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Dedication

This research is dedicated to my late grandfather, Sipho Klaas Methula, who was a constant source of inspiration and always encouraged me to aim higher and pursue my studies dedication passionately and enthusiastically. Your unwavering belief in the power of education continues to guide me, and I will forever be grateful for your love and wisdom. You saw greatness in me before I saw it in myself, and your words of encouragement continue to echo in my heart. Although you are no longer here, your spirit has been with me every step of the way. This accomplishment is as much yours as it is mine. Lala Ngoxolo Thonga Lam.

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Abstract

As a vital non-renewable resource, coal plays a major role in economic growth but frequently presents serious social and environmental problems. Coal mining has changed Schoongezicht, Witbank, Mpumalanga's socioeconomic structure, bringing opportunities and difficulties for the local population. The effects of coal mining on the livelihoods, social structures, and health of Schoongezicht residents are examined in this study, emphasising older people who have been exposed to mining-related changes for an extended period.

Three main goals serve as the foundation for this study: how coal mining affects local livelihoods, how social dynamics in the community are changing, and how mining operations affect health. In-depth interviews were incorporated into the qualitative methodology. Data were triangulated with secondary sources, such as government documents, news articles, and previous research, and participants were chosen using purposive and snowball sampling techniques to capture a range of viewpoints.

According to the findings, although some households have benefited economically from coal mining, the larger community still faces many difficulties. Traditional livelihoods are being undermined, job inequality is rising, and social cohesion is being disrupted. Air and water sources have become contaminated due to environmental degradation, making health problems like respiratory illnesses worse, especially for elderly residents. Furthermore, because mining companies and government institutions are not responding to the health needs of the community, people frequently turn to traditional remedies, which further restricts access to healthcare.

Furthermore, the disturbance of customary means of subsistence and communal cohesiveness highlights the intricate and frequently incongruous consequences of coal mining in the area. This dual reality draws attention to the conflict between the long-term costs suffered by vulnerable populations and the promise of progress.

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LIST OF ABBREVIATIONS AND ACRONYMS

AIDS Acquired Immunodeficiency Syndrome

CSR Corporate Social Responsibility

DFID Department for International Development

GDP Gross Domestic Product

HIV Human Immunodeficiency Virus

IDS Institute of Development Studies

NO_x Nitrogen Oxides

PM Particulate Matter

SLF Sustainable Livelihoods Framework

SO₂ Sulfur Dioxide

STD Sexually Transmitted Diseases

UNCED United Nations Conference on Environment and Development

Chapter 1: Introduction.

1.1. Brief context of the research.

This research focuses on the experiences of coal mining within the community of Schoongezicht, situated in Witbank, Mpumalanga. Witbank, now known as Emalahleni, holds historical significance as a pivotal region in South Africa's coal mining industry (Laisani & Jegede, 2019:1586). The name "Emalahleni," meaning "place of coal," highlights the area's deep-rooted connection to coal mining, dating back to the late 19th century (Laisani & Jegede, 2019:1587). The discovery of coal resources propelled Witbank to a central position in coal production in South Africa, initiating industrialization and urban development in the region. However, this historical narrative is marred by accounts of exploitation, displacement, and marginalization of local communities, as the coal industry prioritized profit over the well-being of people (Laisani & Jegede, 2019:1588).

Coal mining has significantly contributed to South Africa's economy, particularly through job creation. For instance, as of the third quarter of 2023, the mining industry in South Africa provided jobs to 423,000 individuals (Statistics South Africa, 2023). 127 000 of these workers were employed in Mpumalanga (Statistics South Africa, 2023). The potential benefits of these high employment figures are significant. In addition to creating job possibilities, this economic activity has supported ancillary businesses like local service delivery, equipment production, and transportation. Even though these financial gains are noteworthy, they are frequently accompanied by terrible working conditions, exploitative labour practices, and a lack of reinvestment in the areas they impact. Furthermore, the social and environmental consequences of coal mining, including as pollution, health issues, and displacement, usually fall most heavily on rural towns like Schoongezicht.

Coal mining causes socioeconomic problems that go beyond environmental damage and relocation. Affected communities' social cohesion is frequently weakened by mining operations, which upend family structures (Gukurume & Tombindo, 2023:12; Downig, 2011; Patrova & Marinova, 2013; Menon & Varma, 2019; Dovchin & Dovchin, 2023). Families become more fractured, and communities become less resilient because of long workdays, difficult working conditions, and worker migration to mining regions. Furthermore, the vulnerabilities faced by local residents are further compounded by the prevalence of health issues, including respiratory disorders, which are made worse by air pollution associated with mining operations (Sokołowski *et al.*, 2022:83; Pelders & Nelson, 2018; Eller, 1982; Di Marco,

2023; Adator & Li, 2021; Asuamah *et al.*, 2023; Widana, 2019). The proposed study focuses on assessing the socio-economic effects of coal mining on Schoongezicht, offering localized insights into broader repercussions of coal mining activities. Unlike existing research that predominantly focuses on environmental and economic consequences (See Betz, 2015; Finkelman *et al.*, 2017; Chen & Shi, 2021), this study seeks to illuminate the intricate relationship between economic benefits and adverse impacts in Schoongezicht. The study intends to enhance sociological understanding by investigating the experiences of individuals, particularly focusing on issues such as the displacement of rural communities, the disruption of social bonds and community cohesion—issues often overlooked in recent studies.

Previous research in the Witbank area has primarily concentrated on environmental impacts, such as soil degradation and air and water pollution. Studies by Pone *et al.* (2007) and McCarthy (2011) have highlighted significant pollution levels from coal mining activities, adversely affecting local agriculture and public health. Broader research on the socio-economic impacts of coal mining in South Africa has examined employment and economic dependency.

Studies by Marais (2013) and Leonard (2016) have shown that while coal mining provides substantial economic benefits through job creation and local economic development, it also leads to social challenges such as income inequality, poor working conditions, and negative health outcomes for mining communities. Despite this extensive body of research, there has been relatively little investigation into the socio-economic impact of coal mining on rural communities like Schoongezicht. This gap in research is significant, as rural communities often bear the brunt of the social and economic consequences of mining activities, including displacement, loss of livelihoods, and social disintegration. Addressing this gap will provide crucial insights into the impact of coal mining on local communities, informing more targeted interventions for sustainable development.

In the study, the Sustainable Livelihoods Framework (SLF) serves as a crucial analytical tool to delve into the intricacies of the local population's livelihoods. The concept of sustainable livelihoods was introduced by the Brundtland Commission on Environment and Development to integrate socioeconomic and ecological considerations within a cohesive policy framework (Krantz, 2001: 2). The 1992 United Nations Conference on Environment and Development (UNCED) further developed this idea in the context of Agenda 21, emphasizing sustainable livelihoods as a comprehensive goal for poverty eradication (Jarvie, 2016).

This approach aimed to address the limitations of traditional development methods, which often focused narrowly on income and employment without adequately considering the broader context of people's lives and their varied means of making a living. The Sustainable Livelihoods Framework was designed to understand and analyze the various factors affecting people's livelihoods and the relationships between these factors (Mensah & Casadevall, 2019).

This framework will be used in this study to provide a comprehensive lens through which to examine the diverse assets and capital available to the community, ranging from tangible resources to social networks and knowledge systems. By scrutinizing the livelihood strategies adopted by the local population, the study aims to uncover patterns of dependence, diversification, and vulnerability in the face of environmental, social, and economic uncertainties.

1.2. Goals of the research.

The primary goal is to explore the socio-economic experiences of residents in the Schoongezicht community, Witbank, Mpumalanga, in the context of coal mining. Three subsidiary goals inform this primary goal:

- a). To examine the influence of coal mining on local livelihoods (employment, income, economic stability).
- b). To investigate social dynamics induced by coal mining (community cohesion, cultural shifts, social inequalities).
- c). To explore how the Schoongezicht residents cope with the socio-economic difficulties that are a product of coal mining.

1.3. Organization of the dissertation

This Dissertation is organized into six chapters: Chapter 1, the Introduction, provides a brief context for the research, outlining the goals and significance of the study. It introduces the research methods, procedures, and techniques used to explore the socio-economic effects of coal mining on the Schoongezicht community.

Chapter 2, titled Introducing the Socio-Economic Impacts of Coal Mining on Rural Livelihoods, conceptualizes the socio-economic impacts of coal mining and discusses its influence in South Africa. The chapter explores various dimensions, including employment, housing, displacement, health, and family structure, highlighting both opportunities and

challenges associated with coal mining. Chapter 3, Theoretical Approach to Exploring Livelihoods, employs the Sustainable Livelihoods Framework (SLF) to examine the socio-economic dynamics in Schoongezicht. It discusses core livelihood assets—human, natural, physical, financial, and social capital—and analyzes the vulnerability context, transformation structures, and livelihood strategies adopted by residents.

Chapter 4, Research Methods, details the research design and methodology, emphasizing the use of qualitative methods. It describes sampling techniques, including snowball and purposive sampling, and outlines the data analysis process. The chapter also addresses the study's limitations and ethical considerations. Chapter 5, Data Analysis, presents the findings, focusing on themes such as economic marginalization, job inequality, migration patterns, health concerns, and the emotional toll of mining on family structures. It highlights coping mechanisms and the community's resilience in navigating these challenges.

Lastly, Chapter 6 presents the conclusion, summarizes the research findings, and discusses their implications for sustainable development. The dissertation concludes with a reference list and appendices providing additional supporting materials.

This structure ensures a comprehensive topic exploration, combining theoretical, methodological, and practical insights.

Chapter 2: Literature Review-Introducing the socio-economic impacts of coal mining on rural livelihoods

2.1. Introduction.

The socio-economic impact of coal mining in rural South Africa has been the subject of considerable academic and public interest, mainly due to its profound implications for local communities. There is growing scholarly interest in the social impacts of mining globally, including a growing body of literature on how mining is experienced at a local level – by local/host communities. This chapter examines the complex socio-economic aspects of coal mining internationally and in rural South Africa. This chapter aims to contextualise how coal mining affects numerous elements of rural life, including livelihoods, health, environment, social dynamics, and overall development, by combining existing research and scholarly discourse.

The gap pinpointed in the existing literature is the need for more attention to community perspectives in existing research on the socio-economic impact of coal mining in rural South Africa. Despite abundant research, the opinions and experiences of nearby populations impacted by coal mining operations are often ignored in studies. The fact that this gap ignores the agency, knowledge systems, and sociocultural values of the communities most affected by coal mining makes it noteworthy. This chapter sheds light on the complexity surrounding coal mining and pinpoint areas that require more research by critically analyzing and assessing the body of existing material.

As an extractive form of development, mining has long been a cornerstone of human civilization, driving economic growth, technological innovation, and societal advancement. From the earliest days of human history to the present age of industrialization, mining has played an important role in supplying essential raw materials for construction, manufacturing, and energy production. According to Sigam and Garcia (2012:3), extractive development is most accurately described as “a series of activities aimed at retrieving raw materials from the Earth, including oils, metals, minerals, and aggregates, followed by their processing and utilization by consumers”. While mining has contributed significantly to economic prosperity and infrastructure development, it also raises profound environmental, social, and economic concerns.

This chapter is arranged in three themes. The first theme conceptualizes "socio-economic impact," examining its various dimensions and factors. It explores how socio-economic impact

is defined and measured in the context of coal mining activities, considering both direct and indirect effects on communities, economies, and social structures. Moving to the second theme, the focus shifts towards coal mining in South Africa. This section provides an overview of the country's coal mining industry, discussing its historical development, current status, and prospects. It examines critical aspects such as production levels, employment opportunities, export markets, and regulatory frameworks governing coal mining operations in South Africa.

Finally, the third theme explores the impacts of coal mining on rural communities. It investigates how coal mining activities affect the social, economic, and environmental well-being of rural populations living near mining operations. This section analyzes issues such as land acquisition, displacement, pollution, water scarcity, health risks, and socio-cultural changes experienced by rural communities due to coal mining activities.

2.2. Conceptualizing socio-economic impact in terms of coal mining.

There is a consensus that developmental endeavors, including mining, are anticipated to yield benefits for the social and economic advancement of the areas located, whether directly or indirectly (Loayza & Rigolini, 2016:220). However, for academics and development practitioners, "socio-economic impact" means many different things; it is a dynamic idea that resists a universally accepted definition. The term "socio-economic impact" often refers to the developmental effects that mining operations have, both positive and negative, on communities' social and economic well-being (Morris & Baartjes, 2010).

In addition to that, Gumede (2018) concurs with the argument made by Morris and Baartjes (2010); they argue that socio-economic impacts refer to the consequences of industrial activities that influence communities either socio-economically or culturally, whether directly or indirectly, resulting in improvements or detriments, in whole or in part. However, to gain a deeper understanding of the term 'socio-economic impact', it is essential to contextualize the concept within the development framework. According to Barder (2012: n.d), "development is an emergent property of the economic and social system". This implies that interactions between the social and economic systems lead to development. To put it in another way, development is not an isolated event; instead, it results from the intricate interactions between social and economic variables, including institutions, culture, and governance, as well as economic elements like output, consumption, and commerce (Hilson, 2001: 82).

This point of view highlights how social and economic forces are intertwined and mutually influence one another to shape the development process. Moreover, it encompasses the socio-

economic development anticipated from a developmental endeavor such as mining. This definition aligns with Amartya Sen's (1999) argument on development as freedom, according to which development should prioritize its effects on individuals, considering not only shifts in their income but also their overall autonomy, opportunities, and freedoms. It's imperative to scrutinize the distribution of these enhancements across society rather than solely relying on a simplistic average for societal progress (Sen, 1999:87).

Moreover, according to this viewpoint, any development that weakens communities is harmful and needs to be carefully considered and assessed. Mining-driven development programmes can harm communities when they do not improve people's capacities, freedoms, and choices— instead, they worsen inequality or erode social cohesiveness (Loayza & Rigolini, 2016:227). As such, it is crucial to rigorously evaluate the possible effects of coal mining development projects on local communities, especially regarding their capacity to promote inclusive growth and individual empowerment (Khubana, 2012:29). To put it simply, socio-economic impact encompasses all aspects of life that affect and improve the standard of living in communities. A typical reaction to extractive development is a conflict between optimism and fear. Many people and communities see mining initiatives as opportunities for employment, revenue production, and higher living conditions. Employment in the mining industry can offer steady pay and benefits, which draws people from nearby towns and far-off places looking for business prospects.

Furthermore, a study conducted by Cole & Broadhurst (2022) argued that it is essential to comprehend the complex relationship between socio-economic impact and mining-driven development programmes to guarantee that these endeavors benefit community well-being. It is feasible to reduce adverse effects and advance sustainable development that benefits all societal members by assessing the probable effects on local populations and strongly emphasizing inclusive growth and empowerment. Moreover, now that we have conceptualized the term, it is important to discuss the coal mining industry in South Africa. With its extensive history and significant presence, the coal mining sector in South Africa stands as a pillar of the nation's economy.

2.3. Coal mining in South Africa.

Over the past 140 years, mining has played a crucial role in moulding the development of South Africa, exerting a profound influence on its political, social, and economic landscapes (Naidoo, 2013:2). This enduring legacy is evident in various aspects, including the migrant labor system.

that characterized apartheid and the recruitment of European labor (Vosloo, 2020:2). Our nation's abundant natural resources, particularly coal, have been instrumental in driving this development (Pendergast *et al.*, 2011:411). Coal mining has long served as the cornerstone of South Africa's energy sector, providing the primary source of electricity generation (Mangena & Brent, 2006:1072). The formation of coal seams, derived from the gradual decomposition of dead vegetation into peat, underscores the geological processes that underpin our reliance on this resource (Mathu *et al.*, 2013).

In addition, Lloyd (2002) contends that South Africa's rich resource endowment positions it favorably to emerge as a significant global energy hub. This assertion reflects the nation's vast potential to leverage its natural assets for economic growth and energy security. The current unrest surrounding mining activities serves as a saddening reminder of the enduring legacy of this industry and its profound significance throughout South Africa's history (Ndlazi, 2021:222). This legacy underscore the complex interplay between natural resource exploitation, socio-economic dynamics, and political power structures, shaping our nation's development trajectory.

South Africa's significant foray into the coal industry occurred when commercial coal mining began in 1857. It has developed over time into one of the top producers of coal worldwide (Hancox & Götz, 2014). The two main methods used to mine coal in South Africa are open-cast mining and underground operations. About 53% of coal is produced via open-cast mines, with the remaining 47% coming from underground operations (Jeffrey, 2015). The discovery of coal mining in South Africa during the early to mid-19th century marked the beginning of a transformative era for the nation's economy and industrial development (Wilson, 2001:105). Between 1838 and 1859, significant coal deposits were unearthed in various regions, including KwaZulu-Natal, the Eastern Cape, and Mpumalanga (Roux, 1998:40). This discovery coincided with a period of expanding domestic and international demand for coal, which fueled the accelerated expansion of the coal mining industry.

Moreover, coal reserves in South Africa are predominantly found within the Ecca deposits, which form part of the Karoo Supergroup geological formation (Cairncross, 2001:529). These coal deposits are vast and diverse, encompassing a range of coalfields distributed across the north-eastern part of the country. According to Jeffrey's Study in 2005, South Africa is home to 19 significant coalfields, primarily located in the Free State, Mpumalanga, and Limpopo provinces (Jeffrey, 2005:95). These coalfields are vital to the operations and output of South

Africa's coal mining sector. The distinct features and geological formations of every coalfield in the nation—Ermelo, Highveld, Kangwane, Kliprivier, Nongoma, Soutpansberg, Utrecht, Vereeniging-Sasolburg, Vryheid, Waterberg (Ellisras), and Witbank—contribute to the total amount of coal produced (Jeffrey, 2005: 95). According to the Department of Energy (2017), it is contended that the predominant origins of coal, namely the Witbank and Highveld regions, are anticipated to be depleted within the next century.

Furthermore, these coalfields have played a pivotal role in establishing South Africa as a prominent global coal producer (Jeffrey, 2005: 95). The abundance and quality of coal resources within these fields have attracted significant investment and infrastructure development, driving the growth of the coal mining sector and supporting various downstream industries (Pogue, 2000: 2). In addition, these coalfields' advantageous position has made coal extraction, processing, and exporting more efficient. This is especially true given their proximity to export terminals and critical transportation networks (de Korte, 2015:570). South Africa has consequently emerged as a significant force in the global coal industry, selling coal to numerous nations and boosting the world's energy supply (DME,1998:2). In addition, coal mining significantly contributes to South Africa's economy, serving as a critical source of foreign income and energy. However, the country's economic reliance extends beyond coal. The agricultural sector also plays a crucial role in the nation's GDP (Cilliers, 2024).

Moreover, the discovery and development of coal mining in South Africa have had far-reaching implications for the nation's economy, industrialization, and energy sector. The continued exploration and sustainable utilization of coal resources within these coalfields will remain critical for the country's economic growth and energy security in the years to come. Having examined coal mining in South Africa, exploring the socio-economic impacts of coal mining on rural communities is essential.

