forward-looking recommendations. These recommendations are directed at policymakers, industry stakeholders, and academic researchers, with the aim of fostering more inclusive and sustainable transition frameworks.

Moreover, this concluding chapter revisits the central research questions, evaluating the extent to which the study has addressed its objectives and contributed to the theoretical and practical advancement of just transition discourse. In doing so, it reflects on the implications of the findings not only for South Africa but also for other coal-reliant economies grappling with similar socio-ecological challenges.

## **6.18 Transition to Chapter 7: Conclusion**

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# CHAPTER SEVEN: CONCLUSION

## 7.1 Introduction

This chapter synthesizes the strategic and theoretical implications of the study on how South African coal mining companies manage informal economies within the context of the Just Energy Transition (JET). It consolidates insights from preceding chapters to provide a coherent conclusion that emphasizes sector-wide dynamics rather than focusing on a single corporate entity. The discussion foregrounds the socio-economic realities of coal-dependent communities and evaluates how findings address the research questions, inform policy recommendations, and contribute to theory and practice.

## 7.2 Answers to Research Questions

The study was guided by four research questions. This section explicitly addresses each question, summarizing the findings and confirming whether the study successfully answered them.

**RQ1: What are the perceptions of management in South African coal mining companies regarding how their organizations manage informal economies in coal-dependent communities during the Just Energy Transition? This question seeks to explore strategic, ethical, and operational dimensions of corporate engagement with informal actors, particularly in regions undergoing structural shifts due to decarbonization and mine closures (Ndong Ntoutoume, 2023; Cole et al., 2023).**

Answer: Based on the findings, this question is addressed as follows:

Coal mining companies in South Africa tend to manage informal economies through a combination of fragmented corporate social responsibility initiatives, limited stakeholder engagement, and sporadic support programs. As Adom & Simatele (2025) explain, these interventions often manifest in enterprise development schemes, community upliftment projects, and occasional training opportunities designed to alleviate socio-economic vulnerabilities in coal-dependent regions. Similarly, Madonsela et.al.,(2025) emphasize that while such measures represent incremental progress toward inclusivity, they remain disconnected from comprehensive Just Energy Transition frameworks, which prioritize procedural justice, distributive equity, and participatory governance.

The absence of integrated strategies reflects a persistent gap between corporate sustainability rhetoric and operational realities, thereby constraining the transformative potential of CSR in addressing systemic inequalities within informal economies. Wolf (2023) and Nsafon et al. (2023) argue that this disconnect underscores the need for a paradigm shift in corporate governance. To achieve meaningful alignment with JET principles, companies must transition from reactive, compliance-driven interventions to proactive, equity-oriented governance models that institutionalize the inclusion of informal actors in decision-making processes (Cornwall, 2008; Ansell & Gash, 2008). This transition requires embedding participatory mechanisms, expanding skills development programs, and creating inclusive procurement frameworks that recognize informal enterprises as legitimate contributors to local economic resilience (Porter & Kramer, 2011; Rogan & Skinner, 2021).

**RQ2: How do managers perceive the socio-economic characteristics and structural drivers of informal economies in coal mining communities? This question investigates demographic,**

**institutional, and livelihood dynamics underpinning informality in mining regions, with reference to spatial inequalities and employment precarity (Etim & Daramola, 2020; Blaauw et al., 2021).**

Answer: Based on the findings, this question is addressed as follows:

The findings indicate that informal economies in coal-dependent regions demonstrate a significant degree of adaptive capacity, enabling them to respond to structural and market disruptions with resilience. As Etim & Daramola (2020) observe, these economies are characterized by flexible organizational forms and localized knowledge systems that allow actors to sustain livelihoods despite systemic constraints. Blaauw et al. (2021) further highlights that participation within these economies is often gendered, with women disproportionately engaged in low-barrier activities such as food vending and childcare services, reflecting broader patterns of socio-economic vulnerability.

Moreover, the persistence of informality is underpinned by structural drivers that exacerbate economic precarity. High unemployment rates, spatial inequalities rooted in historical patterns of resource allocation, and restricted access to formal credit markets collectively reinforce dependence on informal income-generating activities (Adeola et al., 2019; Rogan & Skinner, 2021). These structural conditions not only perpetuate informality but also limit opportunities for upward mobility, thereby entrenching socio-economic marginalization within coal-dependent communities.

The adaptive nature of informal economies, while indicative of resilience, should not obscure the systemic barriers that constrain their development potential. Addressing these challenges requires integrated policy interventions that combine inclusive financial mechanisms, spatially targeted development programs, and gender-responsive strategies to enhance equity and participation in transition planning (Fatima & Elbanna, 2023; UNDP South Africa, 2024).

**RQ3: How do managerial perspectives on CSR and stakeholder engagement practices influence the management of informal economies? This inquiry examines whether CSR initiatives and participatory governance mechanisms are inclusive of informal actors and contribute to sustainable development outcomes (Fatima & Elbanna, 2023; UNDP South Africa, 2024).**

Answer: Based on the findings, this question is addressed as follows:

Corporate social responsibility (CSR) initiatives and stakeholder engagement practices exert a measurable influence on the management of informal economies, albeit in a limited and often fragmented manner. Adom & Simatele (2025) argue that CSR programs have introduced mechanisms such as community forums and enterprise development schemes, which create opportunities for dialogue and marginal inclusion of informal actors in local development processes. Similarly, Madonsela et al., (2025) emphasize that these interventions, while well-intentioned, remain largely symbolic and fail to institutionalize participatory governance structures.

Despite these efforts, informal actors continue to experience systemic exclusion from formal decision-making platforms, a trend that undermines the principles of procedural justice and distributive equity central to the Just Energy Transition (Heffron & McCauley, 2018; Jenkins et al., 2016). Wolf (2023) and Nsafon et al. (2023) contend that this exclusion reflects a deeper governance gap, where stakeholder engagement is treated as

a compliance exercise rather than a transformative process. Consequently, CSR strategies often prioritize reputational gains over substantive empowerment, reinforcing structural inequalities within coal-dependent communities.

To address these shortcomings, scholars advocate for a shift toward participatory governance models that embed informal actors as legitimate stakeholders in transition planning. Cornwall (2008) and Ansell & Gash (2008) argue that inclusive engagement enhances legitimacy, fosters trust, and improves policy responsiveness. This requires moving beyond tokenistic consultation toward co-creation frameworks that integrate informal economies into procurement systems, skills development programs, and long-term sustainability strategies (Porter & Kramer, 2011; Rogan & Skinner, 2021). Such an approach would not only strengthen social cohesion but also align corporate practices with the normative imperatives of energy justice.

**RQ4: To what extent do current management practices align with principles of environmental justice and the goals of a Just Energy Transition? This question evaluates the normative coherence of corporate strategies with equity-focused models, including distributive, procedural, and restorative justice (Agbaitoro & Ekhaton, 2025; Nsafon et al., 2023).**

Answer: Based on the findings, this question is addressed as follows:

The findings suggest that current management practices within South Africa's coal mining sector exhibit only partial alignment with the principles of environmental justice. While companies have implemented decarbonization strategies and integrated environmental, social, and governance (ESG) frameworks into their operational models, these efforts primarily emphasize technical compliance and carbon reduction rather than holistic justice-oriented outcomes. As Heffron & McCauley (2018) argue, environmental justice extends beyond environmental performance to encompass procedural fairness, recognition, and distributive equity dimensions that remain underdeveloped in corporate transition strategies.

Jenkins et al. (2016) reinforce this perspective by highlighting that procedural justice requires inclusive governance structures that enable marginalized actors, including those in informal economies, to participate meaningfully in decision-making processes. However, empirical evidence indicates that informal stakeholders continue to experience systemic exclusion from formal planning platforms, thereby undermining the normative goals of a Just Energy Transition (Wolf, 2023; Nsafon et al., 2023). This exclusion perpetuates socio-economic vulnerability and limits the transformative potential of transition frameworks, which risk reproducing existing inequalities rather than dismantling them.

To achieve substantive alignment with environmental justice principles, coal mining companies must adopt governance models that institutionalize recognition and participatory engagement. Cornwall (2008) and Ansell & Gash (2008) emphasize that inclusive decision-making enhances legitimacy, fosters trust, and improves policy responsiveness in complex socio-technical transitions. Embedding these principles into corporate strategies requires moving beyond compliance-driven decarbonization toward equity-oriented approaches that integrate informal actors into procurement systems, skills development programs, and long-term sustainability planning (Porter & Kramer, 2011; Rogan & Skinner, 2021). Such measures would not only advance distributive and procedural justice but also strengthen the resilience and adaptive capacity of coal-dependent communities during the transition to low-carbon economies.

### 7.3 Validation of Propositions

The propositions advanced in Chapter Three were rigorously examined against empirical findings and theoretical insights generated through this study. Each proposition is discussed below to demonstrate its validity and relevance within the context of South Africa's Just Energy Transition (JET).

**Proposition 1:** CSR practices in South African coal mining companies predominantly reflect instrumental and compliance-based logics, with limited integration of equity-focused models. Ndong Ntoutoume (2023) and Serfontein-Jordaan & Dlungwane (2022) argue that CSR frameworks in the mining sector often prioritize regulatory adherence and reputational management over transformative social inclusion. The findings of this study corroborate these claims, revealing that CSR initiatives remain fragmented and reactive, lacking systemic integration into JET governance structures. This pattern underscores a persistent gap between corporate sustainability rhetoric and operational realities, thereby limiting the potential for CSR to advance distributive and procedural justice in coal-dependent communities.

**Proposition 2:** Informal economies in communities reliant on coal are inherently adaptive and play a critical role in sustaining local livelihoods; however, they remain marginal in corporate sustainability planning, creating a disconnect between community needs and corporate strategies. Adeola et al. (2019) and Blaauw et al. (2021) emphasize that informal economies function as resilience mechanisms, providing income and essential services in contexts of structural unemployment and economic precarity. Empirical evidence from this study reinforces this perspective, demonstrating that informal actors exhibit flexibility and innovation in response to socio-economic shocks. Nevertheless, their exclusion from formal transition planning perpetuates systemic inequalities and undermines the legitimacy of corporate sustainability strategies.

**Proposition 3:** Effective and inclusive stakeholder engagement particularly with informal actors enhances the ethical legitimacy, social impact, and adaptive capacity of CSR initiatives in the context of energy transitions. Wolf (2023) and Nsafon et al. (2023) contend that participatory governance models are essential for fostering trust, accountability, and co-creation in transition processes. The findings validate this proposition by illustrating that tokenistic engagement practices fail to deliver substantive inclusion, whereas dialogic and collaborative approaches strengthen social cohesion and improve policy responsiveness. Embedding informal actors within stakeholder engagement frameworks is therefore critical for operationalizing the principles of energy justice and achieving equitable transition outcomes.

### 7.4 Policy and Practice Recommendations

The recommendations presented below are firmly grounded in the empirical findings of this study and aligned with contemporary scholarship on energy justice, stakeholder engagement, and inclusive development. They aim to operationalize the principles of equity, recognition, and procedural fairness within South Africa's Just Energy Transition (JET) framework.

#### *Integrate Informal Actors into Transition Planning*

Inclusive transition governance requires the systematic incorporation of informal economic actors into planning processes through participatory forums and stakeholder mapping exercises. Literature on

participatory governance emphasizes that meaningful inclusion enhances legitimacy and fosters social cohesion (Cornwall, 2008; Gaventa, 2006). Empirical evidence from this study revealed that informal actors remain largely excluded from formal engagement platforms, reinforcing structural inequalities. Therefore, proactive engagement strategies such as community forums and co-design workshops are essential for ensuring procedural justice and mitigating socio-economic displacement (McCauley et al., 2013; Heffron & McCauley, 2018).