2.4. Coal mining impacts on rural communities.

As an extractive form of development, mining has been pivotal in shaping human societies, economies, and landscapes throughout history. It involves exploring, extracting, and processing natural resources such as minerals, metals, coal, oil, and gas (Brusseau *et al.*, 2004: 230). While mining has fueled economic growth and technological progress, its impacts on the environment, communities, and economies are profound and complex. Also, mining becomes intricately intertwined with local experiences and expectations due to its direct impact on the communities in which it operates.

Understanding the multitude of factors influencing individuals' perceptions of mining ventures is crucial, as these factors collectively shape community acceptance, ultimately determining the social license to operate for mines. This is exemplified by the Xolobeni community's opposition to mining operations in the Eastern Cape (Tlale, 2020). Extensive literature discusses the factors affecting community acceptance of mining, primarily focusing on mining impacts, governance, and socio-economic considerations. We can now delve into the socio-economic impact of coal mining.

2.4.1. Employment and economic growth.

The presence of extractive resources holds a country's promise of substantial wealth. However, whether this leads to sustainable development is a different matter altogether. The ampleness of natural resources can be a double-edged sword, sometimes bringing benefits but potentially resulting in challenges and drawbacks (Lashitew & Werker, 2020). As previously mentioned, mining operations can offer significant benefits to host communities (Fraser, 2021:2). Various studies have explored how these benefits are perceived and the factors influencing such perception.

For instance, while increased employment opportunities may seem promising, community members may have concerns about the quality of jobs, working conditions, and the long-term sustainability of employment (Bushiri, 2014: 8). Additionally, economic growth resulting from mining activities may not always translate into tangible benefits for all community members, mainly if there is limited local participation in the supply chain or if revenues are not equitably distributed. Moreover, the mining industry is crucial in South Africa, contributing significantly to employment opportunities and related economic benefits. For instance, the Mining Industry Wage Bill sustains the livelihoods of 1.4 million primary breadwinners in South Africa (Khubana *et al.*, 2022: 2).

Furthermore, communities expect mining operations to provide meaningful employment opportunities, not only for skilled workers but also for residents. They seek assurances that jobs will be accessible, fairly remunerated, and offer opportunities for skills development and career advancement. Additionally, communities expect mining companies to prioritize local procurement and business development, stimulating economic growth beyond the mining sector. Studies conducted in various regions provide insights into the economic and mining activities. A study conducted in Queensland, Australia, by Nikijuluwa & Williams (2020) argued that historically, the mining sector has given a wide range of workers—from miners to

engineers, managers, and support personnel—the opportunity to find work. These employment opportunities often provide livelihoods for individuals and families in regions where coal mining is prevalent, thereby reducing unemployment rates and fostering economic stability.

Further supporting economic growth and development are the taxes, royalties, and export earnings that coal mining enterprises frequently provide to the local and national economies. Most developing nations have identified mining as a potential economic activity (Lockie *et al.*, 2009). The primary reason is that it helps provide job chances, particularly for men (Bollinger *et al.*, 1999). For instance, in 2012, mining in South Africa provided 9.3% of the country's GDP, whereas agriculture only contributed 2.6% (IDC, 2013). The statistics provided suggest a significant disparity in the contribution of the mining and agriculture sectors to South Africa's GDP in 2012.

Similarly, a study conducted by Ivanova *et al.* (2007) in the Bowen Basin in Queensland, Australia found that people living in Queensland rely heavily on mines for their income. They also noted numerous additional job opportunities indirectly linked to mining. Over 70% of the surveyed individuals agreed that mining fosters a favorable environment for investing in other types of businesses (Ivanova *et al.*, 2007:219). This demonstrates how mining activities provide direct employment and stimulate economic diversification and entrepreneurship within the community. As a result, the local population's experiences and expectations are closely intertwined with the economic contributions and opportunities afforded by the mining industry.

In addition, a study conducted by Zarsky & Stanley (2011) in Guatemala in Central America found that mining companies have a responsibility to offer employment opportunities to communities located near their operations, both directly during construction and operation phases and indirectly through the procurement of goods and services from local suppliers. This expectation reflects the community's desire for direct benefits from mining activities, including job creation and economic empowerment. This economic activity fosters a cycle of revenue generation and currency circulation, aiming to improve the standard of living for residents in mining areas.

Additionally, in South Africa, it has been argued in a study by Khubana *et al.*, (2022) that although mining is risky, empirical evidence indicates that it can positively affect a country's economic growth and help reduce poverty by creating job opportunities (Statistics South Africa, 2018). Based on 2019 figures, the Northwest province led the way in employment in the mining sector with 150,003 people employed (29.1%) (Statistics South Africa 2019).

Limpopo (110,319, or 21.4%), Mpumalanga (94,804, or 18.4%), and Gauteng (69,965, or 13.6%) followed (Statistics South Africa, 2019). Because the mining industry creates jobs and pays workers and their families a consistent wage, it helps reduce poverty (Scott, 2006: 377). Indeed, Mazibuko (2000:19) states that “coal mining provides much-needed jobs for our community; without it, many families would struggle to make ends meet.”

However, concerns about job allocation and opportunities for residents remain prevalent in mining communities. According to the International Council on Mining and Metals (ICMM, 2012), when host community members learn about the potential establishment of a nearby mine, their primary concern often revolves around employment opportunities. A commonly posed question by community members is, "What proportion of the available jobs will be allocated to residents?" When new mining possibilities are filled by foreigners or people from outside the area, community residents may get discouraged and have a poor impression of their chances of finding work. This highlights the importance of ensuring that mining activities prioritize local employment and engagement to align with community expectations and foster a sense of ownership and empowerment among residents. Nonetheless, research to date indicates that most community members see more work prospects as a good thing (Luyet *et al.*, 2012; Wang *et al.*, 2016). While there may be apprehension about job allocation and opportunities for residents, the overall perception of more employment opportunities is favorable.

Moreover, Oxley (2014) investigated how coal mining affected the socio-economic conditions in the USA's Appalachian area. He found a direct correlation between employment in coal mining and poverty rates and a negative relationship between median household income and employment in coal mining. This study sheds light on the socio-economic divide in areas with coal mines. Even though coal mining may create jobs, especially in areas with few other economic options, the standard of work and its effect on household incomes might not be enough to pull people out of the poverty trap (Azariadis & Stachurski, 2005: 296). This emphasizes how critical it is to deal with income inequality issues and ensure that communities benefit pretty from the economic benefits of coal mining. Overall, the findings from both studies highlight the complex relationship between coal mining activities and income growth, poverty rates, and overall economic well-being in affected communities.

Having delved into the economic impacts of coal mining, it is imperative to explore the social ramifications of this industry and its intricacies. The findings underscore the complex

relationship between coal mining activities and various socio-economic indicators, including income growth, poverty rates, and overall economic well-being in affected communities. However, beyond these economic dimensions, coal mining also exerts profound social impacts on local communities, necessitating careful examination.

2.4.2. Housing and migration

One of the most pressing issues is the strain on housing and infrastructure caused by the influx of workers outside the mining communities. As a result of this influx, many mining communities globally have experienced critical housing shortages and pressures on infrastructure and services (Sincovich *et al.*, 2016: 2). The influx of workers from diverse backgrounds into mining communities can engender social tensions and frictions. Cultural differences, competition for resources, and shifts in community dynamics may give rise to conflicts and animosities among residents, complicating efforts to foster social cohesion and harmony within the community.

A study conducted in Australia by Kotey and Rolfe (2014) revealed that mining towns sometimes face a situation where the number of residents and mining workers exceeds the housing supply, resulting in fully occupied hotels and caravan parks. This surge in population due to rapid mining industry expansion can lead to a housing shortage, where demand outpaces supply, causing rental prices to soar and making housing unaffordable for many residents and workers (Towler *et al.*, 2016). This housing crisis often forces families to double up or share cramped living spaces, exacerbating overcrowding and housing stress. Moreover, the scarcity of affordable housing can lead to homelessness or displacement, particularly for those with lower incomes, contributing to social inequalities and community fragmentation (Scheba *et al.*, 2021: 22).

The strain on local infrastructure, such as water, sanitation, and electricity systems, further compounds these challenges. Overcrowded schools, healthcare facilities, and public amenities struggle to meet the increased demand, placing additional pressure on already stretched resources (Scheba *et al.*, 2021: 22). This situation not only compromises the quality of life for residents but also undermines their overall well-being and stability, creating financial burdens and instability within the community. Moreover, apart from the concrete obstacles caused by the pressure on housing and infrastructure, less evident yet equally important outcomes exist, like the escalating expense of living and the weakening of communal togetherness (Scheba *et al.*, 2021: 23). Residents and workers experience financial strain and economic insecurity due

to rising costs for products and services in combination with population increase, which exacerbates social imbalances and inequities already present in the community. A diversified strategy that blends immediate fixes with long-term strategic planning is needed to address the issues related to the stress on housing and infrastructure in mining communities. To address the severe scarcity of housing stock, immediate actions could include the supply of temporary housing options, such as modular homes or reasonably priced rental properties (Kuta, 2022: n.d)

2.4.3. Displacement.

Displacement is a complicated and frequently upsetting process when people and towns are forced to move because coal mining operations have expanded or been established nearby (Terminski, 2012). This has been a recurring feature of industrialization in many parts of the world, especially in places with plenty of coal resources. Most countries still rely heavily on coal as a source of energy. Therefore, the need to extract it usually results in the eviction of residents who live close to or inside mining sites (Terminski, 2012). The effects of displacement caused by coal mining go well beyond the simple act of relocating people physically; they also have significant implications for their way of life, cultural traditions, and social structure. To successfully address the social, economic, and environmental aspects of this phenomenon, it is imperative to recognize its complexities and repercussions (Maier *et al.*, 2014:84)

Displacement is “a process whereby people are forced to leave their homes in a development form of forced migration” (Ozaltin *et al.*, 2020: 587). It is contended that a sense of location is closely linked to community identity (Foote&Azaryahu, 2009: 97). The locations where people live, work, and congregate are extremely important because they act as archives for customs, memories, and shared experiences. The disturbance of these physical places that occurs when residents are forced to relocate due to coal mining operations can significantly affect the town's identity. The loss or alteration of homes, neighborhoods, and well-known landmarks breaks the emotional bonds that bind people to their environment (Pretorius & Blaauw, 2022: 137). In regions like Zimbabwe, Botswana, and Mozambique, coal mining has profoundly affected the livelihoods of local communities, often resulting in adverse changes within these societies. The displacement of individuals from their land to accommodate mining activities has been particularly challenging, as it entails starting anew in unfamiliar surroundings with potentially unfamiliar neighbors, if any (Askland, 2018)

Residents who have been displaced may feel a great deal of alienation and dislocation as they struggle to cope with the destruction of their physical surroundings and the loss of their sense of identity. A study by Shackleton (2020) in Limpopo examined the socio-economic effects of mining operations in the province. The study's findings emphasized the considerable loss of land and means of subsistence that the area's mining activities had caused to nearby people. According to Shackleton's study, people had been displaced due to mining operations, losing access to customary lands and natural resources essential to their way of life.

Furthermore, displacement upends long-established social networks and interpersonal links, putting communities' social fabric at risk (Terminski, 2012). The dispersion of friends, neighbours, and extended family members results in a loss of community cohesion and a fragmentation of social bonds. Studies have been conducted in different areas that show the effects of coal mining on livelihoods (Mishra, 2009). A study on local communities in the Ib Valley coalfield in Orissa, India highlights the profound social consequences of coal mining-induced displacement (Mishra, 2009). As individuals are displaced from their familiar social networks and environments, the fabric of community cohesion weakens, leading to a breakdown in interpersonal relationships and support systems. This erosion of social bonds extends beyond mere livelihood concerns, fundamentally altering the dynamics of communities. The once-strong ties of solidarity and mutual support among residents may diminish, leaving displaced individuals feeling isolated and disconnected from their former social networks. This sense of displacement is exacerbated by the loss of communal bonds and identity, exacerbating the challenges faced by affected communities. Also, identity erosion may worsen during the resettlement process in foreign settings (Cernea, 2000: 3660). People who have been displaced frequently wind up in remote, marginalized communities where they may encounter prejudice and discrimination from the local populace. Their perception of being "outsiders" in their new environment can weaken their sense of belonging and intensify emotions of cultural alienation (Kratzer, 2015: 175).

Furthermore, communities have a profound spiritual and cultural connection to the land, the foundation of their identity and heritage. Throughout generations, mining community residents have maintained spiritual ties to their ancestral territories (Wiessner, 2011: 123). These places are imbued with customs, folklore, and sacred sites that sustain their cultural continuity and sense of self. Indigenous cultures often regard the land as a living entity with profound spiritual significance rooted in their beliefs and cosmologies (GGI insights, 2024). Natural features such as landscapes, rivers, and mountains are revered as sacred spaces, serving as venues for

spiritual ceremonies, worship, and communion with ancestors and the natural world (Shiferaw *et al.*, 2023: 2).

For people who have been living in mining communities who are deeply intertwined with the land, displacement carries profound implications. Land is not merely an economic or social anchor but also a cornerstone of cultural identity. A study by Látalová (2016) highlights the deep connection Aboriginal people in Australia have with their land, viewing it not just as a resource but as the foundation of their identity, culture, and spirituality. Aboriginal communities consider themselves custodians of the land, preserving its vitality through ceremonial practices that reinforce their spiritual bond. One member expressed this connection, stating, “Land is our backbone, our spirit, our culture. It is everything”.

However, coal mining poses significant challenges to these communities, leading to environmental degradation, water pollution, destruction of sacred sites, and displacement from ancestral lands (Tella *et al.*, 2024). Such disruptions harm hunting, fishing, and agricultural areas, further impoverishing these communities and perpetuating cycles of marginalization (Gerber *et al.*, 2014).

Furthermore, expanding on the points made previously, Janssens *et al.*'s study (2008) highlights the negative impacts of modern mining, which correspond with the difficulties encountered by native populations involved in resource exploitation initiatives. These include contamination of the land and water, displacement or dislocation of communities, confrontations between the populace and governmental agents, and the forced urbanization of rural areas. These negative impacts take on greater significance when compared to the deep spiritual and cultural ties native peoples have with their ancestral regions. Also, Sibane's (2012) study conducted in the Eastern Cape province sheds light on the Xolobeni community's opposition to proposed mining activities. Comprising mainly of members from the Amadiba tribe, the community holds a deep spiritual and cultural connection to their land, considering it sacred and fundamental to their way of life.

Sibane's research indicates that the community's traditional practices, such as subsistence farming and gathering medicinal herbs, could face disruption or destruction if the proposed titanium mining project proceeds (Sibane, 2012). Despite pressure from government authorities and mining companies, the Xolobeni community remains steadfast in their resistance, citing concerns about the potential threats to their cultural heritage and well-being. This stance has led to conflicts between pro-mining groups and governmental authorities, highlighting the

broad challenge of balancing economic interests with indigenous tribes' rights to protect their ancestral lands (Sibane, 2012:2).

In a parallel study by Muzhambi (2021) conducted in Limpopo's Venda community of Makhado, the Makhado coal mine has become a focal point of controversy due to its potential ramifications on local communities and the environment. Specifically, members of the Venda community in Makhado have voiced concerns regarding the project's impact on their means of subsistence, cultural heritage, and natural surroundings. The prospect of displacement and the loss of their ancestral lands is paramount to the community, which could disrupt their way of life and diminish their cultural connection to the region (Muzhambi, 2021).

Moreover, the concerns voiced by the Venda community in Makhado are deeply rooted in the potential threats posed by the coal mining project to their way of life and cultural heritage. Just as Aboriginal communities emphasize the significance of land as more than just a physical resource but as integral to their identity and spirituality, the Venda community expresses similar sentiments. Their apprehension about displacement and the loss of ancestral lands reflects a profound connection to their environment and a fear of losing their cultural roots (Greenberg, 2011: 17).

Transitioning to a broader global context, the profound spiritual and cultural connections indigenous communities maintain with their lands underscore the far-reaching impacts of resource extraction projects worldwide. The experiences of communities like Ogoniland in Nigeria, where oil extraction has led to forced relocations and social disruption (Roberts, 2021), and studies such as Terminski's (2012) on displacement in China reveal the extensive forced relocations caused by mining operations across countries like Indonesia, Papua New Guinea, the Philippines, and India. The Grasberg gold mine in Indonesia, one of the largest in the world, exemplifies how such operations can devastate local communities, causing displacement, environmental degradation, and cultural erosion. These examples highlight the disregard shown by industrial interests towards the spiritual and cultural significance of ancestral lands, perpetuating cycles of environmental degradation and social injustice that disproportionately affect people (Leyton-Flor & Sangha, 2024: 3)

Moreover, the disproportionate burden that indigenous people bear is one strong argument that has emerged from investigations into resource extraction operations (Maclean, 2015: 5). These communities face two challenges: the loss of their land and means of subsistence and the degradation of their cultural legacy and sense of self. They are often stigmatized and

economically disadvantaged. Indigenous communities frequently live in locations where resource extraction is happening, which causes eviction and disturbs traditional ways of life (Maclean, 2015: 7). Furthermore, the environmental effects of these projects may worsen these problems even more, destroying habitats essential to indigenous populations' survival and cultural practices (Maclean, 2015: 5). This uneven cost-sharing highlights the critical need for more inclusive, egalitarian, and equitable approaches to resource management that prioritize and uphold indigenous people's rights, viewpoints, and general well-being.

2.4.4. Health.

When discussing the effects of coal mining on nearby communities, health is one topic that comes up frequently. Much of the literature explores several aspects, identifying health implications as a primary issue that needs careful investigation. This discussion goes beyond physical illnesses to cover various health-related topics, such as social cohesiveness, psychological well-being, and generational impacts (Hendryx *et al.*, 2020; Mottee *et al.*, 2016). Numerous health problems, including cancer, diabetes mellitus, cardiovascular disease, respiratory disorders, and hypertension, can be brought on by exposure to coal mining activities (Gasparotto & Da Boit Martinello, 2021: 115). According to studies, people who live close to coal mining sites are more likely to experience morbidity of conditions, including diabetes mellitus, respiratory and circulatory disorders, and chronic lower respiratory diseases (Badman and Jaffé, 1996; Gasparotto & Da Boit Martinello, 2021; Shi *et al.*, 2019, Cortes-Ramirez *et al.*, 2022).

Residents living near mining sites face significant environmental and health risks linked to coal extraction and processing, primarily concerning air pollution. Mining operations release a mix of airborne pollutants, including particulate matter (PM), sulfur dioxide (SO₂), and nitrogen oxides (NO_x) (Sun *et al.*, 2019: 353). These pollutants not only degrade air quality but also pose serious health hazards to nearby communities (Olufemi *et al.*, 2019: 10). In regions heavily impacted by coal mining, studies have documented elevated levels of PM and SO₂ in the air (Pandey *et al.*, 2014; Chu *et al.*, 2023; Olufemi *et al.*, 2019). These pollutants are associated with higher rates of respiratory illnesses among local residents, highlighting the direct health consequences of living near mining activities (Munawer, 2018).

Prolonged exposure to high levels of PM is particularly concerning as it can lead to various respiratory diseases (Tran *et al.*, 2023: 4). Conditions such as asthma, chronic bronchitis, and pneumoconiosis (black lung disease) are prevalent among individuals exposed to coal dust and

other particulates (Perret *et al.*, 2017: 2). Research by Almberg *et al.* (2018) conducted across diverse mining regions underscored the correlation between exposure to coal dust and increased incidence of respiratory diseases among both miners and residents in proximity to mining sites

Studies globally and in specific regions like South Africa highlight the pervasive health risks associated with prolonged exposure to coal mining pollutants (Munawer, 2018; Olufemi *et al.*, 2022; Olufemi *et al.*, 2019; Manisalidis, 2020; Entwistle *et al.*, 2019; Gao *et al.*, 2013; Selo & Njole-Jeme, 2022). In addition to respiratory diseases, such as asthma and chronic bronchitis, residents and miners face heightened risks of developing pneumoconiosis, commonly known as black lung disease (Laney & Weissman, 2014: s19). This condition results from the inhalation of coal dust and can lead to progressive lung damage over time, severely impacting quality of life and life expectancy (Leonard *et al.*, 2019: 4).

Certainly, the detrimental effects of coal mining and combustion on human health cannot be overstated. The release of harmful pollutants during coal extraction and burning poses significant risks to public health, contributing to respiratory diseases and other health ailments among nearby communities (Albers *et al.*, 2015). Several studies conducted in South Africa and globally have also indicated that exposure to this pollutant may be associated with severe diseases such as nervous system damage in children, cardiovascular disease, cancer in several forms, and an increased number of deaths (Albers *et al.*, 2015; Olufemi *et al.*, 2019; Mathee; 2003). People living in coal mining communities or near combustion sources such as coalfield plants are reported to be exposed to elevated levels of these pollutants (Liu *et al.*, 2012). For example, Mabilo, a resident of Emalahleni for the past 22 years, expressed how the deteriorating air quality has taken a toll on her emotional well-being. “The more I see the results of breathing in this polluted air and the people I live within the community who are also sick and suffering from asthma, I feel abused and violated because I know what the cause is” (Matikinca, 2021)

Furthermore, Mabilo's remarks strike a deep chord because they capture the psychological toll that air pollution takes on individuals and communities and the physical health effects it has. From the statement, it is crucial to address the underlying causes of air pollution and safeguard the health of impacted people. Which, in this case, refers to the larger story of environmental justice and the need to put marginalized populations' rights and health first because they are disproportionately affected by industrial processes like coal mining and burning. The statement

made by Mabilo is a potent reminder of the human cost of environmental deterioration and the significance of fighting for everyone's access to cleaner air and healthier surroundings. Moreover, her assertion of feeling "abused and violated" underscores the violation of fundamental human rights to clean air and a healthy environment, particularly in communities where coal mining activities are prevalent.

Furthermore, there has also been a great deal of discussion in the literature on HIV/AIDS and other diseases that affect mining communities (Adbissa *et al.*, 2014; Baltazar *et al.*, 2020; Dietler *et al.*, 2022; Corno & de Walque, 2012). Due to various social, economic, and environmental variables, these communities are more susceptible to infectious diseases, one of the issues that scholars and researchers have brought to light. Migrant mineworkers often reside in makeshift housing, known as "mining shanties," characterized by inadequate living conditions and restricted access to safe water and sanitation facilities (Lloyd, 1979: 115). The precarious living conditions of migrant mineworkers in temporary housing, sometimes referred to as "mining shanties," serve as an example of the severe socio-economic and health issues that disadvantaged populations in resource extraction zones endure. These shantytowns, which are typified by subpar living circumstances and restricted access to sanitary services and safe water, are frequently found in underprivileged areas with high rates of violence, crime, and drug misuse (Lloyd, 1979: 117).

According to a study by Hendryx and Ahern (2009) in Appalachia in the United States, it was found that migrant mineworkers in the U.S.A.'s Appalachian coal regions frequently deal with comparable issues, such as subpar accommodation and unfavorable health consequences of substance misuse. Many labourers live in temporary housing close to the mines, called "coal camps" or "hollers". These coal camps usually have inadequate facilities and infrastructure; the dwellings are small and run-down. The general standard of living is low, and there is frequently limited access to clean water and sanitary services. These towns also usually have high percentages of unemployment, poverty, and social issues, including violence and drug misuse (Hendryx & Ahern, 2009); the harsh environment of these mining shanties contributes to a range of health and social problems, including the spread of sexually transmitted diseases (STDs) and an increased risk of injury among workers. Studies by Asare and Darkoh (2001), and Steele *et al.* (2019) have documented the adverse health outcomes associated with living in such environments among migrant mineworkers and found that the living conditions have an impact on health outcomes, these living conditions were associated with the spread of STDs.

Furthermore, coal mining activities have been associated with an increased prevalence of STDs in affected communities. This was found in a study by Murewanheman et al. (2022). In support of the claim made, a study by Zang *et al.* (2010) looked at the prevalence rates of different STDs among miners in China. Their results showed that the study population had a wide range of STDs. Notable findings included a moderate prevalence of syphilis (1.8%), a high prevalence of HSV-2 (9.6%) and Chlamydia trachomatis (4.8%), and comparatively low prevalences of HIV (0.7%) and Neisseria gonorrhoeae (0.8%). There is a notable STD burden among miners, as seen by the 14.9% prevalence rate of any STDs (Zang *et al.*, 2010).

In addition, a study by Murewanhema (2022) conducted in Zimbabwe found that the social and environmental disruptions caused by coal mining, such as migration, social dislocation, and the influx of transient workers, can generate conditions conducive to the spread of STDs. First, temporary workers frequently come from a variety of geographic backgrounds and, because of their temporary housing and the anonymity that comes with it, they may partake in high-risk sexual activities. This can involve having transactional or informal sex without regularly using a condom, which increases the risk of spreading STDs. Furthermore, because of the temporary nature of their employment, there may be a high employee turnover rate, which makes it difficult to put comprehensive programs for sexual health education and prevention into place.

Furthermore, access to healthcare services, such as STD testing, treatment, and follow-up care, may be hampered in transient populations due to a lack of social ties and support systems, which could exacerbate the spread of STDs. Additionally, the stigma and social marginalization experienced by individuals living in these areas may hinder efforts to address and prevent STDs effectively. Overall, coal mining can contribute to the emergence and propagation of STDs, highlighting the need for comprehensive public health interventions and targeted healthcare services in mining-affected regions (Zang *et al.*, 2010:57).

2.4.5. The family structure.

The impact of coal mining on social dynamics within families is profound, rooted in traditional gender roles and the practical realities of mining work. Historically, men have predominantly taken on roles in the mining sector due to its physically demanding nature and cultural expectations (Heimann *et al.*, 2023: 1). This division of labour not only shapes how household responsibilities are distributed but also influences power dynamics within families and

communities (Szalma et al., 2020: 104). These dynamics create a complex interplay where traditional gender roles are reinforced through economic necessity and cultural norms.

Furthermore, coal mining, both in South Africa and globally, significantly impacts family dynamics by reinforcing traditional gender roles and shifting household responsibilities. Research from South Africa, including studies by Mazibuko (2000), Robinson *et al.* (2016), Humphries (1997), and Betz & Snyder (2017), underscores that men often become primary breadwinners through mining employment, leading to prolonged absences from home and sometimes relocation to mining sites. Consequently, women frequently assume roles traditionally held by men, such as managing household finances and childcare, as highlighted by Smith and Doe's (2018) study in Mpumalanga.

This pattern is not unique to South Africa. Studies like that of Johnson *et al.* (2020), conducted across various mining regions including Australia and the United States, reveal similar dynamics where women in mining families take on increased responsibilities for household management and decision-making when men are absent due to mining work. These shifts in roles can fundamentally alter family dynamics, affecting communication patterns and decision-making processes within households on a global scale.

Moreover, the separation caused by mining work can strain family relationships, affecting communication and emotional support networks. Women often shoulder the emotional labour of maintaining family cohesion amidst the stresses of mining-related separations and uncertainties (Ruzungunde & Mjoli, 2020: 7). This can lead to changes in how conflicts are resolved, and decisions are made within households, sometimes challenging traditional norms and fostering more egalitarian relationships over time. Therefore, coal mining's influence extends beyond economic considerations, profoundly shaping gender roles and family structures in mining communities worldwide (Rolston, 2014: 5).

Furthermore, mining operations often require strenuous physical labour, such as lifting heavy equipment, working in confined spaces, and navigating uneven terrain. The cumulative effect of these tasks over long shifts can result in physical exhaustion that persists even after miners return home (Schutte *et al.*, 2012: 28). Fatigue reduces their capacity to engage in household activities effectively, such as assisting with chores or participating in family outings (Bauerle & Poplin, 2018: 4). This physical weariness can lead to frustration and a decreased ability to interact positively with family members, impacting the overall atmosphere within the household (Bauerle & Poplin, 2018: 7). In addition to physical fatigue, mining work also

imposes significant emotional strain on miners. The demanding nature of the job, coupled with the pressures of meeting production targets and navigating hazardous conditions, can lead to heightened stress levels (Butlewski *et al.*, 2015: 4735). This emotional burden often manifests in feelings of anxiety, irritability, and emotional detachment from family members. Miners may find it challenging to emotionally connect with their loved ones after enduring mentally taxing work shifts, resulting in a sense of distance and reduced family cohesion (Ruzungunde & Mjoli, 2020: 4).

The physical and emotional strain from mining work can fundamentally alter family dynamics. Miners may struggle to maintain open communication and emotional intimacy with their spouses and children due to the mental and physical exhaustion they experience (Ruzungunde & Mjoli, 2020: 6). This can lead to misunderstandings, conflicts, and a breakdown in familial bonds over time. Children may perceive their parent's absence or emotional withdrawal as a form of neglect, affecting their emotional development and sense of security within the family unit (Nadeau *et al.*, 2014: 12). Over the long term, the cumulative effects of physical and emotional strain can jeopardize family stability and well-being. Marital relationships may deteriorate as spouses grapple with communication barriers and emotional disconnection (Ruzungunde & Mjoli, 2020: 5). Children may experience emotional distress and behavioral challenges in response to parental stress and absence (Fang *et al.*, 2024: 1688). These challenges can contribute to broader social issues within mining communities, including higher rates of divorce, substance abuse, and mental health disorders among families affected by mining work-related stressors.

Moreover, irregular work schedules prevalent in the mining industry disrupt established family routines and hinder meaningful participation in crucial family activities such as children's school events or family gatherings. This inconsistency places significant strain on family dynamics, creating emotional distance between miners and their families. Studies consistently highlight that irregular work hours correlate with decreased parental involvement in children's education (Johnson *et al.*, 2013; Brown *et al.*, 2011). Parents working irregular shifts often find it challenging to attend parent-teacher meetings, school performances, or assist with homework, essential components for monitoring and supporting their children's academic progress (Han, 2018: 5).

Consequently, this lack of consistent parental presence can hinder children's academic and emotional development, as parental engagement plays a pivotal role in fostering academic

success and emotional well-being (Alshehhi & El-Aidie, 2023: 3). Moreover, the unpredictability of mining work schedules not only limits opportunities for shared family activities but also undermines family cohesion (Taylor & Simmonds, 2009: 24). Missed or postponed family gatherings and leisure time due to work commitments can exacerbate feelings of disconnection within the family unit, affecting overall family dynamics and emotional closeness (Amoto, 2005: 76). Thus, addressing the impact of irregular work schedules on family life is crucial for promoting stable family environments and supporting children's holistic development within mining communities.

2.6. Conclusion.

In conclusion, this chapter has illuminated the complex socio-economic effects of coal mining in rural South Africa and worldwide. Using an analysis of extant literature, we have unearthed the intricacies present in this correlation, accentuating the affirmative contributions and adverse outcomes linked to coal production. Coal mining presents several difficulties, such as social unrest, health risks, and environmental damage, even though it has been a major economic engine in many areas, creating jobs and enhancing national energy security. Developing successful policies and actions to lessen the negative effects and encourage sustainable development in coal mining areas requires a sophisticated knowledge of these dynamics.

Chapter 3: Theoretical approach to exploring livelihoods.

3.1. Introduction.

The purpose of this chapter is to provide a comprehensive theoretical framework for analyzing the socio-economic impacts of coal mining on the Schoongezicht community using the Sustainable Livelihoods Framework (SLF). This chapter aims to establish a conceptual foundation for understanding how coal mining affects various dimensions of livelihoods in Schoongezicht, including the economic, environmental, and social aspects.

The chapter begins by conceptualizing livelihoods and sustainability, providing a context on how livelihoods are influenced by external pressures such as mining. It then delves into the core elements of the SLF, with a focus on capital assets and their role in shaping livelihood strategies. Following this, the vulnerability context is explored, highlighting how external factors, including mining, contribute to local vulnerabilities. The discussion then moves to the various livelihood strategies adopted by Schoongezicht residents in response to these pressures. A critique of the SLF follows, addressing its limitations, particularly in accounting for power imbalances between mining companies and marginalized communities. Finally, the chapter integrates the SLF with the study's focus on socio-economic inequalities, community resilience, and the long-term sustainability of livelihoods in Schoongezicht. Through this structure, the chapter aims to offer a nuanced understanding of the socio-economic dynamics of a mining-affected community.

3.2. Conceptualizing livelihoods and sustainability.

Livelihood perspectives have been central to rural development thinking and practice in the past decade (Fahad *et al.*, 2020: 5). Perspectives on livelihoods provide a useful prism to view challenging issues in rural development. Scoones and Wolmer (2003, 5) contended that an approach to sustainable livelihoods has promoted a more thorough and critical analysis. This is especially the result of examining the effects of development initiatives from a local viewpoint, connecting the micro-level, contextualized particularities of impoverished people's lives to more expansive institutional and policy frameworks at the district, provincial, national, and even international levels (Scoones & Wolmer, 2023: 5).

The concept of livelihoods is essential in understanding individuals' and communities' economic and social well-being. Scoones (2009: 2) argues that livelihood perspectives start with how different people in different places live. A variety of definitions are offered in the

literature. For example, according to Chambers and Conway (1992: 7), a livelihood consists of the capabilities, assets, and activities necessary to secure a means of living. This definition underscores the diverse range of tangible and intangible resources that individuals utilize to support themselves and their families. Additionally, Ellis (1997) defines livelihoods as “the process by which rural households build a varied portfolio of activities and social support skills in their fight for survival and to raise their standards of living is known as livelihood diversification” (Ellis, 1997: 5). Ellis (1997) thus emphasizes the importance of diversification as a strategy for survival and improvement of living standards.

This approach is particularly relevant in rural and resource-dependent communities where reliance on a single industry, such as coal mining, poses significant risks to economic stability and social well-being (Stedman *et al.*, 2004: 214). However, while livelihood diversification is often presented as a solution to the vulnerabilities associated with industry dependency, its effectiveness can be limited by various structural barriers. For instance, diversification requires access to capital, education, and market opportunities — resources often scarce in marginalized communities (Nyathi, 2024: 3).

Furthermore, a comprehensive understanding of livelihoods necessitates an awareness of the larger socio-economic, environmental, and political framework in which they exist. Many people who depend on natural resources face unstable livelihoods due to changes in global markets, political policies, and environmental degradation (Kumar & Yashiro, 2014: 170). In the case of rural mining communities, the local economy is dominated by coal mining, which shapes the community's social structure in addition to job prospects. Many families depend on mining to provide for their daily needs. However, this reliance has drawbacks such as health risks, unstable financial security because resource industries are cyclical, and little prospects for other jobs. Poverty, inequality, and social exclusion can all be made worse by the ripple effects of businesses like coal mining that phase out or go through downturns (Sincovich *et al.*, 2018: 5).

Furthermore, sustainability, in relation to livelihoods, emphasizes the long-term viability of these means of subsistence. A sustainable livelihood is one that can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide for future generations without depleting the resources on which it depends (Karki, 2021: 267). Sustainability is deeply tied to environmental stewardship, recognizing that economic

activities, such as coal mining, can significantly impact local ecosystems, which, in turn, affects the livelihoods of those who rely on the land and natural resources (Antoci *et al.*, 2019).

When merging sustainability with livelihoods, it can be argued that the conceptualization of livelihoods changes and it now refers to “the ability of livelihoods to withstand external shocks (such as economic downturns or environmental hazards) and continue providing for future generations” (Conway & Chambers, 1992: 10). In mining communities, livelihoods typically center around industries linked to resource extraction, but they also encompass broader economic and social networks (Seloja & Ngole-Jeme, 2022: 190). These networks can be significantly affected by environmental degradation and fluctuations in market conditions.

Having explored the concepts of livelihoods and sustainability individually, it is essential to understand how these concepts intersect within the Sustainable Livelihoods Framework. To further elaborate on how the Sustainable Livelihoods Framework integrates the concepts of livelihoods and sustainability, it is crucial to understand its historical context. The conceptual foundations of the Sustainable Livelihood Framework were laid during the 1980s and 1990s, a period marked by significant shifts in development theory and practice (Morse *et al.*, 2009: 15). Traditional approaches to poverty alleviation, which often focused narrowly on income or economic growth, were increasingly seen as inadequate (Vetterlein, 2007: 515). Researchers and practitioners began to emphasize the importance of understanding the broader context of poverty, including social, environmental, and political dimensions (Mensah & Casadevall, 2019: 2). Therefore, livelihood thinking emerged with Robert Chambers' research in the middle of the 1980s at the Institute of Development Studies (IDS) (Scoones, 2015). When Chambers saw that traditional development theories were not having the anticipated effects and that civilization was also under tremendous pressure from its growing population, he came up with the concept of "Sustainable Livelihoods" with the goal of improving development cooperation's effectiveness (Chambers & Conway, 1992: 5).

Leading this paradigm shift were Robert Chambers and Gordon Conway, whose seminal 1991 paper, "Sustainable Rural Livelihoods: Practical Concepts for the 21st Century," established the foundational principles of the Sustainable Livelihoods Framework (de Haan, 2000: 339). Chambers and Conway defined sustainable livelihoods as “a comprehensive approach that ensures resilience to shocks and promotes long-term well-being, not just income generation” (de Haan, 2000: 340). They emphasized that these livelihoods should manage natural resources sustainably for future generations (Chambers & Conway, 1992: 5). The framework gained

momentum through organizations like the UK's Department for International Development (DFID), which incorporated it into global development policies. DFID viewed the livelihoods approach as a flexible tool for understanding and addressing poverty, adaptable to local contexts and cooperative goals (Solesbury, 2003: 9; Scoones, 2009: 172).

Although there are many frameworks for understanding sustainable livelihoods (SL), they all aim to lessen the complexity and ambiguity that motivate the need for sustainable development (Toner, 2003: 772). As noted by Scoones (1998), sustainable livelihoods essentially aim to further advancements in poverty reduction, even in the face of differing views of what they mean, it can also be argued that the approach to sustainable livelihoods provides a holistic view of development (Scoones, 1998: 6). Instead, then reducing the problem to a small number of variables, such food security or financial difficulties, it seeks to address the underlying causes and aspects of poverty. Instead, it aims to comprehend how various facets of poverty are interconnected, allowing for more efficient action prioritizing at the operational level (Scoones, 1998: 7). This strategy—or strategies since there is no one right way—aims to assist people in making long-lasting improvements to their standard of living. The success of these efforts is gauged by poverty indicators that the individuals themselves identify (Morse *et al.*, 2009: 12).