#### *Expand Skills Development Programs for Informal Workers*

Skills development initiatives must extend beyond formal employees to encompass informal workers, equipping them with competencies relevant to emerging sectors such as renewable energy, biodiversity conservation, and circular economy practices. Research underscores the transformative potential of vocational training in fostering resilience and adaptive capacity during socio-technical transitions (Folke et al., 2002; Sachs, 2015). Findings from this study indicate that informal actors lack access to structured training pipelines, limiting their ability to participate in green value chains. Partnerships with Technical and Vocational Education and Training (TVET) institutions and NGOs can facilitate accredited, context-sensitive programs that bridge this gap (Ansell & Gash, 2008).

#### *Develop Inclusive Procurement Frameworks*

Corporate procurement systems should be redesigned to accommodate informal service providers, thereby promoting local economic participation, and reducing barriers to entry. Evidence from this study highlights the exclusion of informal traders and micro-enterprises from supply chains due to stringent compliance requirements. Inclusive procurement aligns with stakeholder theory, which advocates for equitable distribution of economic opportunities among all affected actors (Freeman, 1984). Mechanisms such as simplified registration processes, preferential procurement quotas, and cooperative aggregation models can enhance accessibility and foster economic integration (Porter & Kramer, 2011; Blowfield & Frynas, 2005).

#### *Strengthen Social Protection Measures*

The absence of social safety nets for informal workers exacerbates vulnerability during transition periods. Empirical findings revealed significant gaps in healthcare access, housing security, and income protection for informal actors. Literature on energy justice and social policy emphasizes that distributive equity is a cornerstone of just transitions (Heffron & McCauley, 2018; Jenkins et al., 2016). Therefore, multi-scalar interventions combining state-led welfare programs with corporate-supported initiatives are necessary to safeguard livelihoods and enhance resilience in coal-dependent communities.

#### *Foster Multi-Stakeholder Governance Models*

Effective governance of energy transitions requires collaborative frameworks that integrate corporate actors, government institutions, civil society, and informal stakeholders. This study identified fragmented institutional coordination and weak engagement mechanisms as critical barriers to inclusive transition planning. Collaborative governance models, as theorized by Ansell & Gash (2008), emphasize trust-building, shared accountability, and iterative learning as prerequisites for sustainable outcomes. Embedding feedback loops and participatory decision-making processes within governance structures can ensure responsiveness to

evolving socio-economic realities and reinforce the legitimacy of transition strategies (Dryzek, 2000; Sovacool et al., 2021).

## **7.5 Principal Theoretical Conclusions**

This study confirms that informal economies in coal-dependent regions are not peripheral or transitional, but structurally embedded and economically indispensable. The empirical findings reinforce foundational theories of informality (Chen, 2012; De Soto, 2000), demonstrating that informal actors play a critical role in sustaining livelihoods, fostering resilience, and contributing to local value chains. The study also validates stakeholder theory (Freeman, 1984) by illustrating the ethical and strategic necessity of engaging all affected actors, including those operating outside formal institutional frameworks.

Furthermore, the research affirms energy justice principles (McCauley et al., 2013; Heffron & McCauley, 2018), particularly the importance of procedural fairness, recognition, and distributive equity in transition planning. The distinction made by participants between carbon neutrality and net-zero targets reflects a pragmatic recalibration of global sustainability goals to local socio-economic realities. The study also highlights the socio-economic risks posed by green technologies, such as the displacement of informal workers, thereby reinforcing the need for anticipatory governance and inclusive foresight.

## **7.6 Research Contribution**

### **7.6.1 Theoretical Contribution**

This study makes a substantive theoretical contribution to the evolving discourse on sustainable development, corporate responsibility, and informal economy integration within the context of energy transitions. Grounded in empirical data from coal-dependent communities in South Africa, the research responds directly to the study's central questions concerning how informal economies are managed by mining companies and how they can be meaningfully integrated into Just Energy Transition (JET) frameworks.

#### *Reconceptualizing Informal Economies in Transition Frameworks*

The study challenges conventional development theory that often marginalizes informal economies as peripheral, transitional, or problematic. Instead, it positions informal economic participants such as artisanal miners, informal traders, and community-based service providers as central to the socio-economic resilience of mining communities. This reframing contributes to a more inclusive understanding of economic participation in transition contexts, extending the work of Chen (2012), De Soto (2000), and Roy (2005) by emphasizing the structural embeddedness and adaptive capacity of informal systems. It also introduces a pluralistic lens that recognizes informality as a legitimate and enduring feature of local economies, particularly in the Global South.

#### *Corporate Sustainability as a Multidimensional Construct*

The research expands the theoretical boundaries of corporate sustainability by emphasizing the need for mining companies particularly COMXX to integrate social equity and economic inclusion into their environmental strategies. It confirms and extends stakeholder theory (Freeman, 1984) by demonstrating that corporate actors must engage with both formal and informal stakeholders to achieve legitimacy, responsiveness, and long-term developmental impact. The study introduces a relational and participatory

dimension to corporate governance, advocating for co-creation, trust-building, and adaptive management as essential components of sustainability in resource-dependent economies.

### *Just Energy Transition as a Holistic Development Paradigm*

The study contributes to the conceptual development of the Just Energy Transition by theorizing it as a multidimensional construct that encompasses environmental justice, socio-economic transformation, and participatory governance. It challenges narrow interpretations of JET focused solely on decarbonization and introduces a broader framework that includes informal economy integration, anticipatory governance, and community empowerment. This theoretical expansion aligns with and extends energy justice literature (McCauley et al., 2013; Heffron & McCauley, 2018), offering a context-sensitive model for transition governance that is responsive to the lived realities of coal-dependent communities.

### *Integration with Research Objectives*

These theoretical contributions directly address the study's research objectives by:

- Illuminating the structural role of informal economies in coal mining regions.
- Evaluating the effectiveness and limitations of corporate management strategies.
- Advancing a more inclusive and socially responsive interpretation of the Just Energy Transition.
- Proposing governance models that center informal actors as co-creators of transition pathways.

In doing so, the study not only validates key propositions in the literature but also introduces context-specific insights that enrich global understandings of socio-technical transitions in resource-dependent economies.

## **7.6.2 Methodological Contribution**

The study adopted a qualitative case study design situated within an interpretivist paradigm, a methodological stance widely recognized as suitable for examining complex, socially constructed phenomena (Creswell & Poth, 2018; Schwandt, 1994). This approach facilitated deep engagement with participants' perspectives, enabling the exploration of nuanced socio-economic dynamics embedded in coal-dependent communities. The interpretivist orientation prioritizes meaning-making and contextual understanding, which is essential for analyzing informal economies within transition frameworks (Denzin & Lincoln, 2011).

To enhance the credibility and rigor of the research, multiple validation strategies were employed. Triangulation across data sources and participant roles strengthened confirmability by corroborating findings from diverse perspectives (Lincoln & Guba, 1985). Reflexive journaling was integrated throughout the research process to document interpretive decisions and mitigate researcher bias, while member checking allowed participants to review and validate emerging interpretations, thereby reinforcing trustworthiness and authenticity (Nowell et al., 2017; Tracy, 2010).

### *Contextualized Case Study Approach*

The research adopted a qualitative case study approach situated within an interpretivist paradigm, which is widely recognized as appropriate for investigating complex, socially embedded phenomena (Creswell & Poth, 2018; Yin, 2018). This design facilitated a nuanced understanding of sustainability strategies and their socio-economic implications in coal-dependent regions. By focusing on a specific organizational and community

context, the case study method enabled the integration of multiple data sources, including corporate documentation, policy frameworks, and stakeholder narratives, thereby providing a holistic perspective on transition processes (Stake, 2005; Merriam & Tisdell, 2016). Such an approach is particularly effective for capturing the interplay between informal economies and formal corporate structures, as it prioritizes depth and contextual sensitivity over breadth (Denzin & Lincoln, 2011).

### Multi-Level Analytical Framework

The study employed a multi-level analytical lens to examine interactions across macro (policy), meso (corporate), and micro (community) domains. This framework allowed for the identification of systemic gaps and opportunities in governance, stakeholder engagement, and socio-economic inclusion. Multi-level analysis is increasingly advocated in sustainability research for its capacity to synthesize insights across scales and reveal interdependencies between institutional, organizational, and grassroots dynamics (Biesbroek et al., 2014; Cash et al., 2006). By situating findings within these interconnected layers, the study generated a comprehensive understanding of transition governance and its implications for informal economies.

### Policy-Oriented Inquiry

The research adopted a policy-oriented stance, linking empirical observations to actionable recommendations. This approach aligns with calls for applied qualitative research that bridges theoretical discourse and practical implementation in complex governance contexts (Patton, 2015; Flyvbjerg, 2006). By grounding recommendations in empirical evidence, the study contributes to both scholarly debates on energy justice and stakeholder theory and to the design of inclusive transition strategies for coal-dependent regions.

Collectively, these methodological choices enhanced the rigor, relevance, and inclusivity of the research. They offer a replicable model for future studies seeking to integrate corporate strategy, informal economy governance, and equitable development within socio-technical transition frameworks (Nowell et al., 2017; Tracy, 2010).

### Contextual Vulnerability of Coal-Dependent Communities

The findings underscore the pronounced socio-economic vulnerability of communities historically reliant on coal mining, particularly in provinces such as Mpumalanga and Limpopo regions that have experienced significant structural dependence on carbon-intensive industries (Marais et al., 2021; Cole et al., 2023). These areas are characterized by escalating unemployment rates, diminishing formal employment opportunities, and an increasing reliance on informal economic activities, including small-scale trading, waste reclamation, and subsistence services (Adom & Simatele, 2025; Rogan & Skinner, 2021).

Rather than viewing these informal practices as peripheral or transitional, the study positions them as structurally embedded and adaptive responses to systemic economic displacement precipitated by mine closures and declining coal demand (Meagher, 2013; Roy, 2005). This interpretation aligns with scholarship that conceptualizes informality as a legitimate and resilient economic system, capable of sustaining livelihoods and fostering community resilience in contexts of industrial restructuring (Chen, 2012; De Soto, 2000). By foregrounding the embeddedness of informal economies, the research challenges deficit-based

narratives and advocates for their integration into inclusive transition planning frameworks (Heffron & McCauley, 2018; Jenkins et al., 2016).

### Informal Economies as Mechanisms of Resilience in Coal-Dependent Regions

Empirical evidence from this study demonstrates that informal economies have evolved as critical resilience mechanisms within coal-dependent communities, particularly in contexts marked by declining formal employment and inadequate state support. These systems function as adaptive socio-economic structures that provide income, essential services, and social cohesion in environments where formal economic frameworks are eroding (Meagher, 2013; Rogan & Skinner, 2021). Rather than being peripheral or transitional, informal economic activities such as small-scale trading, waste reclamation, and subsistence services are structurally embedded responses to systemic economic displacement triggered by mine closures and the contraction of coal-related industries (Chen, 2012; De Soto, 2000).

This interpretation aligns with resilience theory, which emphasizes the capacity of social-ecological systems to absorb shocks and reorganize while maintaining core functions (Folke et al., 2002). Informal economies exemplify this adaptive capacity by leveraging localized knowledge, flexible organizational forms, and community networks to sustain livelihoods under conditions of structural uncertainty (Roy, 2005; Hart, 2009). Consequently, recognizing and supporting these actors within Just Energy Transition (JET) frameworks is imperative for promoting distributive and procedural justice, as advocated by energy justice scholarship (Heffron & McCauley, 2018; Jenkins et al., 2016). Integrating informal economies into long-term development strategies not only mitigates socio-economic vulnerability but also enhances the legitimacy and inclusivity of transition governance (Cornwall, 2008; Ansell & Gash, 2008).