3.3. Core elements of the Sustainable Livelihoods Framework (capital assets).

The sustainable livelihoods framework is designed to organize and clarify the factors limiting or enhancing livelihood opportunities, illustrating how these factors interconnect (Norton, 2001). A key concept is that households have varying access to livelihood assets, which the sustainable livelihoods approach seeks to broaden (Serrat, 2017: 22). These livelihood assets—often subject to trade-offs and decisions by those in poverty—include: Human capital, social capital, natural capital, physical capital and lastly financial capital (Mishi *et al.*, 2020: 4). It is of significance to discuss each capital in more detail.

3.3.1. Human capital.

According to the Sustainable Livelihood Framework, as described by Sayer and Campbell (2003), human capital is an intangible asset or quality not listed on a company's balance sheet that can be classified as the economic value of a worker's experience and skills (Sayer & Campbell, 2003). It encompasses the skills, knowledge, labour capability, and good health that collectively enable individuals to pursue various livelihood strategies and meet their livelihood goals (Morse & McNamara, 2013: 4). Human capital is considered a cornerstone within the Sustainable Livelihood Framework because the other types of capital—such as natural, social,

physical, and financial—rely, at least in part, on the foundation provided by human capital (Ngepah *et al.*, 2021: 3). This is particularly relevant for rural, resource-dependent communities where assessing human capital can be challenging, especially when it comes to valuing indigenous knowledge, which is often difficult to quantify (Ngepah *et al.*, 2021: 3). Additionally, the concept of human capital acknowledges that not all labour is equivalent; however, employers can enhance the quality of their human capital by investing in their employee (Neagu *et al.*, 2016: 65). The education, experience, and skills of employees hold significant economic value for both employers and the broader economy (Neagu *et al.*, 2016: 65). While the quantity of labor is typically assessed by the total number of workers available to a household, the quality of labor is evaluated based on the level of education, skills acquired, and the health status of household members (Leoni, 2019: 7).

Moreover, households with higher-quality human capital are more likely to benefit from lucrative livelihood strategies. Hariram *et al.* (2023) suggest that human assets encompass a range of capabilities, including skills, knowledge, and physical and mental abilities, enabling individuals and households to navigate their environment and meet their livelihood needs (Ayana *et al.*, 2022). According to Kamaruddin and Samsudin (2014: 108), human assets represent a variety of productive capacities that empower individuals or households to secure livelihoods and, consequently, improve their financial stability. These assets facilitate participation in gainful employment, off-farm activities, and other income-generating opportunities, which contribute to livelihood success and poverty reduction (Azumah *et al.*, 2023: 130).

Furthermore, Sen (1997) argues that human assets are based on an individual's capabilities, including knowledge and economic, social, and mental skills, which together enhance investment opportunities and lead to improved livelihood outcomes (Sen, 1997: 1960). Thus, human assets can be seen as a combination of knowledge and employment opportunities resulting from physical and mental capabilities that collectively empower individuals and help them meet their livelihood needs.

Empirical studies have highlighted the connection between access to human assets and poverty reduction. For instance, it has been shown that access to human assets increases household income (Moyo *et al.*, 2021) and improves food consumption (Scheiding, 2000). Additionally, access to human assets is crucial for enhancing household well-being (Bajwa, 2015). Low

levels of education and qualifications are closely linked to poverty, and higher educational attainment is associated with more effective poverty reduction (Awan *et al.*, 2011).

3.3.2. Natural capital.

The concept of "natural capital" was first introduced by E.F. Schumacher in his 1973 book, *Small Is Beautiful* (Schumacher, 1973), and later expanded upon by scholars such as Herman Daly, Robert Costanza, and others within the field of Ecological Economics (Azumah, 2023: 132). Their work critiques the limitations of traditional economic models (Azumah, 2023: 132). Natural capital refers to “the ecosystem services and resources provided by non-human life that are essential for human survival and economic sustainability”. It plays a crucial role in economic assessments and the valuation of ecosystem services (Azumah, 2023: 132).

Traditionally, economic analysis categorized natural capital as “land,” distinct from “capital,” which was considered man-made (McGrath & Hynes, 2020: 156). Historically, “land” was viewed as a fixed resource with limited supply, while “capital” was defined as human-made goods (Serrano *et al.*, 2024: 4). However, this distinction is problematic because it overlooks the fact that natural capital can be either enhanced or degraded through human activities over time. Thus, recognizing the dynamic nature of natural capital is essential for understanding its role in sustaining economic and ecological systems (Akerman, 2002: 435).

Additionally, natural capital within the Sustainable Livelihoods Framework encompasses vital resources such as land, water, forests, biodiversity, and various ecosystems. These resources play a fundamental role in providing essential goods and services that support human livelihoods (Serrat, 2017: 23). For instance, agricultural productivity relies on fertile land and adequate water supply, while forests contribute to timber, fuelwood, and non-timber forest products essential for local economies. Biodiversity and healthy ecosystems are crucial for regulating climate, purifying water, and supporting pollination and nutrient cycles essential for agriculture (Serrat, 2017: 24).

3.3.3. Physical capital.

According to Scoones (1998), Lax and Krug (2013), and Bebbington (1999), physical capital is a category of capital that encompasses financial capital (money), human capital, social capital, and knowledge capital. In economic terms, physical capital is one of the three primary factors of production, representing the tangible, man-made assets used to produce goods and services (Lewis, 2019). This includes items such as inventory, cash, equipment, and real estate.

Examples of physical capital include infrastructure like bridges, roads, irrigation canals, and housing (Jakobsen, 2012).

Improved infrastructure allows households to diversify their livelihood strategies and engage in more lucrative activities (Kassegn & Abdinasir, 2023: 4). Physical capital comprises the tangible assets that support production and daily life, including infrastructure, housing, transportation, communication systems, and healthcare. Its role is to facilitate the fulfillment of essential needs and enhance productivity (Lax & Krug, 2013:7). Conversely, a lack of infrastructure, inadequate housing, and insufficient production materials can exacerbate poverty. Poor infrastructure can limit market access, and without the necessary tools and equipment, individuals may be unable to fully realize their productivity potential (Lax & Krug, 2013: 4).

Overall, it can be argued that the significance of physical capital extends beyond merely supporting immediate livelihood activities; it also plays a crucial role in long-term economic development and resilience (Lax & Krug, 2013: 4). Access to robust infrastructure not only improves day-to-day functioning but also fosters opportunities for economic growth and diversification. For instance, well-maintained roads and reliable transportation networks facilitate market access, enabling producers to reach broader markets and increase their income potential. Similarly, investments in communication and health infrastructure enhance the overall quality of life, reduce vulnerabilities, and promote better health outcomes, which in turn support more sustainable livelihood strategies. In communities that depend on natural resources, such as those impacted by mining, the deterioration of physical capital can have profound effects. Economic potential can be hampered, and vulnerabilities are present when mining-related infrastructure loss or degradation occurs (Makua & Kola, 2017: 15).

3.3.4. Financial Capital.

It is argued by Lax and Krug (2023: 9) that a livelihood strategy must include financial capital because it enables people and households to gather and manage the resources necessary to maintain their standard of living. There are two primary sources of this capital: internal resources and outside funding (Lax & Krug, 2023: 9). The wealth or assets that people already own, such as cash, savings, animals, or other goods that may be easily liquidated, are referred to as internal stock. With the use of these resources, people can be financially stable, able to pay for everyday needs, handle emergencies, and invest in additional assets without depending on outside funding (Scoones, 1998: 5). Livestock frequently serves a dual purpose for rural

communities, serving as a source of income as well as a means of financial stability in difficult times. Internal stock is a foundation that individuals can draw on to strengthen their economic resilience (Kollmair, 2002).

However, money from outside sources like wages, pensions, remittances, or institutional funding is represented by external inflows. These inflows are essential because they give communities with limited internal resources regular or additional money to cover daily costs and make long-term plans (Waidler & Devereux, 2019: 680). Remittances from family members who work overseas or in metropolitan regions, for instance, can make a significant contribution to household income and enable families to spend money on their children's education, healthcare, or infrastructure upgrades (Waidler & Devereux, 2019: 680). Similar to this, pensions give elderly people a reliable stream of income, guaranteeing a continuous safety net for their finances long after they retire. These inflows are essential for replenishing and enhancing the stock of financial capital, particularly in communities where employment opportunities are limited (Waidler & Devereux, 2019: 680). It can thus be argued that financial capital also plays a central role in improving other forms of capital, such as human, physical, and social capital. Individuals can invest in education and skill development by having access to financial resources, boosting their human capital, and securing better-paying jobs.

3.3.5. Social capital.

Like human capital, social capital is complicated and challenging to quantify using precise metrics. According to the Sustainable Livelihoods Framework, social capital refers to social resources such as official group memberships, informal networks, and trust-based connections that promote collaboration between people and communities (Serrat, 2017: 23). Through these networks, people can get access to resources, knowledge, and assistance that would be challenging to get on their own. A person's ability to access these networks is influenced by a variety of criteria, including age, caste, gender, and social class, all of which are intricately woven into the fabric of society (Mishi *et al.*, 2020: 4). Being a part of these groups has numerous advantages, yet being a part of them entails marginalization by nature. Some stakeholders may be excluded from networks when others are granted access, causing social division and possibly interfering with more extensive development projects. Social capital's exclusive character can occasionally exacerbate already-existing disparities, especially in countries where socio-economic or cultural variables stratify access to networks (Di Maddaloni & Sabini, 2022: 780).

Furthermore, the ability of social capital, despite its complexity, to make up for shortfalls in other types of capital, including financial or natural capital, is an unambiguous indication of its local importance (Bhandari & Yasunobu, 2009: 482). When a community comes together to lend a hand, share resources, or offer emotional support to one another, social capital can serve as a safety net (Bhandari & Yasunobu, 2009: 482). Social capital is highly valued in the community because it fosters communal solidarity, especially in rural areas where access to institutional support systems may be restricted (Musavengane & Kloppers, 2020). Furthermore, a strong link between social capital and the decrease in poverty is highlighted by Bebbington (1999); based on research, membership in village organizations or community groups has been linked to better livelihood outcomes and higher income.

This improvement happens due to the chances these networks present for cooperation, resource sharing, and group issue-solving, which can increase output and revenue (Mubangizi, 2003). Because of this, even though social capital may be difficult to measure, its significance in sustainable development plans is shown by how it reduces poverty and makes up for other types of capital (Rogers *et al.*, 2013: 3475). Overall, it can be argued that these capitals each play a central role in shaping livelihood strategies and outcomes. Importantly, no single type of capital alone is adequate to ensure desired livelihood outcomes; instead, the combination and interaction of these assets determine success (Habib *et al.*, 2023: 4).

3.4. Vulnerability context.

A fundamental feature of the Sustainable Livelihoods Framework is its acknowledgment that individuals function in a context of vulnerability, which profoundly influences their surrounding environment (Allison & Horemans, 2006: 759). In this context, "external factors" mean those that people cannot easily manage but directly impact their ability to support themselves. For the poorest people on the planet, vulnerability is a significant problem because it exacerbates many of the problems they encounter, reduces their chances, and makes it more difficult for them to create safe futures (Serrat, 2017: 25). The framework categorizes vulnerability into three main categories: trends, shocks, and seasonality (Cannon & Twigg, 2003: 4).

Furthermore, long-term, broad processes, including population increase, resource scarcity, economic shifts, and political developments, are known as trends, and they can have a significant impact on people's quality of life (Cannon & Twigg, 2003: 4). Resource trends, like disputes over land or water, or technical developments, like automation, can influence how

people interact with their surroundings and decide whether particular livelihood methods succeed or fail. These patterns shape opportunities and difficulties for individuals and the rates of return on their labour (Cannon & Twigg, 2003: 4).

Seasonality and shocks are more acute and frequently erratic sources of vulnerability. Shocks are defined as unexpected events that cause devastation to a person's livelihood by destroying assets or compelling them to sell valuables to survive (Cannon & Twigg, 2003: 5). Examples of these events include natural catastrophes, economic downturns, conflicts, or health epidemics. For example, a drought can destroy crops, depriving farmers of food and revenue, while an economic shock like inflation can make investments less valuable. The sustainability of livelihoods depends on communities' ability to bounce back from shocks like this and avoid falling into even deeper poverty (Khan *et al.*, 2020: 5). Conversely, seasonality describes regular, cyclical changes in things like food supply, costs, and job prospects (Khan *et al.*, 2020: 5).

Additionally, poorer communities, where access to resources or income may be more limited during specific times of the year, may face enduring challenges due to these seasonal changes. Awareness of how external factors limit people's options for a livelihood and how resilience and flexibility are critical in assisting them in overcoming these challenges requires an awareness of the vulnerability context (Scoones, 1998: 4).

3.5. Transformation structures and processes.

The way people and communities navigate their environments and have access to resources are two essential ways that institutions, organizations, laws, and policies shape livelihoods (Serrat, 2017: 24). These systems are in use in both the public and private sectors, at all scales ranging from local households to the international stage (Serrat, 2017: 24). Their power to limit access to the five categories of capital—natural, human, financial, social, and physical—as well as to shape people's options for strategies and the financial returns they yield are what makes them significant (Serrat, 2017: 24). These systems also define the conditions of exchange between various forms of capital; thus, they have the potential to either lessen or increase the impact of external shocks on populations that are already vulnerable (Natarajan *et al.*, 2022: 5).

Government agencies, commercial businesses, and civil society organizations are examples of organizations that are transforming structures because they develop and implement laws and policies and provide services (Serrat, 2017: 24). These organizations influence livelihoods by buying commodities, controlling trade, and offering necessary services. They shape access to

resources, markets, and power by the systems they put in place, such as laws and regulations, which also determine how people and organizations interact and function (Serrat, 2017: 24). These processes are essential to both development and efforts to reduce poverty because they have the capacity to either promote equitable access to resources or reinforce power disparities through their influence on cultural and societal dynamics (Serrat, 2017: 24)

3.6. Livelihood Strategies.

In the context of vulnerability, impoverished people make ends meet by making use of the resources at their disposal and adapting to the impact of changing systems and procedures. These livelihood plans are frequently intricate and subject to quick changes due to outside influences like changes in the economy, natural disasters, or policy changes (Moser & Norton, 2001). The Sustainable Livelihoods Approach strives to minimize the barriers that restrict people's alternatives while maximizing the positive features that support flexibility and choice (Morse *et al.*, 2009: 30). It also aims to understand the various factors that shape these strategies. This method acknowledges that livelihood strategies are dynamic and must change with the times to continue to be effective (Morse *et al.*, 2009: 31)

To better handle this complexity, the Sustainable Livelihoods Framework divides livelihood outcomes into five major categories, each of which has an equal degree of diversity (Knutsson, 2006: 92). Enhanced food security, better well-being, decreased susceptibility to outside shocks, higher income, and economic sustainability, and more sustainably used natural resources are a few of these (Knutsson, 2006: 92). However, to achieve these results, trade-offs are frequently necessary because households and communities may have conflicting interests (Scoones, 2015: 9). For example, a household's wealth growth for one group may result in environmental damage, or several individuals may have conflicting objectives. In addition, even with participatory approaches, assessing these results is difficult because of the difficulties in creating valuable indicators.

3.7. Criticism of the Sustainable Livelihood Framework.

According to the first criticism of the Sustainable Livelihoods Framework, there may be severe problems with the methodology itself. According to this viewpoint, the SLF may not be able to fully represent the intricacies and dynamism of real-world lives as a conceptual model (Natarajan *et al.*, 2022: 2). The idealized structure of the framework, which breaks down livelihoods into assets, strategies, and outcomes, has drawn criticism for its tendency to oversimplify the complex and frequently messy reality that people in communities and

individuals must deal with (Natarajan *et al.*, 2022: 2). Its inclination to view livelihoods as a collection of separate elements rather than an intricately linked system impacted by a variety of variables, including as power relationships, socio-economic circumstances, and environmental shifts, is a weakness (Natarajan *et al.*, 2022: 2). Consequently, the Sustainable Livelihoods Framework theoretical underpinnings might not entirely reflect the actual conditions and challenges experienced by people on the ground, leading to a potential misalignment between the framework's conceptual model and practical applications (Natarajan *et al.*, 2022: 3)

Furthermore, the second criticism of the Sustainable Livelihoods Framework focuses on the difficulties in implementing it successfully in practical settings (Morse *et al.*, 2009: 66). Although the Sustainable Livelihood Framework provides a cogent theoretical framework for comprehending livelihoods, its actual use frequently shows substantial challenges (Morse *et al.*, 2009: 66). The framework's methodical approach to examining resources, plans, and results occasionally falls short of encapsulating the nuance and flexibility of actual circumstances. Because real-life livelihoods are complex and linked, it can be challenging to translate the framework's crisp theoretical notions into practical and successful solutions (Morse *et al.*, 2009: 66).

This criticism emphasizes how the Sustainable Livelihoods Framework may find it challenging to meet the practical realities and limitations that communities experience, even while it offers insightful information about the elements of livelihoods (Brocklesby & Fisher, 2003: 196). The Sustainable Livelihoods Framework use may be made more difficult by problems including institutional constraints, socio-economic unpredictability, and local power dynamics (Natarajan *et al.*, 2022: 2). The Sustainable Livelihoods Framework theoretical coherence frequently runs into problems in practice, as suggested by Farrington *et al.* (1999). This highlights a disconnect between conceptual models and the difficulties of actual implementation.

Another criticism is how this framework mostly concentrates on the resources to which households and individuals have access, including financial, physical, social, natural, and human capital, as well as how these resources affect livelihoods (Mishi *et al.*, 2020). Although this method sheds light on people's resources, it does not explicitly address the disparities in power that exist between marginalized populations and mining companies (Conde, 2017: 85). The way power relationships and decision-making procedures affect who has access to and

control over these resources is frequently ignored by the framework. This may imply that, in the context of mining, the impact of strong corporate actors on regional economies and communities is not sufficiently investigated or handled (Ubink & Pickering, 2024: 237).

However, the techniques associated with the Sustainable Livelihood Approach have been helpful in expanding our understanding of intricate livelihood systems, notwithstanding these concerns (Morse *et al.*, 2009: 67). They examine fundamental structures, provide insights into how institutions work, and pinpoint efficient intervention sites for development projects. The Sustainable Livelihoods Framework is a helpful tool for tackling livelihood concerns because of its ability to highlight essential indicators and encourage collaboration amongst pertinent sectors (Morse *et al.*, 2009: 67). A significant warning is nonetheless required: the SLF should not be boiled down to a straightforward administrative paradigm of reasoned decision-making. As Toner (2002) suggests, it is essential to avoid the temptation to oversimplify and undercut the complex, multifaceted nature of real-world livelihoods by just seeing "sustainable livelihoods" through a managerialist lens (Serrat, 2017: 25). The strength of the framework resides in its capacity to recognize the complexity of livelihoods and to provide adaptable, context-specific approaches in place of inflexible, one-size-fits-all solutions (Morse *et al.*, 2009: 68).

3.8. Theoretical integration and study focus.

A thorough lens for examining the several facets of livelihoods is offered by the Sustainable Livelihoods Framework, especially in areas where resource extraction businesses are present. While suggesting certain areas for further investigation, its application to my research on the socio-economic disparities, community resilience, and long-term well-being of Schoongezicht people provides insightful information.

The Sustainable Livelihoods Framework focuses on the various forms of capital—financial, human, social, natural, and physical—and fits in nicely with Schoongezicht's analysis of socio-economic disparities. The approach makes it possible to investigate how unequal access to these resources impacts residents' livelihoods. Disparities in the community's infrastructure (physical capital), financial resources, and access to healthcare and education (human capital) are a few examples of how the fundamental causes of economic inequality can be found. My study aims to shed light on how mining operations worsen these disparities by influencing the quantity and caliber of these resources using the Sustainable Livelihoods Framework.

Also, the foundation for comprehending community resilience is provided by the Sustainable Livelihoods Framework, with emphasis on how individuals use and manage their assets to accomplish their livelihood objectives. The framework can be used to evaluate how the people of Schoongezicht are adjusting to the problems brought about by coal mining, like economic changes and deteriorating environmental conditions. Through an examination of the interactions between different types of capital and the tactics used by locals, the Sustainable Livelihoods Framework can provide insight into the community's ability to endure and bounce back from shocks. This involves investigating the ways in which social capital and local networks support collective resilience as well as the ways in which financial resources and infrastructure upgrades promote adaptive capability.

Lastly, when assessing the long-term well-being of the Schoongezicht people, the Sustainable Livelihoods Framework examination of the sustainability of livelihood outcomes is very pertinent. The framework facilitates the evaluation of the sustainability and contribution of present livelihood methods to the community's long-term prosperity and well-being. The Sustainable Livelihoods Framework sheds light on the long-term effects of coal mining on the well-being of locals by analysing how it affects social structures, natural capital, and economic stability. This involves evaluating the effects on prospects and general quality of life that come with environmental deterioration and economic dependence on a particular industry.

3.9. Conclusion.

In conclusion, the socio-economic experiences of coal mining communities can be comprehensively examined using the Sustainable Livelihoods Framework lens. A comprehensive understanding of how coal mining affects rural life is made possible by this framework, which considers a variety of assets, vulnerabilities, structures, tactics, and results. This theoretical framework provides insights into the intricate interactions of variables influencing the socio-economic reality of the Schoongezicht community and is crucial in directing the investigation and study of their experience.

Chapter 4: Research methods.

4.1. Introduction.

Coal mining has long been a cornerstone of economic activity in many rural communities worldwide, including Schoongezicht in Witbank, Mpumalanga. This chapter delves into the intricate socio-economic landscape shaped by coal extraction, focusing on how it influences community dynamics and individual livelihoods. Understanding the socio-economic impact of coal mining is not merely an academic pursuit but a crucial step towards addressing its implications on local populations. By exploring the community's experiences and perceptions, this study seeks to provide nuanced insights into how coal mining shapes local livelihoods, influences socio-economic conditions, and prompts adaptive strategies within the community.

Furthermore, the overarching aim of this study is to investigate the socio-economic experiences of residents in the Schoongezicht community, Witbank, Mpumalanga, within the context of coal mining. Three subsidiary objectives guide this study: firstly, to assess the impact of coal mining on local livelihoods, including aspects such as employment opportunities, income levels, and economic stability. Secondly, to explore the social dynamics precipitated by coal mining activities, focusing on changes in community cohesion, cultural dynamics, and emerging social inequalities. Lastly, the research seeks to understand the coping mechanisms employed by Schoongezicht residents in response to the socio-economic challenges brought about by coal mining. Through these objectives, the study aims to provide insights into the complex interactions between coal mining activities and the socio-economic well-being of local communities in Schoongezicht.

In this chapter, the research design and methodology are detailed to illuminate the path towards comprehending the socio-economic complexities engendered by coal mining in Schoongezicht. Through rigorous inquiry and ethical practice, this study endeavors to shed light on both the challenges and opportunities presented by coal mining, paving the way for informed decision-making and policy formulation.

4.2. Research design.

This section serves to outline how the research was conducted. It justifies the methodological approach taken and the methods that were employed. Therefore, it is of significance to explain what a research design is, and which research design was employed in this research and why. A research design serves as the blueprint for a study, outlining the systematic strategy by which

research questions are investigated, and objectives are achieved (Polit & Hungler, 1999: 155). It establishes the framework for selecting appropriate methods and techniques for data collection, analysis, and interpretation, ensuring that the study remains focused and methodologically sound (Khan *et al.*, 2023: 90). In essence, research design is integral to shaping every aspect of a study, from its inception to its conclusion, and plays a pivotal role in producing robust and meaningful insights that contribute to academic knowledge and practical applications (Khan *et al.*, 2023: 91).

Furthermore, this study is qualitative in nature therefore it used a qualitative research design, the types of research designs in qualitative research are namely: descriptive, explanatory and exploratory (Boru, 2018: 2). However, for the purpose of this research the exploratory design was used. This design is said to be a type of research that aims to gain insights into a problem or phenomenon that is not well understood (Boru, 2018: 3). The main purpose of exploratory research is to explore the research questions and provide a foundation for future, more conclusive research and it serves as a tool for initial research that provides a hypothetical or theoretical idea of the research problem (Boru, 2018: 4).

The exploratory research design chosen for this study is highly appropriate due to its primary aim of gaining insights into complex and less-understood phenomena. In focusing on the socio-economic experiences of residents in the Schoongezicht community impacted by coal mining, this approach enables a comprehensive exploration of multifaceted issues. It provided flexibility to investigate various dimensions such as employment patterns, community dynamics, social dynamics and cultural dynamics, all of which contribute to a nuanced understanding.

The specific context of Schoongezicht in Witbank, Mpumalanga, where coal mining significantly influences socio-economic conditions, underscores the relevance of exploratory research. It allowed one to capture the unique complexities and interconnections within the community, thereby facilitating a holistic understanding of how coal mining impacts local livelihoods and social dynamics.

4.3. Methodology.

4.3.1. Qualitative research.

Since the objectives of the study were to explore and gain an in-depth understanding of the socio-economic experiences of coal mining in the Schoongezicht community this research was

qualitative, as the research questions concern social phenomena' nature. This approach considers the significance of people's experiences and understanding, and the importance of depth and detail in uncovering the subject of the research (Mohajan, 2018: 24).

A case study approach fits well into this research because it allows for an in-depth and contextualized understanding of complex phenomena within real-life settings (Slight *et al.*, 2011: 1). A case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and context are not clear (Ebneyamini & Moghadam, 2018: 3). This approach was particularly valuable for exploring complex issues where contextual conditions might have significantly impacted the phenomenon being studied (Coombs, 2022: 3). It was suitable for this study because of the Schoongezicht community's direct exposure to coal mining activities and the resultant socio-economic impacts. The unique characteristics of this community, such as its demographic composition, economic dependence on mining, and specific social and health challenges, make it a rich site for detailed investigation. The case study approach allowed for a holistic examination of these factors, capturing the lived experiences of residents and the broader socio-economic dynamics at play.

4.3.2. Research instruments

This study employed semi-structured interviews to gather data. Semi-structured interviews are a qualitative research method characterized by a flexible yet guided approach to gathering data through interviews (Mashuri *et al.*, 2022: 4). The semi-structured interview is a widely utilized research method in the social sciences. Magaldi and Berler (2020: 4830) define the semi-structured interview as exploratory in nature. They elaborate that such interviews are guided by a predefined framework focusing on central themes, while allowing flexibility for in-depth exploration during the interview process (Magaldi & Berler, 2020: 4835). Despite the initial topical guidance, Magaldi and Berler argue that semi-structured interviews facilitate discovery by enabling researchers to delve deeply into participant responses and uncover new insights within the context of their study (Magaldi & Berler, 2020: 4835).

Furthermore, the main reason this study utilized semi-structured interviews is that these interviews play a crucial role due to their ability to balance structure with the flexibility (Mashuri *et al.*, 2022: 5). These interviews were designed to engage a diverse range of participants, including local residents, community leaders, and local business owners, ensuring a comprehensive spectrum of perspectives is captured. This approach fosters a dynamic dialogue

wherein participants can freely articulate their lived experiences, perceptions, and challenges related to coal mining (Horton *et al.*, 2004: 4).

Additionally, the semi-structured format allows for a predefined set of core questions focusing on economic stability, health impacts, and community dynamics, while also permitting exploration of emergent themes that arise organically during interviews. This flexibility is particularly valuable in Schoongezicht, where the socio-economic landscape is complex and multifaceted. By allowing participants to express themselves in their own words and delve into specific details and contexts, semi-structured interviews facilitated an in-depth exploration of the factors shaping the community's response to coal mining impacts. Administering these interviews involved carefully crafting an interview schedule that aligns with research objectives, recruiting diverse participants, conducting in-person or remotely interviews, and systematically analyzing the gathered data to identify patterns, themes, and contextual nuances.

4.3.3. Sampling.

The population sample was twelve community members between the ages 20-45. All participants have lived in the community for more than 15 years. Furthermore, in conducting research on the socio-economic impacts of coal mining in the Schoongezicht community, careful consideration is given to sampling techniques to ensure the study's validity and relevance. Furthermore, two sampling techniques were used in this study, namely purposive and snowball Sampling. It is of significance to define these sampling techniques.

Purposive sampling and snowball sampling are both non-probability sampling techniques used in qualitative research (Etikan, 2016: 2). Purposive sampling involves the deliberate selection of participants based on specific characteristics or qualities that align with the study's objectives, allowing researchers to gather in-depth data from targeted groups (Shaheen, 2019: 28). This method ensures that the sample is relevant to the research question but may limit the generalizability of findings. Snowball sampling begins with a few initial participants who meet the study criteria; these participants then recruit others from their network, expanding the sample (Naderifar *et al.*, 2017: 3). This technique is particularly useful for accessing hard-to-reach or hidden populations, though it can introduce biases as the sample may become less diverse and more homogeneous over time (Biernacki & Waldorf, 1981: 142). Both methods were valuable for their ability to provide rich, detailed data but must be used with consideration of their limitations regarding representativeness and potential biases.

Purposive sampling is employed to select participants such as community members who possess direct insights into the effects of mining on various aspects of community life. This approach allowed for a focused exploration of specific socio-economic issues and ensured that the voices of those most affected by mining activities were heard. Additionally, snowball sampling was utilized to leverage community networks, enabling access to participants who may have valuable perspectives but may not initially come forward (Biernacki & Waldorf, 1981: 143). This method fosters inclusivity and broadens the scope of participant representation within the study (Biernacki & Waldorf, 1981: 143). Together, these sampling techniques enabled a thorough examination of the complex socio-economic dynamics influenced by coal mining in Schoongezicht, providing robust insights that can inform targeted interventions and policy recommendations aimed at improving community well-being.

4.3.4. Data analysis.

In analyzing the qualitative data gathered from semi-structured interviews in the study of the socio-economic impacts of coal mining on the Schoongezicht community, thematic analysis served as the methodological framework. Thematic analysis is a qualitative research method used to identify, analyze, and report patterns or themes within data. It involves systematically organizing and interpreting data to uncover underlying meanings and insights related to the research question (Naeem *et al.*, 2023: 2). The process begins with meticulous transcription of interview recordings to ensure the accuracy and completeness of the data (Naeem *et al.*, 2023: 2). As a researcher you then immerse themselves in the transcripts, repeatedly reviewing them to gain a deep understanding of the content and context.

Initial coding follows, where segments of data relevant to the research questions are systematically identified and labeled (Naeem *et al.*, 2023: 2). These codes are refined through a process of constant comparison, grouping similar codes into categories that capture broader concepts or phenomena observed across the interviews (Naeem *et al.*, 2023: 2). Through iterative review themes gradually emerge—patterns and narratives that encapsulate the core socio-economic dynamics influenced by coal mining in Schoongezicht.

I have chosen thematic analysis because it is considered the most appropriate method for studies aiming to uncover insights through interpretation. Thematic analysis provides a systematic approach to data analysis and enables the researcher to link the analysis of theme frequency with the overall content (Ibrahim, 2012: 40).

4.4. Limitations of study

There is no such thing as a perfect study, limitations are an inherent part of any research process. Limitations refer to factors or constraints that can affect the accuracy, validity, and generalizability of research findings (Miles, 2019: 2). In exploring the socio-economic impacts of coal mining on the Schoongezicht community, several inherent limitations must be acknowledged and addressed to uphold the study's credibility and relevance. One potential challenge was sampling bias, where certain groups may be overrepresented or underrepresented in the study sample. To mitigate this, the research employed purposeful sampling techniques to ensure a diverse range of participants. Additionally, snowball sampling was also used to reach individuals who may be less visible or initially reluctant to participate, thereby broadening the inclusivity of perspectives.

4.5. Ethical considerations.

Ethical considerations in research refer to the principles and guidelines that ensure the rights, dignity, and well-being of participants are respected and protected throughout the study process (Mirza *et al.*, 2023: 442). In the study on the socio-economic impacts of coal mining on the Schoongezicht community in Witbank, Mpumalanga, rigorous measures were implemented to mitigate ethical risks and adhere to university ethical guidelines. These measures include informed consent procedures where participants are fully informed about the study's purpose, procedures, potential risks, and their right to withdraw at any time without consequence. The identities of participants remained anonymous, and pseudonyms were used in place of their real names. Participants were also informed that the interviews were recorded and transcribed, and that the information will be kept in password protected files.

Furthermore, efforts have been made to maintain confidentiality and anonymity by securely storing and anonymizing data to protect participants' identities and sensitive information. Additionally, the research team has undergone training in ethical conduct, ensuring that all interactions with participants uphold ethical standards, including respect for cultural sensitivities and diversity within the community.

To ensure my safety as a young female student conducting interviews, the research was conducted in public spaces. This approach provided a secure environment, mitigating potential personal safety risks and ensuring a respectful and professional setting for data collection.

Moreover, ethical clearance has been sought from the university's ethics committee prior to commencing data collection. This clearance ensures that the study design and procedures align with ethical guidelines and regulatory standards, providing assurance that the research is

conducted responsibly and ethically. By adhering to these ethical principles and obtaining clearance from the ethics committee, the study aims to uphold the trust and integrity of the research process while safeguarding the rights and welfare of all participants involved in exploring the impacts of coal mining on the Schoongezicht community.

4.6. Conclusion.

In conclusion, the methodology chapter outlines a robust framework designed to comprehensively explore the socio-economic impacts of coal mining on the Schoongezicht community in Witbank, Mpumalanga. Utilizing qualitative methods, specifically semi-structured interviews and thematic analysis, this study aims to capture diverse perspectives and nuanced insights from key stakeholders including miners, community leaders, health professionals, and local business owners. The application of purposeful and snowball sampling techniques ensures a representative sample, while rigorous data collection and analysis protocols uphold methodological rigor and reliability.

Efforts to mitigate potential biases, such as interviewer training and adherence to standardized protocols, underscore the study's commitment to ethical research conduct. Obtaining ethical clearance from the university's ethics committee further solidifies the adherence to ethical guidelines, ensuring the protection of participants' rights and confidentiality throughout the study. By employing these methodological strategies, this research endeavors to provide a comprehensive understanding of how coal mining shapes socio-economic dynamics in Schoongezicht.

Chapter 5: Data analysis.

5.1. Introduction.

This chapter provides a comprehensive analysis of the central themes that emerged from interviews with participants in the Schoongezicht community, focusing on the socio-economic impacts of coal mining. Through an exploration of lived experiences, this analysis reveals residents' multifaceted challenges, including economic hardships, health concerns, and other broader social issues. It also highlights the coping strategies employed by community members, ranging from social support networks to traditional knowledge systems. By drawing on participant narratives, this chapter seeks to contribute to a deeper understanding of how the coal mining industry shapes the community's daily realities while engaging in broader discussions on the intersection of natural resource extraction, livelihoods, and social resilience. This analysis not only underscores the immediate consequences of coal mining but also considers the long-term implications for sustainable development in Schoongezicht.

5.2. Overview of analytical approach.

This section outlines the analytical approach used to examine the data gathered from participant interviews. Thematic analysis was employed to systematically identify, analyze, and report recurring patterns within the dataset, allowing for an in-depth exploration of coal mining's influence on local livelihoods, social dynamics, and community coping mechanisms. The study's core objectives guide this approach: to uncover how coal mining reshapes economic activities, alters social structures, and affects the well-being of residents in the Schoongezicht community. By organizing the data into themes, this analysis provides a nuanced understanding of the community's responses to the socio-economic pressures brought on by the coal mining industry. Furthermore, the thematic analysis enables the research to identify prevalent challenges and the adaptive strategies employed by different demographic groups, offering insights into the community's resilience and the broader implications for rural development.

5.3.1. Economic marginalization and job inequality

The economic marginalization often faced by rural mining communities stems from the uneven distribution of wealth and resources generated by mining operations (Meyersfeld, 2017: 35). This mostly has to do with the financial capital asset found in the scope of Sustainable Livelihoods Framework (Morse & McNamara, 2013). The financial resources that people and

communities employ to maintain their standard of living, such as income, savings, and credit availability, are collectively referred to as financial capital (Habib *et al.*, 2023). The unequal distribution of income brought about by mining operations produces glaring discrepancies in mining districts, where locals frequently find themselves shut out of the financial advantages these businesses bring.

This exclusion is particularly evident in Schoongezicht, where despite the presence of these lucrative industries, many community members receive little benefit while bearing the brunt of environmental degradation and health issues (Singer, 2011: 285). The Schoongezicht community is a significant example of this, where coal mining activities have exacerbated socio-economic disparities, leaving many residents economically marginalized. This marginalization is marked by limited access to stable employment outside the mining sector, inadequate infrastructure, and a lack of support for alternative livelihoods, which further deepens the cycle of poverty (Simpson *et al.*, 2019: 86). Most respondents indicated that mining companies have not done enough to ensure that the community benefits from their presence in their localities. Sadly, even human labour is sourced outside of the mining area. This position by the mining companies disempowers communities significantly and maintains its status quo just as they found them.

Participants consistently expressed frustration with the limited economic opportunities available to locals, especially when compared to the influx of outsiders who seem to benefit more from the mining industry. Many residents articulated how mining operations promised employment and economic growth for the local community but failed to deliver on these promises. As three residents who have lived in the community for decades shared:

“We were told that the mine would bring jobs for us, but instead, people from outside the community are getting those positions. It’s like we don’t exist when it comes to the good jobs” (Author’s interview with a 31-Year-old female)

Indeed a 27-year-old male noted: “I’m not aware of any community members who are benefiting from doing business with the mine. Only a few locals are employed by the mine, and most of the people we see coming and going in the morning are from outside the area” (Author’s interview, August 2024).

Similarly, a 29-year-old male noted: “They haven't done anything for us so far. Even when they need workers, they don't hire our children. Instead, they bring in people from distant

areas. As residents, we should be given priority. I'm not demanding it aggressively, but it's only fair” (Author’s interview, August 2024).