### Governance Gaps and Stakeholder Complexity in Coal Transition Zones

The study by Marais et al. (2021) and Hickey & Mohan (2004) reveal persistent governance deficits within coal transition contexts, characterized by fragmented institutional coordination, limited local government capacity, and inadequate engagement with marginalized stakeholders, particularly those operating in informal economies. These challenges are deeply rooted in the historical legacy of extractive governance models that prioritized resource exploitation over community development, thereby entrenching structural inequalities and limiting participatory decision-making.

Such governance gaps underscore the necessity for multi-stakeholder frameworks that integrate corporate actors, informal economy participants, local authorities, and civil society organizations into transition planning processes. Ansell & Gash (2008) and Cornwall (2008) emphasize that inclusive, dialogic approaches enhance legitimacy, foster trust, and improve policy responsiveness in complex socio-technical transitions. Empirical findings from this study align with these perspectives, indicating that the absence of participatory mechanisms exacerbates socio-economic vulnerability and undermines the distributive and procedural justice principles central to Just Energy Transition (JET) frameworks, as highlighted by Heffron and McCauley (2018) and Jenkins et al. (2016).

By bridging macro-level imperatives of decarbonization with micro-level realities of coal-dependent communities, this research contributes a context-sensitive understanding of transition governance. Sovacool

et al. (2021) and Biesbroek et al. (2014) advocate for adaptive, multi-scalar strategies that embed feedback loops and iterative learning to address systemic gaps and ensure that informal actors are recognized as co-creators of transition pathways. Such an approach is critical for advancing equity-oriented development and mitigating the socio-economic risks associated with energy transitions in resource-dependent economies.

## **7.7 Practical Implications of the Research Conclusions**

The findings of this study underscore the critical importance of embedding informal economies within the strategic planning and implementation of South Africa's Just Energy Transition (JET), particularly in coal-dependent regions. Jenkins et al. (2016) and Heffron and McCauley (2018) argue that equitable transitions require distributive and procedural justice, which cannot be achieved without recognizing the socio-economic role of informal actors. Based on this premise, the following actionable recommendations are proposed for key stakeholder groups:

### **1. For Managers and Decision-Makers**

Institutionalizing engagement with informal economies is essential. Freeman (1984) emphasizes that stakeholder theory obliges organizations to include all affected actors in decision-making processes. Accordingly, companies should develop internal frameworks that formally recognize informal traders and micro-enterprises as legitimate contributors to local economic development. Furthermore, expanding skills development programs to encompass informal workers is vital for building adaptive capacity in emerging green sectors such as renewable energy and circular economy practices (Folke et al., 2002; Sachs, 2015). Establishing inclusive stakeholder forums, as advocated by Ansell and Gash (2008), can foster trust and co-creation, while leveraging procurement systems to prioritize local and informal suppliers aligns with shared value principles (Porter & Kramer, 2011).

### **2. For Policy-Makers and Regulators**

Policy coherence between national JET frameworks and local development plans is imperative. Cornwall (2008) stresses that participatory governance enhances legitimacy and responsiveness. Simplified formalization pathways should be introduced to integrate informal actors without imposing prohibitive compliance burdens (Chen, 2012; De Soto, 2000). Additionally, expanding social protection measures such as healthcare and unemployment benefits addresses distributive justice concerns central to energy transition literature (Heffron & McCauley, 2018). Investments in enabling infrastructure, including market spaces and digital access, further strengthen the resilience of informal economies (Rogan & Skinner, 2021).

### **3. For Civil Society and Development Agencies**

Community-led transition planning should be prioritized to ensure that informal workers' voices are represented in governance processes (Cornwall, 2008). Capacity-building initiatives, including legal support and advocacy training, can empower marginalized actors to engage effectively with institutional stakeholders (Meagher, 2013). Finally, collaborative monitoring and evaluation frameworks involving academic institutions and local governments are essential for generating evidence-based insights and informing adaptive policy responses (Sovacool et al., 2021).

These recommendations are grounded in the study's core objective: to advance a Just Energy Transition that is environmentally sustainable, socially inclusive, and economically equitable. By operationalizing these

strategies, stakeholders can mitigate the risk of exacerbating existing inequalities and instead transform the transition into a catalyst for inclusive development in South Africa's coal-dependent regions.

## **7.8 Limitations of the Research**

This study offers valuable insights into the integration of informal economies within South Africa's Just Energy Transition (JET); however, several limitations warrant acknowledgment. These limitations do not compromise the validity of the findings but highlight areas requiring caution and further scholarly inquiry.

### **Scope and Generalizability**

The research was context-specific, focusing on coal-dependent communities in Mpumalanga and Limpopo. As Marais et al. (2021) note, the socio-political and economic dynamics of South Africa's coal sector are unique, which constrains the generalizability of findings to other regions or countries undergoing similar transitions. Broader applicability requires contextual adaptation to account for diverse governance and institutional frameworks.

### **Methodological Constraints**

The study employed a qualitative case study approach, which, while appropriate for capturing depth and contextual nuance, inherently limits causal inference and statistical generalization (Creswell & Poth, 2018; Yin, 2018). Although document analysis and secondary sources were utilized, these methods may have restricted the ability to capture real-time community perspectives and informal sector dynamics, which are often fluid and poorly documented (Chen, 2012).

### **Data Limitations**

Access to comprehensive and up-to-date data on informal economic activities remains a significant challenge. Informal economies are typically underreported, leading to potential gaps in analysis (Meagher, 2013). Furthermore, organizational data, while informative, may reflect institutional priorities rather than community-level realities, echoing concerns raised by Rogan & Skinner (2021) regarding representational bias in informal economy research.

### **Researcher Positionality and Bias**

As Denzin & Lincoln (2011) argue, qualitative research is inherently interpretive, and findings are shaped by the researcher's positionality and theoretical orientation. Despite employing reflexive strategies such as journaling and member checking (Nowell et al., 2017), the framing of informal economies as strategic development actors reflects a normative stance that may differ from regulatory perspectives.

## **7.9 Suggestions for Future Research**

Future studies should adopt participatory and mixed-method approaches to deepen understanding of informal economies and corporate-community dynamics during energy transitions. Jason et al. (2004) emphasize that participatory methodologies enhance credibility and relevance by incorporating community voices as co-researchers. Longitudinal research is also critical for assessing the socio-economic impacts of coal phase-outs over time, as demonstrated by Baron and Bartl (2024) in their analysis of transition outcomes in Germany.

Further inquiry should explore:

**Labour Market Transitions:** Comparative studies on displaced informal workers, as highlighted by Ruppert Bulmer et al. (2021).

**Regional Resilience:** Spatial and institutional readiness for post-mining adaptation (Everingham et al., 2020).

**Inclusive Local Economic Development Models:** Lessons from global initiatives such as Beyond Extraction (Heshusius, 2020).

**Gendered Dimensions:** Ravera et al. (2016) stress the need for gender-responsive policies to address differentiated vulnerabilities.

**Policy Evaluation:** Systematic assessment of JET frameworks and ASM policies to identify gaps and strengthen institutional coordination (Komape, 2024; Presidential Climate Commission, 2021).

#### Evaluation of Policy Implementation and Institutional Coordination

Scholars have argued that future research should critically examine the effectiveness of national and sub-national policy frameworks that aim to support informal economic activities and advance a Just Transition in South Africa's coal-dependent regions. This involves analyzing both the implementation processes and the outcomes of key instruments, including the Artisanal and Small-Scale Mining (ASM) Policy, the National Just Energy Transition (JET) Framework, and municipal Integrated Development Plans (IDPs). Komape (2024) emphasizes the importance of such evaluations for identifying systemic policy gaps and improving institutional coordination, while the Presidential Climate Commission (2021) highlights their role in ensuring that transition strategies remain inclusive and contextually responsive. Similarly, Xaba (2025) underscores the need for adaptive governance mechanisms to address the socio-economic complexities of coal phase-out.

### **7.10 Comparative International Case Studies**

Researchers have also suggested that comparative international case studies are essential for understanding how mining companies engage with informal economies during energy transitions. Sartor (2018), through the Coal Transitions Project, demonstrates that examining six major coal-dependent economies China, India, South Africa, Germany, Poland, and Australia provides valuable insights into how national contexts shape the design and implementation of coal phase-out strategies. These findings reveal that governance models, labor policies, and socio-economic conditions significantly influence transition outcomes. Building on this, scholars argue that comparative analyses can illuminate best practices and divergent approaches, offering a framework for assessing the transferability of lessons and refining corporate strategies to align with local governance structures, labor market dynamics, and community needs.

#### **Comparative Mining Studies for future research on informal economies, sustainability, and Just Energy Transitions in the coal mining sector**

1. *Coal Transitions Project – Comparative Case Studies (China, India, South Africa, Germany, Poland, Australia)*

Future research could benefit from comparative international studies that examine how coal-dependent economies are navigating the complexities of energy transition. For example, the Coal Transitions Project, conducted by IDDRI and Climate Strategies, offers a series of in-depth case studies across six major coal-consuming countries China, India, South Africa, Germany, Poland, and Australia. This body of work provides valuable insights into how diverse policy frameworks, labour market responses, and socio-economic conditions influence the pace and equity of coal phase-outs. It highlights the importance of governance models and institutional capacity in shaping transition outcomes, offering a useful comparative lens for scholars and practitioners seeking to contextualize South Africa's experience within a broader global framework (IDDRI & Climate Strategies, 2019).

#### *2. World Bank – Global Perspective on Coal Jobs and Labor Transition*

Further research should explore the global implications of coal phase-outs on employment and local economic structures, particularly in relation to informal labour markets. The World Bank (2021) provides a comparative analysis of countries at varying stages of coal transition, offering valuable insights into how labour displacement especially among informal workers is being managed. The report emphasizes the need for context-sensitive policy responses and institutional frameworks that can mitigate socio-economic disruptions while promoting inclusive development (World Bank, 2021).

#### *3. Comparative Capacity of Global Mining Regions to Transition Post-Mining*

Future studies should consider spatial and institutional factors that influence the capacity of mining regions to transition post-closure. A global scan conducted by the University of Queensland and the University of Göttingen introduces a conceptual framework using geospatial and socio-economic indicators to assess regional resilience. The study compares coal regions in South Africa, the USA, and Europe, offering a methodological foundation for evaluating transition readiness and identifying context-specific challenges (Everingham et al., 2020).

#### *4. “Beyond Extraction” – Latin America Case Study (Brazil, Chile, Peru)*

Future research should examine how mining companies can foster inclusive local economic development through strategic partnerships and ecosystem-based approaches. The Beyond Extraction program implemented by the Inter-American Development Bank (IDB), Anglo American, and TechnoServe provides a regional case study from Brazil, Chile, and Peru. The initiative focused on enterprise development, workforce training, and value chain integration to promote sustainable livelihoods in mining communities. It offers practical insights into how mining-led interventions can support informal and small-scale economic actors, strengthen local institutions, and contribute to long-term socio-economic resilience (Heshusius, 2020).

#### *5. Managing Energy, Economic, and Environmental Transition – India, South Africa, USA*

Comparative analyses of subnational transition strategies in coal-dependent countries underscore the critical role of governance, infrastructure repurposing, and workforce development in facilitating equitable energy transitions. Emphasizing the importance of localized, context-specific approaches, such studies highlight how tailored policy mechanisms and stakeholder engagement can enhance the effectiveness and inclusivity of transition processes (Jain, 2024).