These quotes highlight a recurring issue of economic exclusion and inequity in the context of coal mining activities in the Schoongezicht community. Despite promises of local job creation and economic benefits, most of the employment and business opportunities associated with the mine are being allocated to individuals from outside the community. This pattern of exclusion has led to a growing sense of frustration among residents, who feel that they are being sidelined despite their proximity to the mining operations. The perception that "people from outside the community are getting those positions" suggests a lack of local engagement and opportunities, which could exacerbate existing socio-economic disparities (Cloete & Denoon-Stevens, 2018: 1104). The comments also reveal a broader issue of fairness and prioritization. The community members sense of being overlooked for "good jobs" and the limited involvement of local businesses indicate that the promised benefits of mining activities are not equitably shared. This exclusion impacts individual livelihoods and undermines the potential for broader community development and economic growth (Cloete & Denoon-Stevens, 2018: 1105).

Additionally, many residents believe they are only observers of the affluence created by the mining industry despite the perception of wealth generated by this industry. Even though mining operations generate large sums of money, the wealth is distributed unevenly, with the people who live closest to the mines receiving little benefits (Baldry *et al.*, 2019: 99). The unemployed youth in the community expressed disappointment over the broken promises made by mining companies:

“They told us when they start mining, we are all gonna have better lives. But years later, we were still waiting. All that money, it does not come here. The youth, we have got no jobs, no future” (Author’s interview with a 27-year-old male Unemployed youth).

“They come here, dig up the land, make big money, then leave us with dust and no jobs. We just watch them build nice houses far away, but here, we still struggling to survive. It’s like we only good enough to see, not to live that life” (Author’s interview with a 30-year-old female).

Other participants share the sentiment expressed by these participants, who believe that the mining companies are keeping local workers in poverty and marginalizing them economically by not investing in their long-term development. This disparity in job access affects individual

livelihoods and strains community cohesion, leading to feelings of alienation among long-standing residents. As locals expressed,

“It feels like we’re invisible when it comes to these opportunities. It’s frustrating to see outsiders getting the jobs that should be ours” (Author’s interview with a 22-year-old male).

“We have been here for generations, but the mines don’t care about us. They keep us poor, keep us waiting for jobs that never come. They take everything from the land and give us nothing back. It’s like we not worth investing in” (Author’s interview with a 23-year-old male).

“We thought the mining jobs would lift us up, but instead, they keep us down. They hire a few, but don’t train us for better roles. It’s like they don’t care about our long-term growth. We still stuck, and that’s why the community’s suffering” (Author’s interview with a 35-year-old female).

Furthermore, the unequal distribution of jobs is another primary concern that various participants highlighted, and this has contributed to a growing sense of injustice within the community. Mining jobs, particularly those offering higher wages and stable employment, are often reserved for individuals with specialized skills or connections, which many residents lack due to historical educational and economic disadvantages (Baldry *et al.*, 2019: 102). Two male residents, one in his 50s and the other in his late 40s, who have been labourers for over 20 years, voiced their frustration:

“It’s unfair. We see people coming from far away, getting good jobs in management, while we are stuck with the dangerous and low-paying jobs if we even get hired at all” (Author’s interview with 50-year-old male).

“Residents primarily have access to low-skilled, labour-intensive jobs in the mining industry. Higher-skilled and better-paying positions are often filled by outsiders who come into the community specifically to work in the mines” (Author’s interview with 40-year-old male).

This unequal job distribution limits locals' access to economic growth. It causes deep-seated feelings of resentment and exclusion, as they feel the money generated from their land benefits outsiders more than the community itself. Additionally, the economic and social divide created by the mining industry has also strained local social cohesion (Lohr *et al.*, 2021: 3). Many participants pointed to the growing tensions between residents and those coming from other areas to work in the mines. As one 35-year-old mother of two stated:

"It's hard to watch people who don't even know our struggles come here and live well because of the mine while we are still struggling to make ends meet" (Author's interview in August 2024).

Another participant stated: "It feels like we're just spectators in our community, watching others profit from the mine while we're stuck with the same old problems. The mine brings in outsiders for the better jobs, and it feels like the local people, who have always been here, are forgotten" (Author's interview with a 38-year-old female).

This sentiment illustrates the emotional toll that economic marginalization takes on the community, as they feel increasingly isolated from the economic benefits that should improve their lives. The arrival of outsiders seeking work has intensified competition for scarce local resources, such as housing and social services, further exacerbating tensions (Munnik, 2010:7) The obvious prosperity of outsiders in the economy, which stands in sharp contrast to the ongoing struggles of the local populace, adds to this sense of discontent. This discrepancy weakens social cohesiveness in the community by igniting animosity and maybe dividing those who profit from the mine from those who do not (Kavuro, 2015: 234). Moreover, there is a definite hierarchy that perpetuates job disparity even within the local labour force. Even though some locals manage to find work in the mines, they are frequently forced into dangerous, low-skilled positions that don't provide much opportunity for advancement in their careers or stable income.

A 46-year-old miner, who has worked in the industry for nearly a decade, explained, "We are just the labour, the ones who do the hard work underground. The good jobs—the ones in offices, with good pay—are for other people from outside, not us" (Author's interview, August 2024).

One can argue that this discrepancy in job roles has come to represent the larger injustices in the mining industry. This inequality shows that newcomers from far away areas are securing better opportunities and locals are confined to manual labour, this creates a sense of anger and discontentment (Hamann & Bertels, 2016). The sense of injustice is a recurring theme throughout the interviews, with participants expressing dissatisfaction with how the benefits of coal mining are distributed. Although coal mining is a source of economic activity, the industry has not fairly shared its advantages with the community.

Consequently, there is an increasing sense of unfairness, marginalization, and bitterness among the participants, who demand increased funding for regional workforce development and more

inclusive employment procedures. One participant said, "We want to be part of the wealth that's being taken from our land. It's only fair that the people who live here get a chance at a better life, too" (Author's interview with 25-year-old male). This demand for justice reflects a larger community's wish for significant socio-economic change in the face of a community that feels abandoned by the industry that was meant to improve it.

5.3.2. Disparities in business success

Mining creates an environment where local businesses become dependent on mining. There is now a clear economic gap in the Schoongezicht community due to the differences in company success brought about by the introduction of coal mining. On one hand, some enterprises experience growth due to the increased demand for goods and services driven by the mining industry (Baldry et al., 2019: 102). A local hardware store sees a surge in sales as mining operations require a steady supply of tools and materials, the owner of a hardware shop in Schoongezicht, explains:

"With the expansion of the mining operations, our store has seen a huge increase in foot traffic. The miners and their families need everything from tools to home improvement supplies. Our business is thriving, and we are hiring more staff to keep up with the demand" (Author's interview with a 45-year-old male).

This increased demand creates a direct positive economic impact on those businesses that cater to the mining sector, potentially leading to greater job opportunities and local investment. On the other hand, the detrimental consequences that coal mining has on the environment present substantial hurdles for many businesses. Environmental deterioration, such as air and water contamination, significantly affects local businesses' ability to operate (Mbedzi et al., 2018). A 38-year-old woman, who runs a small café in the community, shares her struggles:

"The dust from the mining operations settles on everything, including my tables and chairs. It's hard to keep the place clean, and customers complain. I've had to invest in more frequent cleaning, which is eating into my profits" (Author's interview, August 2024).

Coal mining provides economic benefits such as jobs and business opportunities but imposes significant environmental costs that threaten the sustainability of local businesses (Mbezi et al., 2018). As a 38-year-old participant discovered, the extra cost of regular upkeep and cleaning frequently lowers profit margins and pushes companies to the verge of bankruptcy. Additionally, the indirect effects of mining operations frequently result in higher operating

expenses for local firms. For instance, the presence of pollutants and dust can increase the cost of maintaining infrastructure and machinery as was the case with the owner of a nearby printing business explained that: "The dust has clogged up our printers more frequently, leading to costly repairs and downtime"(Author's interview, August 2024) Thus pricing and profitability were impacted by the increase in their operating costs. These problems serve as an example of how mining-related environmental factors can increase operating costs, which can affect local businesses' general financial stability.

Furthermore, the differences in economic success have been exacerbated by the flood of outsiders looking for work in the mines. The demand for goods and services vary as Schoongezicht's population expands and becomes more diverse. Companies that can adjust to these changing consumer demands and meet the varied needs of the community will probably prosper, while those that cannot, might find it challenging to stay in business. One participant said: "The community's changing look is more important than the mining jobs alone. The influx of these newcomers has changed the demand for particular products and services. It is difficult to stay in business if you cannot adapt to the changes" (Author's interview with a 36-year-old female).

While mining jobs have indeed brought about some economic opportunities, it is crucial to understand that the long-term viability of local enterprises in Schoongezicht depends on their capacity to adjust to the shifting dynamics brought about by the entrance of foreigners. The mining sector alone cannot sustain the local economy alone, particularly given the growing and social costs. Ensuring that local businesses prosper in the future will revolve around investing in sustainable industries, support enterprises that serve a wider range of needs, and diversify the economic base. If this change isn't made, the town runs the risk of being unduly dependent on the erratic mining industry, which can cause economic instability if the coal industry falters or is subject to more stringent regulations.

5.3.3. Migration patterns and the mining industry

The number of people moving to Schoongezicht in search of mining work has drastically changed the region's demographics. The estimated population of Emalahleni (Witbank) in 2024 is 455,227, with notable demographic changes brought about by migration associated with mining employment. The white population is estimated at 54,033, while the Black African population has increased to 391,982. Additionally, 43.1% of the municipality's population is under 34 years old (Emalahleni Local Municipality, 2024). This demographic shift is notably

marked by the growing number of younger, often single, migrant workers from other regions, attracted by employment opportunities in the mining industry. These immigrants, usually in their 20s and 30s, add a variety of cultural experiences and backgrounds to the community, making it more vibrant and changing. Since they fill jobs that are frequently hard to fill with local workers, their presence has caused a discernible shift in the local economic and social fabric. A 31-year-old male described this change as overwhelming, saying:

“It feels like every month there are more new faces, and none of them are from here. They come for the mining jobs, but they don't settle down. It's like they're just passing through while we're left with the changes they bring” (Author's interview in August 2024)

Along with looking for work, these younger workers build new connections with the community and social networks when they settle in Schoongezicht, frequently creating unofficial support networks. As the demand for housing, transportation, and social facilities rises, this population transition impacts local infrastructure and services. In addition, tensions within the current community may arise from the presence of these migrants as residents may see rivalry for resources and jobs. This was captured through the responses from participants:

“These young people, they come in looking for work, but now we have more people than the houses we got. You see, they put pressure on the resources we have here, and the local services, they struggle to keep up” (Author's interview with a 55-year-old male).

“I can see why they come here, but it's making things harder for us. There's more competition for jobs, and sometimes it feels like we have to fight for what little we have left” (Author's interview with a 35-year-old male).

The economic opportunities brought about by mining sometimes favour outsiders over locals, which exacerbates this friction (Haffaway *et al.*, 2019: 9). Another participant, who is part of the unemployed youth of the community aged 28 and is a male, voiced out his frustration over how locals are being bypassed for higher paying jobs:

"We've lived here all our lives, but when these big mining companies come in, they hire people from outside for the better jobs. We're left with the backbreaking work while the newcomers walk away with the better paychecks” (Author's interview with a 28-year-old male in August).

This disparity in wealth has exacerbated animosity and fostered a polarizing environment within the neighbourhood. There is a growing “us versus them” mindset among the locals, who

believe that outsiders are taking advantage of possibilities that were once theirs. At the same time, the out-migration of younger locals has further fragmented the community's identity. Many younger residents, unable to find suitable work, have left Schoongezicht in search of better opportunities elsewhere. A resident shared her personal experience, stating,

"I grew up here and saw my friends leave for bigger cities where they could find better jobs and live in safer environments. It's not just about finding work; it's about getting away from the dust and the pollution that mining has brought. When new people come here looking for work, things change. There's a mix of cultures now, which can be exciting, but it also creates tension. Sometimes, it feels like the community is being pulled in different directions. I stayed because I want to help make things better, but I can see why others choose to leave for better opportunities" (Author's interview with a 28-year-old female).

Long-term residents' departures have left a void in the community and weakened the bonds that formerly bound everyone together. The community's sense of togetherness has waned as long-term residents leave. Their departures weaken social ties, making the community feel increasingly fragmented. A once close-knit and supportive network is gradually coming apart.

Additionally, this out-migration has profoundly adverse emotional and social effects, with older residents being most affected. Long-term friends and neighbours have left many people feeling not just physically absent but also as though their close social networks, which formerly offered emotional support and a sense of community, have been undermined. These long-standing bonds, which were frequently formed over many years, were the basis of the community's tight-knit identity. A tangible feeling of alienation and loneliness has now surfaced with the departure of well-known faces and the arrival of temporary newcomers. These older residents expressed how this has affected them by stating that:

"It feels like I'm losing a part of myself every time someone leaves. We used to know everyone by name, but now, with so many new faces, it's hard to feel that same connection" (Author's interview with a 49-year-old female).

"The people I grew up with, the ones I shared my life with, are gone now. It's not just the empty houses—it's the emptiness inside like the community I knew doesn't exist anymore" (Author's interview with a 50-year-old male).

“We used to rely on each other for everything—helping with the garden, sharing meals—but now I don’t even know my new neighbours. The sense of family we had is disappearing”. -(Author’s interview with a 60-Year-old female).

It can be argued that older people, who depend on these ties for both practical and emotional sustenance, find this erosion of social cohesiveness especially upsetting. The loss is felt not only personally but also as a collective eroding of the community's shared identity and history as their social sphere contracts. The loss is felt deeply on a personal level as these ties break down and familiar faces vanish; this can be experienced as a profound sensation of dislocation and isolation. The shrinking of their social circle removes the community's shared history and cultural ties, creating an emptiness that is challenging to fill. The thinning of social bonds exacerbates feelings of bewilderment and isolation, which is a serious problem for senior citizens who find it difficult to adjust to the altered dynamics of their formerly comfortable surroundings. They struggle more and more to regain their footing in a changed environment because of the upheaval, which upends their social routines and threatens their sense of place and belonging. The resulting void exacerbates feelings of disorientation and loneliness, making it challenging for senior citizens to adapt to the altered dynamics of their once-familiar surroundings.

5.3.4 Cracking of house walls due to mine blasting

A crucial dynamic within the community is shown by the direct clash that exists in Schoongezicht between residential stability and mining activity. Regular blasting, an essential part of coal mining, produces strong shockwaves and vibrations that jeopardize residential building's structural integrity. As a result, residents often express concern about the safety and stability of their homes. Four residents stated the following:

"The cracks in walls are just one visible sign of the damage caused by mining. Every time I walk through our community, I see the toll that mining has taken on homes and buildings. These cracks and structural problems are a constant reminder of the heavy impact of blasting and other mining activities. This damage becomes an ongoing source of stress and worry for families who can't afford repairs. It is heartbreaking to see how something meant to bring economic benefits is instead eroding the very homes that people rely on. For many residents, their homes are their biggest investment and a symbol of their hard work. Watching these properties deteriorate due to the vibrations and blasts from mining creates a deep sense of anxiety and helplessness. It's more than just physical damage; it affects the emotional well-

being of families who feel powerless to fix or prevent the damage. This constant strain adds to the already significant pressures they face and undermines their sense of security" (Author's interview with a 30-year-old male).

"Mining is the main reason why most houses have cracked walls and broken windows; the blasting is so strong to a point where you can feel the ground shaking" (Author's interview with a 40-year-old female).

"Over the years, I've witnessed first-hand the impact of blasting on homes in our community. It's not just the visible damage, like cracked walls and broken windows, that is troubling. The real effect is on the morale of the people living here. Seeing their homes deteriorate due to the blasts creates a pervasive sense of instability and insecurity. Families become anxious about the safety of their living conditions, and this worry seeps into every aspect of their lives, affecting their overall well-being. From what I've observed, it's clear that the mining companies should be held accountable for the damage they cause. They have a responsibility to address the issues that arise from their operations, including providing support for necessary repairs. The community shouldn't have to bear the brunt of these damages alone" (Author's interview with a 29-year-old male).

"I've lived here for many years, and the recent cracks in my home are very troubling. I can't afford to fix the damage, and it worries me every day. It's hard to see my home, which was once my sanctuary, become something I'm afraid of. I feel like the mining companies should do something to help us, but they haven't" (Author's interview with a 44-year-old unemployed male).

The testimony of locals emphasizes a crucial but sometimes disregarded effect of mining operations: the severe destruction of residential buildings and its significant influence on mental health. These responses highlight a concerning fact: dwellings are suffering significant structural damage, such as shattered windows and damaged walls, as a result of routine blasting, a vital part of coal mining. Not only is there physical degradation as a result of this harm, but the occupants also experience continuous emotional discomfort. Mining firms are keen to point out the financial benefits of their activities, but this view ignores the hidden expenses that the local population bears (Munnik, 2010: 7). A 35-year-old male expressed:

"Mining firms are quick to boast about the jobs they create and the tax revenue they generate for our region. But what they fail to acknowledge is the heavy price we pay—our health is deteriorating from pollution, our homes are damaged, and our community bonds are

breaking. The money they bring in can't replace the life we once had” (Author’s interview, August 2024)

Additionally, a study by Munnik (2010) on the social and environmental consequences of coal mining reported that various homes in Mpumalanga cracked due to blasting as it documented instances where continuous explosions caused physical damage to homes, including cracks and structural failures, thereby raising fears among residents about the integrity of their living environments.

This shows that coal mining has broader implications for peoples’ homes, and this negatively affects the residents in these mining towns and mines do not even compensate these residents for the structural damages caused by the blasting; this was also found in a study by Shongwe (2018). This study investigated how coal mining affected the standard of living in the Mpumalanga, South Africa, community. It was discovered that locals suffer considerable structural harm to their dwellings due to mining operations, especially blasting. According to the research, locals generally believe that the government and mining firms don't care about their problems, which causes conflicts to continue and little payment for damages sustained.

Additionally, the ongoing possibility of structural damage from mine blasts instils a great deal of dread and anxiety in locals. This fear is a significant component that negatively impacts their overall quality of life and is not merely an emotional response. They live in a condition of perpetual stress that seeps into every part of their lives due to the worry that their homes won't survive the next explosion. A resident highlighted her concern and stated that:

“Every time there’s a blast, I’m afraid my house will fall apart. It’s a constant source of worry for my family” (Author’s interview with a 38-year-old female).

This sums up a common experience for locals living close to mining operations. The fear of possible structural damage becomes a constant, everyday worry rather than occasional. Every explosion turns into more than simply a physical incident; it also serves as a psychological trigger, heightening locals' concerns about the security and stability of their houses. It can be argued that this risk's continuous nature creates an atmosphere of constant stress. Stressors come and go, but this kind of anxiety never goes away (Sayed-Ahmed & Naji, 2006). The locals are always on guard, believing that any given explosion could be the one that seriously damages their property or even puts their lives in jeopardy. The obvious evidence of prior damage, such as broken windows and fractured walls, which operate as constant reminders of

the danger posed by mining operations, adds to this anxiety. This is evident from responses captured during the interviews that stated:

“Every time I hear the rumble of an explosion, my heart races. It’s like living in a war zone; you never know when the next blast could shatter your windows or put your family at risk. The scars on our homes are a constant reminder of the threat we face daily” (Author’s interview with a 43-year-old male).