## 6. *Responsible Mining in Latin America and the Caribbean*

A recent regional assessment by the Responsible Mining Foundation evaluates how mining companies operating in Latin America address key environmental, social, and governance (ESG) challenges, including their engagement with informal economic actors. The study offers a benchmark for responsible mining practices in the region, emphasizing the importance of transparent stakeholder engagement and the consistent application of corporate ESG commitments at the mine-site level (Responsible Mining Foundation, 2020).

### 7.11 Final Synthesis and Conclusion

This research demonstrates that informal economies are deeply embedded within South Africa's coal mining regions, encompassing a diverse range of livelihood strategies such as artisanal and small-scale mining (ASM), informal trading, waste collection, unregulated transport services, and community-based subsistence agriculture. Despite their socio-economic significance, these activities remain largely excluded from formal transition planning and continue to face persistent governance and developmental challenges. Adom and Simatele (2025) observe that regulatory ambiguity particularly concerning informal mining practices such as those involving zama zamas has created tensions between law enforcement priorities and the imperative for inclusive economic participation. Abdel Nabi (2025) further highlights that these operations pose severe environmental and occupational hazards, including land degradation, water contamination, and frequent accidents. At the same time, FinMark Trust (2025) notes that informal workers remain systematically excluded from labor protections, social security systems, and participatory governance mechanisms.

The findings underscore the urgent need for policy makers and institutional actors to adopt inclusive, context-sensitive, and justice-oriented approaches to transition governance. Weak institutional capacity and fragmented governance structures, as documented by the South African Human Rights Commission (2016), exacerbate the vulnerability of informal actors, reinforcing the necessity for anticipatory planning, multi-sectoral collaboration, and relational stakeholder engagement. From a theoretical perspective, this study contributes to reconceptualizing informal economies as legitimate and resilient systems, broadens the scope of sustainability discourse to incorporate social equity, and advances the Just Energy Transition as a holistic development paradigm. Practically, it proposes a revised framework for managing informal economies in transition contexts, emphasizing co-creation, adaptive governance, and integrated development planning.

In conclusion, the Just Energy Transition should be understood not merely as a technological shift in energy systems but as a transformative process that redefines livelihoods, governance, and community resilience. The ability of transition strategies to engage informal actors with empathy, innovation, and strategic foresight will be decisive in determining whether the transition delivers inclusive and regenerative outcomes. By embracing informality as a partner in development, South Africa can shape a future that is not only low-carbon but also socially just and economically inclusive fulfilling the broader vision of a sustainable and equitable energy transition.

## APPENDICES

### APPENDIX 1: Semi-structured Interview Guide - Consent Form

I, Girly Angelina Letsipa, am conducting research on **Management of informal economies by South African Coal Mining Companies in the Context of their Just Energy Transition**. Our interview is expected to last for 45 minutes and will help us understand how COMXX manages informal economies and the strategies employed to ensure a just transition to sustainable energy sources. **Your participation is voluntary, and you can withdraw at any time without penalty.**

By signing this letter, you are indicating that you have given permission for:

- The interview to be recorded;
- The recording to be transcribed by a third-party transcriber, who will be subject to a standard non-disclosure agreement;
- Verbatim quotations from the interview may be used in the report, provided they are not identified with your name or that of your organisation;
- The data to be used as part of a report that will be publicly available once the examination process has been completed; and
- All data to be reported and stored without identifiers.

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

Researcher name: Girly Angelina Letsipa

Research Supervisor name: Dr Philip Maxton

Email: 11071363@mygibs.co.za

Email: maxtonp@gibs.co.za

Phone: 0817700899

Phone: +27 11 771 4000

Signature of participant: \_\_\_\_\_

Date: \_\_\_\_\_

Signature of researcher: \_\_\_\_\_

Date: \_\_\_\_\_

## APPENDIX 2: Semi-structured Interview Questions

Section 1	Demographic Information	What is your role within the coal mining company?
		How many years have you been working in the coal mining industry?
		What is the size of the company you work for (e.g., number of employees)?
Section 2	Understanding Informal Economies	How would you define the informal economy in the context of coal mining?
		What types of informal economic activities are most prevalent around your mining operations?
		How do these informal economies impact the local communities?
Section 3	Management Strategies	What strategies does your company currently employ to manage informal economic activities?
		Can you describe any specific programs or initiatives aimed at integrating informal economies into the formal sector?
		How effective do you believe these strategies have been? Please provide examples.
Section 4	Just Energy Transition	How is your company approaching the Just Energy Transition?
		What challenges has your company faced in transitioning to more sustainable energy practices?
		How do you see the role of informal economies evolving as your company moves towards a Just Energy Transition?
Section 5	Stakeholder Engagement	How does your company identify stakeholders? How does your company engage with local communities and stakeholders regarding informal economies?
		What feedback have you received from these stakeholders about your management of informal economies?
		How does your company incorporate stakeholder feedback into its management strategies?
Section 6	Future Outlook	What future plans does your company have for managing informal economies in the context of the Just Energy Transition?
		How do you envision the relationship between formal and informal economies changing in the next 5-10 years?
		What additional support or resources do you believe are necessary to better manage informal economies during this transition?

Section 7	Open-Ended Questions	Are there any other aspects of informal economies or the Just Energy Transition that you believe are important to discuss?
		Do you have any suggestions for improving the management of informal economies by coal mining companies?

## APPENDIX 3: Permission to Conduct Research

Ms Girly Angelina Letsipa

St No: 11071363

1083-15 Olive Grove Crescent

Heritage Hill

Centurion

0157

South Africa

Dear COMXX,

### **Subject: Request for permission to conduct a study in Masters Research on Management of Informal Economies by South African Coal Mining Companies in the Context of Just Energy Transition**

My name is Girly Angelina Letsipa, and I am currently pursuing a Master's degree in Corporate Strategy at the Gordon Institute of Business Science (GIBS), University of Pretoria. As part of the requirements for the completion of my degree, I am conducting a research study focused on **the management of informal economies by South African coal mining companies within the framework of a just energy transition.**

This study aims to investigate how a leading coal mining company, such as COMXX, identifies and engages stakeholders operating within informal economies to promote their inclusion and socio-economic resilience during the global shift toward sustainable energy systems.

Given COMXX' prominent role in the South African coal mining sector and its demonstrated commitment to sustainability and inclusive development, I believe your organization offers critical insights and practical experiences that would significantly enrich the study. I am particularly interested in understanding the strategies and practices employed by COMXX to manage informal economic activities and ensure a just and equitable transition for all affected stakeholders.

I am therefore writing to formally request permission to conduct this research study within your organization. I would be grateful for the opportunity to engage with relevant personnel, access non-confidential documents, and, where appropriate, conduct interviews or site visits, subject to your approval and ethical guidelines.

I am seeking your permission to conduct semi-structured interviews with minimum of 16 employees from various departments involved with stakeholder management, climate change and business development. Each interview will take approximately 30-45 minutes and will be scheduled to minimize disruption with their regular work activities.

The study will strictly adhere to ethical research principles:

1. Participation will be entirely voluntary, and participants may withdraw at any time without penalty.
2. All information collected will remain strictly confidential and anonymized.
3. No specific individuals or positions will be identifiable in any research outputs.
4. Data will be securely stored with appropriate password protection and encryption.
5. A copy of the final research findings will be provided to your organization.

Potential benefits for your organization include:

1. Insights into the scale of COMXX's impact on informal economies
2. Identification of potential implementation challenges before resources are committed.
3. Recommendations for successful integration of informal economies with existing stakeholder management processes
4. Contribution to knowledge about improving management of informal economies monitoring practices.

I kindly request your support in the following areas:

- a) Access to relevant data and reports on COMXX's management of informal economies.
- b) Opportunities to interview key personnel involved in the stakeholder affairs and just energy transition initiatives.
- c) Permission to visit COMXX's facilities to observe and gather firsthand information.

Your assistance will be instrumental in the successful completion of my research, and I am confident that the findings will contribute to the broader understanding of sustainable practices within the coal mining sector. I am available at your earliest convenience to discuss this request further and to provide any additional information you may require. I have attached a copy of interview guide and related ethical document for your review. Should you require additional information, please do not hesitate to contact me or my supervisor Dr Philip Maxton at [maxtonp@gibs.co.za](mailto:maxtonp@gibs.co.za)

Thank you for considering my request. I look forward to the possibility of collaborating with COMXX on this important research project.

Yours sincerely,

Ms. Girly Angelina Letsipa (MPhil Candidate)

Gordon Institute of Business Science

11071363@mygibs.co.za

## APPENDIX 4: List of Codes Used

Number	Codes	
	<b>Informal Economies</b>	
	Type of Informal Economies	Artisanal and Small-Scale Mining (ASM)
		Informal Trading
		Waste Picking
		Unregistered Transport Services
		Subsistence Agriculture
	Structural Embeddedness	Economic Interdependence with Formal Sector
		Gendered Dimensions (women-led vending)
		Spatial Dynamics (proximity to mine gates)
	Challenges	Regulatory Ambiguity
		Environmental Hazards
		Occupational Risks
		Exclusion from Labour Protections
		Social Marginalization
	<b>Corporate Management Strategies</b>	
	CSR and Sustainability Initiatives	Enterprise Development
		Agricultural Support
		Training and Capacity Building
	Formalization Efforts	Licensing and Regulation
		Cooperative Development
		Access to Finance and Markets
	Limitations	Short-termism
		Lack of Monitoring and Evaluation
		Inflexibility of Formalization Models
	<b>Just Energy Transition (JET)</b>	
	Conceptual Framing	Carbon Neutrality vs. Net-Zero
		Environmental Justice
		Socio-Economic Equity
	Risks and Disruptions	Technological Displacement
		Community Vulnerability
	Opportunities	Green Community Enterprises

		Circular Economy Integration
		Renewable Energy Employment Pathways
	<b>Stakeholder Engagement</b>	
	Engagement Practices	Multi-Stakeholder Forums
		Social Facilitators
		Social Facilitators
	Barriers to Inclusion	Tokenistic Participation
		Power Asymmetries
		Invisible Institutional Biases
	Recommendations	Co-Creation and Participatory Governance
		Trust-Building and Relational Engagement
	<b>Governance and Policy</b>	
	Anticipatory Governance	Foresight and Scenario Planning
		Feedback Loops and Iterative Learning
	Collaborative Governance	Multi-Sectoral Partnerships
		Community-Based Decision-Making
	Policy Gaps	Weak Institutional Capacity
		Fragmented Implementation
		Exclusion of Informal Actors
	<b>Social Protection and Resilience</b>	
	Social Safety Nets	Healthcare Access
		Education and Housing
		Labour Protections for Informal Workers
	Community Resilience	Adaptive Capacity
		Informal Innovation
		Local Knowledge Systems
	<b>Theoretical Constructs</b>	
	Energy Justice	Distributional Justice
		Procedural Justice
		Recognition Justice
	Stakeholder Theory	Ethical Obligations
		Strategic Engagement
	Informality Theory	Hybrid Economies

		Legitimacy of Informal Systems
	<b>Future Outlook</b>	
	Vision	Aspirational goals and long-term objectives for JET
		Socio-economic outcomes and inclusive governance.
	Plan	Strategic and operational plans
		Timelines and resource allocation for managing transition risks
	Policy	Suggested policy interventions for governance reforms,
		Capacity building
		Justice integration
	Education and Awareness	Initiatives to enhance public understanding
		Build community capacity,
		Foster behavioral change.

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