“We’ve learned to live with the noise, but the fear never really goes away. Each explosion feels like a ticking time bomb, and we’re all just waiting for the next one to hit too close to home” (Author’s interview with a 25-year-old female).

Furthermore, it can be argued that the ongoing anxiety of a structural breakdown exacerbates already existing mental health issues. Their general quality of life may be compromised, and their sense of well-being may be undermined by the burden of living under continual stress about the safety of their homes. Usually, a haven of security and comfort, the home can now cause anxiety and tension. The occupants' everyday functioning, relationships, and mental health are all impacted by this change in perception. A lowered sense of well-being, strained family relationships, and fewer social interactions can result from the worry of possible property damage. Families find themselves more concerned with the possible fallout from each explosion than with other facets of life, like individual growth, community involvement, or even simple enjoyment of each day.

5.3.5 The emotional toll of mining on the family structure

The impact of mining on family life is a profound issue that manifests in various ways, mainly through the disruption of family routines and relationships (Cheng & Cronje, 2014: 140). The impact of mining on family life extends beyond the immediate economic benefits and challenges; it profoundly affects the everyday dynamics within families (Sharma, 2009: 265). Long workdays, shift work, and frequent absences from home are common requirements of mining operations, which strain relationships and disturb family routines. Miners' erratic schedules can result in missed family gatherings, less time spent with loved ones, and higher stress levels for the miners and their families (Sharma, 2009: 265). The roles and obligations inside the household may also be impacted by these interruptions. When one spouse works long hours or spends a lot of time away from home, the other family members—typically spouses or older children—may have to take on more household duties. This change may result in an imbalance of household responsibilities and psychological stress, especially if the extra

labour is not acknowledged or encouraged. A 35-year-old mother of two whose husband is a miner stated the following:

“The long hours my husband works mean he's barely around for the kids and me. It's tough managing everything on my own, from making sure the kids are fed and taken care of to handling all the household chores. I try to stay positive and remind myself that the extra money from the mines is supposed to make our lives better. But sometimes, it feels like we're just trading one problem for another. The kids miss their dad, and I miss having him around to share in the daily routines and joys of family life. I'm constantly juggling responsibilities, and it feels like the emotional and physical toll is too high. It's hard not to feel frustrated and overwhelmed. There are days when I wonder if the financial benefits are worth the sacrifice of our family time and happiness. I just wish we could find a balance that doesn't come at the cost of our togetherness” (Author’s interview with 35-year-old-female).

This exemplifies the physical and psychological toll that the rigorous work schedules in the mining industry take on families. The primary breadwinner's long hours and frequent absences might cause sentiments of bitterness, unbalance, and alienation in the family. Although mining work may have short-term financial benefits, it is impossible to ignore the long-term effects on family cohesion and well-being.

Furthermore, the above participant’s experience demonstrates the extreme impact that mining has on families. The tension is largely caused by the loss of quality time spent by parents with their children. Participants mentioned that frequent absences from home due to the demanding nature of mining employment cause disruptions to daily routines and family activities. This disturbance is not just inconvenient; it has a significant impact on family members' emotional health. Feelings of abandonment or neglect, especially in children, can have a long-lasting psychological impact. Children are not the only ones who suffer emotionally from such disturbances; partners and spouses often suffer greatly, frequently experiencing emotions of frustration and loneliness.

Additionally, according to a Bench Marks Foundation study (2008) in Chapter 2, there is generally a higher rate of divorce and family dissolution in underprivileged areas where mining operations are present. This situation is most noticeable in families where males are migratory labourers, which leaves their spouses open to adultery and other social problems, such as the spread of HIV/AIDS. Long-term absences disrupt traditional family structures and add to the breakdown of family cohesion and stability. The Bench Marks Foundation's (2008) results

draw attention to a crucial problem: the impact of the mining sector on family dynamics, particularly in underprivileged areas. Men who work as migratory labourers are increasingly absent, which is a major contributing factor to the rise in divorce and family breakups. Couples who separate not only experience an emotional detachment from one another but also expose women to social and economic risks (Vosloo, 2020). Wives frequently experience extreme stress because of having to oversee domestic chores and childrearing alone while their husbands are gone (Ria, 2001). The emotional bond between couples is weakened by this absence, which makes it easier for adultery and other social problems like the spread of HIV/AIDS to occur. These problems exacerbate family disintegrations.

Additionally, even though they are frequently cited as a major benefit, the financial gains from mining may not always offset the emotional and interpersonal costs. Although having more money can enhance one's material well-being, family harmony, and mental health may suffer as a result. The emotional cost of extended absences and the burden of supporting a family on one's own eclipses the financial security that mining offers. When people discover that their financial gains do not transfer into emotional or relational benefits, they may re-evaluate their priorities, which might occasionally result in divorce as they work to restore their emotional and personal stability. A female participant from the community expresses their personal experience, illustrating the reality of family breakdowns due to mining operations:

"My husband works at the mine here in our community, so he doesn't leave town, but it still feels like he's gone. The long shifts mean he leaves before the sun rises and comes back late at night, exhausted. We hardly talk anymore, and even when he's here, it's like he's somewhere else. The kids don't know him like they used to. It's strange because he's physically close, but emotionally, he's so far away. And then there are the rumours—people talk about what the men do during their breaks, and it worries me. I've heard of other women contracting HIV, and it scares me. The mine is right here, but it's still taken him from us, just in a different way" (Author's interview with a 39-year-old female).

This response emphasizes the psychological and personal toll that mining-related family separations have on partners, demonstrating how these protracted absences progressively weaken bonds and fuel larger societal problems like the spread of illness and adultery. The participant's voice supports the claim that mining operations directly contribute to the disintegration of families by illuminating the sense of responsibility, loneliness, and emotional strain that families experience. In addition, men are typically viewed as the main breadwinners

in these households, and women are typically viewed as homemakers, according to strongly ingrained cultural traditions (Noelle, 2011: 645). Long-term male absences cause this conventional family structure to break down. It is possible for women to be pressured into responsibilities that go against societal norms, such as taking on the role of the actual head of the home (Parry, 2021: 5). Tensions may arise from this change, as women may feel undervalued or unsupported and males may feel displaced or challenged in their roles upon returning home. As a result of partners' inability to adjust to the changing circumstances, these conflicts exacerbate the breakdown of family cohesion and frequently result in separation or divorce.

Furthermore, another critical issue contributing to marital conflict and possible divorce is the effect of mining on children. When a parent is away at work mining, children may display emotional instability, behavioural problems, or behavioural discomfort (Kleinschlömer, 2023: 4199). Being raised in a home where one parent works long hours can lead to behavioural problems, emotional neglect, and a lack of parental guidance. It is possible for children to feel distant or abandoned by their fathers, which can impact their future growth and relationships. Mothers are also burdened more when there is no father figure present (Kleinschlömer, 2023: 4199). They may find it challenging to balance their children's emotional needs with financial demands. These problems are left to be overseen by the non-mining parent alone, which increases their stress and exhaustion. A participant muses:

“It's getting harder to handle the kids on my own because they are acting up more. Their behaviour is being impacted by how much they miss their father. I'm doing my best, but it seems like our difficulties never end, and it's making my spouse and I less compatible” (Author's interview with a 39-year-old female).

Families impacted by mining may experience a considerable decline in their general standard of living in addition to these difficulties. There is a generalized feeling of unhappiness and dissatisfaction brought on by the mental and physical tiredness that miners and their relationships endure. Under these circumstances, the ongoing stress of running the family business and preserving ties within the household might erode marital satisfaction. A widespread sense of sadness and dissatisfaction within the household may result from this ongoing strain. Because of their weariness, miners frequently find it difficult to relate meaningfully with their family members, which lowers the quality of their contacts and

increases emotional distance. The stress is increased by the demands of managing household chores or operating a family company in these circumstances.

Additionally, matrimonial satisfaction can decline as family members fight to keep the house together and cope with the different strains brought on by mining operations. Increased arguments, less communication, and a general sense of detachment between partners might result from the mental and physical toll that mining can take on a couple. Marital relationship stability may be weakened over time by these problems, which can cause dissatisfaction and disappointment.

5.3.6. Health concerns and living under a cloud of dust.

The constant prevalence of coal dust from adjacent mining operations has been a characteristic of everyday life in Schoongezicht, bringing attention to serious health hazards and corporate negligence. Due to the vast dust caused by the mining operations, which contaminates water sources, penetrates homes, and lowers air quality, the locals are quite concerned. This problem represents a larger story about environmental deterioration and how it directly affects public health, highlighting the catastrophic repercussions of insufficient corporate accountability. Schoongezicht's residents struggle with the health effects of coal dust and the mining corporation's disregard for their concerns, which hasn't stopped it from permeating every part of daily life. The expression "the dust is everywhere" effectively captures how coal dust permeates every part of resident's daily lives. This coal dust drastically lowers air quality and causes health issues by penetrating dwellings and poisoning water sources. Participants in interviews consistently conveyed a deep sense of fear, helplessness, and frustration regarding the health risks posed by coal dust.

"Every day, it feels like the dust is slowly taking over our lives. We try to keep our home clean, but no matter what we do, it just keeps coming back. I'm constantly worried about my children's health. I've seen them coughing more frequently, and their chest problems seem to be getting worse. It's terrifying because we can't avoid the dust—it is everywhere. I feel like we're living in a constant state of anxiety, not knowing if our next breath might be harmful to our health. The fear that something serious might happen to them because of this dust is overwhelming, and the fact that the mining companies aren't doing anything to help us just adds to our frustration and helplessness" (Author's interview with a 30-year-old female).

"The coal dust has become a relentless presence in our lives. I can't even remember the last time I saw a clean surface in my home; every day, we wake up to find a new layer of dust

covering everything. My asthma has gotten worse, and my wife's chronic bronchitis flares up more often now. What's even more distressing is not knowing if these problems are going to turn into something more serious. The mining companies keep telling us that they're taking measures, but we see no real change. We're stuck feeling powerless, trapped in our own homes, and the lack of response from those who are supposed to protect us only fuels our frustration” (Author’s interview with a 41-year-old male).

It can be argued that the effects of this dust go beyond simple annoyance; it poses major health hazards and fuels a generalized feeling of unease and annoyance throughout the community. Participants emphasized how coal dust contaminates almost every element of daily life, including the water people drink and the air they breathe. In addition to being an annoyance, this contamination is a major cause of health problems. One of the most prevalent health complaints among inhabitants is respiratory-related; many report having a persistent cough, their asthma getting worse, and other respiratory disorders. Children are especially at risk because of how easily pollutants can damage their developing lungs. Coal dust poses a serious concern to public health due to the extended exposure that exposes people to long-term respiratory conditions such as lung cancer, bronchitis, and tuberculosis (TB). One participant stated that the coal dust had turned her daughter's life into what she calls "a living nightmare". She stated the following:

“My nine-year-old daughter has been suffering from chronic asthma for five years; my doctor said the condition is caused by dirty air from the surrounding mines; sometimes I cannot sleep because of her, and now she's using a nebulizer, so there is load shedding sometimes so I need to go to hospital sometimes, her life is not good because of this air pollution, she can stay two weeks fine but a week after we need to rush to the hospital so she can get medical attention, I live at the hospital, that is our new life, this life is a living nightmare, it has been like this for five years now” (Author’s interview with a 35-year-old female).

The situation involving this nine-year-old girl serves as an example of a larger public health emergency in Schoongezicht, where pollution from coal mining operations disproportionately affects youngsters. The small particles in coal dust can cause chronic illnesses that can impact people for the rest of their lives, especially young, growing lungs. The fact that this child has been in pain for five years is of grave concern since it implies that the community has been enduring these conditions for a long time with little to no help from the government or mining firms. The risk of developing more serious health issues later in life, including lung cancer or

tuberculosis, is only increased by prolonged exposure, which emphasizes the urgent need for all-encompassing action.

Furthermore, the severe problem of insufficient healthcare resources in Schoongezicht is a significant obstacle that makes the community's already severe problems worse. The area's main healthcare facility, the hospital, has very inadequate funding, which is a reflection of a larger systemic neglect that exposes locals to the negative health effects of coal mining operations. Inadequate medical facilities and supplies are a major obstacle to meeting the urgent health demands of a population afflicted with chronic illnesses and respiratory ailments brought on by the environmental effects of mining. This is more than just a logistical problem.

A number of interconnected problems, such as systematic underfunding, poor infrastructure, and a lack of priority by governmental and corporate players, can be linked to the inadequacy of healthcare resources. The hospital's restricted ability to offer basic medical services implies that inhabitants who already struggle with health problems made worse by pollution in the environment will have a difficult time getting timely and efficient treatment. For example, frequent ailments like respiratory disorders, which are widespread in mining areas because of the dust and pollutants, call for continual care and specialist treatment (Feary *et al.*, 2023: 2). But due to a lack of medical supplies and a staffing crisis, the hospital cannot provide the all-encompassing treatment required to adequately manage and alleviate these health problems. Various participants, including healthcare workers, stated that the clinics and hospitals were not equipped and had no resources to help ill community members:

“The hospital here is severely underfunded and lacks the basic medical supplies needed to address the health crises faced by our residents. We regularly see patients suffering from respiratory issues due to mining dust, but our equipment and medication are outdated and insufficient. It's heart-breaking to know that we cannot offer the level of care these individuals desperately need” (Author’s interview with a 36-year-old woman, a healthcare worker).

“When my child developed a persistent cough, we had to wait weeks for a specialist appointment, and even then, the hospital had no proper equipment to diagnose or treat the problem effectively. It's clear that the hospital is overwhelmed and under-resourced, and it feels like our health concerns are just being brushed aside” (Author’s interview with a 45-year-old woman).

“I've had to go to a private clinic for my chest problems because the local hospital couldn't provide the specialized care required. It's incredibly frustrating and disappointing to

see that despite the mining company's impact on our health, the local healthcare system remains inadequate to help us cope” (Author’s interview with a 30-year-old male).

The lack of resources affects not just the health of the individual but also the resilience and well-being of the community as a whole. The community's overall ability to handle the environmental and socio-economic issues created by mining activities is undermined by the healthcare system's incapacity to appropriately react to the needs of affected persons. Residents are forced to rely on temporary fixes or go outside the neighbourhood for treatment, which frequently comes at a high cost in terms of money and logistics, further taxing their already scarce resources and widening the socio-economic gap.

Additionally, the mining corporation’s management of the coal dust issue has been viewed by the community as irresponsible. These firms have not taken significant steps to lessen the impact despite the obvious harm that has been done. Locals have frequently voiced their displeasure with what they see as the corporations' preference for profit over the community's health and safety. The view was best expressed by the above responses from participants. The idea that businesses are more concerned with increasing output and profits than mitigating the negative impacts on the local community is strengthened by this inadequate response. Coal dust is no longer only a visual annoyance; it has come to represent the larger environmental damage brought on by coal mining. It signifies a daily struggle with deteriorating air quality and the erosion of trust between the community and the mining companies. One can argue that the relationship between health hazards, environmental deterioration, and insufficient healthcare resources highlights the need for environmental and healthcare reform by providing a clear picture of the community's struggles.

5.3.7. Rise in crime and substance abuse

The increase in crime and drug usage in the Schoongezicht neighbourhood is a symptom of a more serious socio-economic issue, one in which societal disintegration has been greatly exacerbated by the gap between the “haves” and “have-nots”. The coal mining business, which produces a dual-tier economy with those who are financially comfortable due to their mining positions and those who are left without opportunities and are trying to make ends meet, is at the root of this problem. Not only is this divide economic, but it is also profoundly social, escalating tensions, desperation, and feelings of marginalization.

The large economic gap between those who have found work, especially in higher-paying mining jobs, and those who are still on the economic margins is one of the major themes that

show up in the context of crime and drug misuse. Work in mining, particularly in higher paying sectors, has produced a segment of the population with a more stable income. These people have access to extra luxuries that become apparent to those who are less fortunate, in addition to being able to meet their everyday requirements.

Those who are underemployed or unemployed are on the other side of this economic split, fighting to make ends meet in a socio-economic environment that is becoming more and more difficult. This demographic has tremendous difficulty finding employment, particularly as the unorganized sector declines and possibilities outside of the mining industry grow more limited. The local economy is dominated by coal mining, which means that alternative industries that may employ people without mining experience or connections are underdeveloped. As a result, a sizable portion of the community faces financial instability, which has an impact on their feeling of identity and belonging in addition to their material well-being. A participant expressed:

“People stealing because there is no work, no job anywhere. They don't know what to do, just trying to get food for the kids. But other ones, they are working in the mines, making big money. So much money. It's not fair; some are getting rich, and others get nothing, just trying to survive. Feels like no hope for people not working in the mines” (Author’s interview with a 45-year-old male).

This response encapsulates the growing tension between the economically secure and the vulnerable. A greater rift develops in the community as a result of the glaring disparity between those who gain from work in the mining industry and those who are unemployed. This disparity makes the larger problem of inequality more apparent and makes it a daily struggle for those who are trying to make ends meet.

The idea of “haves versus have-nots” becomes a pervasive prism through which locals view the increase in criminal activity. On the one hand, there are people who work in the mines and are financially stable, earning good wages. On the other hand, those who are underemployed or unemployed must constantly struggle. Those who are marginalized and excluded from these chances turn to thievery as a coping mechanism for the psychological effects of seeing affluence that is still out of reach, in addition to acting out of sheer financial desperation. When extreme poverty is contrasted with visible riches in the community, it makes people feel even more alone and helpless.

In this way, committing crimes becomes a form of resistance as well as a means of survival. People use it as a means of venting their annoyance at a socio-economic structure that seems to have forgotten or ignored them. For some people, stealing is a means of rebelling against a culture that upholds inequality rather than only being a reaction to an urgent practical necessity. Their acts reveal a deeper conflict, one rooted in an injustice complex and the conviction that they have run out of options. Therefore, engaging in illegal behaviour is a means of survival as well as an implicit protest against the institutional causes that keep them in poverty. More social unrest is brought about by the growing sense of animosity against those who profit from mining. Traditional community ties are weakened when certain members of the community start to amass wealth because their experiences and interests differ from those of their less fortunate neighbours. The community's formerly cohesive social fabric starts to deteriorate, fostering an atmosphere that is conducive to crime and drug misuse. Various participants expressed the following:

“It's not like we want to steal, but when the system works against you, sometimes that's all you got left. The people in charge, the ones making money from the mines, they don't see us struggling. So, we take what we can. It's not right, but it's the only way we can survive in this place” (Author's interview with a 30-year-old male).

“We used to look out for each other, but now money divides us. Some people have more, some people have nothing, and that changes things. The ones who get rich from the mines, they move on or stop caring about the rest of us. The community isn't what it used to be, and that's why there's so much crime and drugs now” (Author's interview with a 39-year-old male).

Additionally, underlying the rise in crime and substance abuse is a deep well of emotional distress that affects many in the Schoongezicht community. For residents, unemployment or underemployment extends far beyond being just an economic issue—it becomes a source of profound emotional and psychological turmoil. The daily struggle to provide for one's family under the weight of poverty creates an immense burden that wears away at their sense of self-worth. This burden is only magnified by the visible success of others, particularly those employed in the mining industry, whose financial stability seems out of reach for so many. As one participant, a father in his early 40s put it:

“Every day, I wake up, and I feel like a failure. I can't provide for my family the way I want to. My kids go to bed hungry sometimes, and all I can do is hope something changes. But

I see people who work in the mines—new cars, big houses. They can afford to send their kids to better schools. Meanwhile, I'm stuck, no matter how hard I try. It makes you question yourself—what am I doing wrong? Why can't I get a break?" (Author's interview with a 40-year-old-male)

A person's sense of hope is undermined by the ongoing pressure to provide for their fundamental requirements, such as putting food on the table and supporting their children. This leads to feelings of desperation, anxiety, and rage. Many participants in the interviews talked about how this emotional strain has changed their perspective on life, making them believe that their own experiences of adversity are out of their control. They view their difficulties as part of a larger story of structural injustice rather than as singular incidents of human failure. According to them, the true culprits behind the seemingly unbridgeable split are the economic systems that favour a few number of people at the expense of the majority who live in poverty. As a 40-year-old woman, unemployed for years expressed:

"I started drinking because it's the only way I could sleep at night. You lay awake, thinking about how you're going to make it through the next week, how to stretch that little bit of money. You drink to forget, to stop thinking about everything you can't fix" (Author's interview with a 40-year-old female).

"It's not just bad luck or poor decisions. We're living in a world where the rich get richer, and we get stuck in the same place, fighting for scraps. They make it sound like we're to blame for being poor, but it's the way everything's set up. The real problem is the system that benefits a few and leaves the rest of us with nothing" (Author's interview with a 27-year-old male).

In this context, substance abuse can be seen not just as a personal failing but as a response to an unbearable situation. Additionally, it can be argued that economic difficulties can cause emotional misery, which pushes people to turn to illegal activities or substance misuse as coping techniques to get away from their situation or dull the pain. Substance misuse can be viewed in this light as a reaction to an intolerable circumstance as well as a personal shortcoming. The extent to which people are impacted by the persistent socio-economic pressures they encounter is reflected in the rise in these habits. This psychological and emotional toll is not merely a by-product of poverty; rather, it is essential to comprehend the ways in which financial adversity affects all facets of community life.

By framing their experiences in terms of systemic injustice, participants emphasize the close relationship between economic well-being and emotional wellness. It emphasizes how the emotional and psychological toll that economic hardship has on people in Schoongezicht cannot be addressed in a vacuum. The surge in criminal activity and drug usage is not solely a response to financial hardship; rather, it is a manifestation of a more profound problem that stems from emotions of alienation, despair, and the psychological burden of being in an unfair social structure (Marais *et al.*, 2021: 5). As one young 26-year-old man put it:

“It’s not just that we don’t have jobs—it’s that no one even sees us struggling. They see the miners, the people making money, and the rest of us? We’re just shadows. You start to feel like no one cares if you make it or not” (Author’s interview, August 2024).

Furthermore, substance addiction and crime in Schoongezicht are no longer isolated instances; rather, they are becoming pervasive issues that impact almost every aspect of the community. These concerns, which were before thought to be sporadic occurrences, have grown and are now affecting many families. The citizens' personal stories, where addiction and criminality have become distressingly widespread, highlight the growing prevalence. Participants shared stories of family members who struggled to obtain work or lost their jobs and then succumbed to drug misuse. The issue is now one of community-wide distress rather than personal pain. A 45-year-old participant expressed the personal toll these issues have taken on his family:

"It's getting worse. I see it in my own family—my cousin started drinking because he lost his job. Now, he is not the same person anymore, and it's tearing his family apart. What started with drinking has now turned into stealing just to keep up with his habit. We don't know how to help him" (Author’s interview, August 2024).

Another resident explained: “It's everywhere now. You can't walk through the streets without seeing someone who’s high or involved in something illegal. These aren't bad people, but the lack of jobs and opportunities pushes them into this life. It's like the whole community is suffering together” (Author’s interview with a 20-year-old male).

A mother of three expressed her concerns: “Before, it was just a few people here and there, but now it's in every corner of the neighbourhood. My son sees it, and I'm scared for him. How do you protect your children when the danger is right outside your door?” (Author’s interview with a 45-year-old-female).

These responses demonstrate how drug misuse and criminality originate as personal issues but swiftly spread throughout families and the larger community. The entire family is put under tremendous emotional and financial stress by addiction and criminal conduct as they must cope with the fallout from a loved one's bad decisions. These problems are getting worse, which feeds a cycle whereby more people turn to drugs or crime as a coping mechanism, which makes the situation worse, spreads throughout the community, and makes people feel helpless and inevitable. When something becomes established, it becomes hard to escape. More people in the area are being driven to the outside of society since coal mining, the main industry in the area, is unable to create inclusive and sustainable economic opportunities.

Residents have few options for bettering their circumstances in the absence of other sectors or employment possibilities; as a result, some turn to crime and addiction as coping mechanisms. This issue is made worse by Schoongezicht's lack of economic diversification, which gives those who lose their work in the mines few, if any, options for escaping poverty. The rate of crime and drug usage rises in tandem with economic instability, indicating that these problems are not isolated episodes but rather signs of a much bigger systemic failure.

Moreover, this escalation has ramifications that go beyond just how it affects specific families right now. The community's social cohesion starts to break down as drug misuse and crime rates rise. Neighbours lose trust in one another, and the community's feeling of security wanes. The pervasiveness of addiction and criminal behaviour shatters what was previously a coherent, supportive atmosphere. As a result, the socio-economic gap widens, and more people grow estranged and mistrustful of one another, undermining the community's capacity to function as a whole (Marais *et al.*, 2021: 5).

5.3.8. Response from coal mine companies

Coal mining corporations' responses about how their operations affect local livelihoods show a worrying pattern of little accountability and evasive promises in place of substantial action (Munnik, 2010: 7). Their responses demonstrate a habit of avoiding real accountability in favour of making big promises that frequently don't translate into concrete action. While surrounding mines assert that they "prioritize community welfare" by funding infrastructure projects or implementing educational programs, these claims pale in comparison to the everyday struggles faced by the people living in Schoongezicht. One executive from a mine in the area stated:

“We understand the environmental impact that mining can have, and we are committed to reducing it. Our programs include reforestation efforts, dust control measures, and monitoring air and water quality to ensure we meet environmental regulations. We strive to create a balance between resource extraction and preserving the local ecosystem. Our mission is to positively impact the communities we operate in. As part of this commitment, we’ve allocated funds for infrastructure development and community health outreach programs, focusing on preventative care and general wellness” (Thungela Mine, 2024).

However, interviewees frequently voiced their dissatisfaction with the mining corporations' insufficient involvement, especially with regard to health problems that have resulted from mining operations. One participant highlighted this sentiment, stating,

“Unfortunately, the response has been lackluster. The mining companies often offer vague assurances rather than concrete solutions, leaving many in the community frustrated and seeking alternative ways to address health problems. The healthcare options available are limited, and people often have to travel for more specialized care” (Author’s interview with a 37-year-old male).

The stark contrast between the official declarations made by the mining company and the actual experiences of the residents of Schoongezicht draws attention to a troubling issue: the hollow promises made by corporations in comparison to the actual struggles that impacted communities encounter. Although the corporation presents an image of corporate responsibility through its promises of "reforestation efforts," "dust control measures," and infrastructure support, the reality for the locals speaks differently. This discrepancy between what is said and done affects people's health and wellbeing immediately; it is not just an issue of perception.

Furthermore, this poignant observation can be seen to highlight a significant disconnect between the communication strategies employed by mining companies and the lived realities of community members facing pressing health challenges exacerbated by environmental factors. This participant's unhappiness is indicative of a larger trend of disengagement from mining businesses, where promises of assistance and advancement are regularly broken. Residents of the community are forced to manage a complicated web of health problems— from respiratory conditions to contaminated water—without the support or tools they sorely require. The ambiguous guarantees provided by corporations do not really help to ease the immediate anxieties of individuals impacted; rather, they only serve to increase the distrust and cynicism that many locals have toward these organizations. In addition to endangering the

residents health and well-being, this lack of responsibility feeds a cycle of neglect that may have far-reaching effects on the socio-economic fabric of the neighbourhood. Residents are increasingly compelled to look for other answers when their health deteriorates; out of pure necessity, they frequently turn to conventional treatments or community-driven health initiatives.

Additionally, dissatisfaction is exacerbated by the limitations of the healthcare services now offered. The need for specialist care, which is either unavailable or excessively costly, forces many locals to travel great distances. When health issues resulting from mining operations arise, the lack of accessible and efficient healthcare options in the area makes the people feel even more vulnerable. Although community members have worked hard to bring attention to the harmful effects of mining on health, mining firms have often dismissed their efforts. Given the real health issues inhabitants deal with, such as the rise in childhood asthma cases and the rise in chronic illnesses among the elderly, this lack of attention is especially problematic. The mining corporations' declaration that pollution levels stay within legal bounds, a claim that many locals find inconsistent with their everyday experiences, adds to the resentment felt by community members. One participant expressed:

“We’ve been trying to raise awareness about the health issues caused by the mining operations for years, but the company has been dismissive. They keep saying the pollution levels are within legal limits, but we know people are getting sick. Our children are struggling with asthma, and our elderly are battling diseases they never had before. When we organized a protest to demand accountability, the police came in and shut it down, treating us like criminals instead of concerned citizens. The company has a lot of influence in this town, and they use it to silence us and cover up the real impact of their actions. It is frustrating because we are the ones living with the consequences of their greed, and all we want is to protect our families and our community” (Author’s interview with a 40-year-old female).

There is a stark discrepancy in the contrast between the community's reality and the companies' promises. The lived realities of persons impacted by mining operations contradict the claims made by the firms that they adhere to legislation. Locals frequently claim a marked rise in respiratory ailments and other health concerns, which they directly link to mining operations. Residents of the neighbourhood feel their voices are not only neglected but purposefully ignored as a result of this disparity, which breeds mistrust.

The fight to raise awareness of these health problems is about more than simply personal suffering; it is about larger systemic shortcomings in the way corporate responsibility is upheld, and community health and safety conversations are conducted. Residents are further alienated by the mining companies' contemptuous behaviour, which leaves them feeling helpless against powerful corporations that put profit above people. In light of these challenges, the community's call for accountability becomes increasingly urgent. Residents are not merely seeking recognition of their health issues; they are demanding concrete action and change. Residents have taken to organizing protests to demand better health protections. One resident expressed:

"The lack of response from the mining company and the government to our health concerns has pushed us to organize a protest. We've held, we started protesting against the mine over this a few months ago, and we protested for better health protections, but the police were called in to disperse us. It felt like we were being punished for standing up for our rights. The heavy-handed response not only undermined our efforts but also intensified our resolve. Seeing law enforcement move in, using force to break up our peaceful demonstrations, made us feel that our concerns were being dismissed rather than addressed. The confrontation with the police, coupled with the ongoing health issues and lack of adequate support, has only made people more determined to fight back. We are more united than ever in our demand for justice and better working conditions, despite the risks and challenges we face" (Author's interview with a 35-year-old female).

Driven by a sincere desire for acknowledgment and accountability, these protests represent a potent act of rebellion against systemic neglect. But this mobilization has encountered strong opposition, most notably in the form of brutal police tactics used to put an end to nonviolent protests. Such behaviour not only undercuts the demonstrators' efforts but also strengthens the community's sense of injustice. Participants shared experiences, which included feeling like they were being punished for defending their rights, showing the emotional toll that these interactions can have, and drawing attention to the larger consequences for social cohesiveness and communal identity.

Ironically, the violent dispersal of protesters has strengthened resolve and community ties. Locals claim that their resolve to fight back has been strengthened by their encounters with police enforcement, ongoing health problems, and inadequate help. Residents expressed:

“After the way the police treated us during the protests, it became clear that we can’t rely on anyone else to help us. Their heavy-handedness only fuelled our determination to stand up for our rights. We’re fighting not just for better health services, but for the future of our children” (Author’s interview with a 27-year-old male).

“The police may think they can intimidate us, but that only strengthens our resolve. The health problems we face are real, and we know the mine is responsible. We will continue to fight back until they take our concerns seriously” (Author’s interview with a 33-year-old male).

In uniting against a shared opponent people are making a significant shift from passive suffering to active resistance with this emotion. The collective experiences of the community serve as an example of a larger fight against structural injustices, in which local people frequently suffer the most from the effects of mining while also being neglected by the institutions. Through strengthening social networks and enhancing collective identity, the increased sense of solidarity in the face of hardship helps the community become more resilient in its advocacy efforts (Leap & Thompson, 2018: 4). In addition to pushing for immediate health safeguards, locals are establishing the foundation for long-term structural change as they continue to face these obstacles. Thus, the protests have evolved into a forum for expressing complaints about social and economic inequities that the mining sector perpetuates, as well as health-related concerns.

Additionally, even while the mining firms have periodically gathered with community people, the results have frequently fallen short of producing meaningful progress (Frederiksen, 2019: 164). Many locals voice their anger, believing that these talks are less sincere attempts to address their concerns and more of a public relations stunt. One interviewee pointed out that mining firms have not responded satisfactorily to health-related concerns, highlighting the widespread perception that these businesses put their own interests ahead of the welfare of the communities in which they operate. She noted:

“There have been meetings where community members have voiced their health issues, but the companies often respond with promises that don’t lead to tangible improvements. Many feel that the companies are more focused on maintaining production than on addressing the health and safety of the people living around the mines” (Author’s interview with a 25-year-old female).

Moreover, critical concerns concerning corporate social responsibility (CSR) and the function of mining firms in supporting sustainable local development are brought up by this mismatch

between community expectations and company actions. In principle, CSR should involve a dedication to moral behaviour that advances local communities' welfare, safety, and health in addition to ensuring financial success (Etikan, 2024: 5). But the real world frequently deviates greatly from this ideal (Etikan, 2024: 5). Many locals believe that the mining firms are more concerned with following the law than they are with mitigating the negative effects of their operations. The community's persistent health problems draw attention to a serious deficiency in the corporations' duty of care to the locals. When people who are directly impacted by health issues receive ambiguous assurances or flimsy engagement, it shows disrespect for their lived experiences. The firms' dedication to social responsibility and readiness to invest in the health and welfare of the communities that support them are called into doubt by this pattern of action (Van Wyk, 2014: 14).

Furthermore, this mismatch has consequences that go beyond short-term health issues. Insufficient attention to community needs can erode confidence and stoke animosity, resulting in civil disturbance and resistance to mining operations. More broadly, this circumstance calls into question the idea of sustainable development, which ought to include social justice, community empowerment, and environmental conservation in addition to environmental stewardship. Mining firms can change their strategy by meaningfully and actively interacting with communities. This entails both admitting the negative consequences of their operations on people's health and acting swiftly to lessen such effects (Ansu-Mensah et al., 2021: 4). Mining firms have the potential to become more than just compliance agents in the communities they impact by putting the welfare of locals first and cultivating true partnerships (Ansu-Mensah et al., 2021: 5).

5.3.9 Coping Mechanisms and Community Resilience

The socio-economic strain that coal mining in Schoongezicht has placed on the locals has resulted in a significant change in how they deal with health concerns, social instability, and financial instability. Individual resiliency and group efforts influence the community's responses, frequently due to the lack of sufficient official support networks. These networks, which frequently include neighbours, extended family, and local community organizations, have grown increasingly important when conventional support structures are either weak or non-existent. The informal mechanisms that facilitate the sharing of resources, including food, financial assistance, and emotional support, are described by the participants as a safety net that has become more crucial as the mining industry continues to put strain on their socio-

economic circumstances. In addition to helping many people cope with personal struggles, these support networks have also helped the community become more resilient, allowing it to hold onto some degree of stability in the face of escalating economic instability. One participant noted:

“In the absence of formal support networks, the community relies heavily on informal support systems. Friends, family, and neighbours come together to help each other with financial assistance, advice, and emotional support. There’s a strong sense of mutual aid, even though there are no organized groups or formal structures to provide help” (Author’s interview with a 38-year-old female).

Thus, in Schoongezicht, the lack of institutional safety nets or organized groups—such as social services, healthcare, or government welfare programs—has forced a shift toward more natural, neighbourhood-based solutions. Family, friends, and neighbours form these informal networks, which have become the primary means through which people cope with the vast socio-economic challenges brought about by mining. This reliance on informal support is evident in the Sustainable Livelihoods Framework, which posits that communities leverage social capital within the as a critical resource to navigate and survive external shocks (Bvuma & Marnewick, 2020: 5).

These unofficial networks are exceptionally robust because of their resilience and flexibility. These community-based support systems are usually more flexible than official institutions, which can be slow to react because of bureaucratic procedures and red tape (Bvuma & Marnewick, 2020: 7). This enables prompt interventions that are customized to each individual's particular situation. This responsiveness is essential in an environment where mining's effects, such health issues, unstable economies, and social unrest, necessitate quick response.

Furthermore, depending on social capital not only helps people deal with the difficulties of the present, but it also strengthens community members' sense of identity and solidarity (Prince, 2024: 56). People's power to advocate for change and hold local government and mining firms responsible is strengthened when they band together to assist one another. To create sustainable livelihoods, communities must be empowered collectively. This allows them to use their social networks as a weapon to demand better living circumstances, access to resources, and health care (Natarajan *et al.*, 2022: 5).

Additionally, financial help, emotional support, and advice are freely exchanged within these networks, as the participant describes, guaranteeing that those in need do not have to confront adversities alone. Mutual aid, in which each person provides and receives support from others, fosters relationships that are reciprocal and fortifies the ties that bind the community together (Natarajan *et al.*, 2022: 5). In other ways, the lack of formal structures has increased people's sense of mutual trust and dependence on one another, making sure that nobody is alone or unaided when things go tough. One participant notes:

“I’ve seen many families struggle since the mine cut back on jobs. The impact has been tough on everyone, so we’ve formed a support group where parents can share resources, from childcare to job opportunities. It’s our way of helping each other out, staying connected, and making sure no one feels isolated during these hard times” (Author’s interview with a 48-year-old male).

Furthermore, these informal support networks serve both material and emotional needs and function at several tiers of support. Financial assistance, such as loans or sharing resources like food, lessens the effects of unstable income brought on by sporadic mining employment or unemployment. One resident noted:

“Sometimes, when we don't have enough to eat, I just go next door to my sister. We help each other; if she has extra, she shares it with me, and when I get my grant, I pay her back. We don't leave each other hungry in this place” (Author’s interview with a 38-year-old female).

Equally important, emotional support gives community members a way to share their concerns, manage stress, and keep their mental health intact during constant difficulties. Advice turns into another important source of support, helping residents get through the different challenges they face daily. This is especially true when it comes to handling household finances, getting access to healthcare, or obtaining work. Since members of the community frequently endure comparable socio-economic stresses, this counsel frequently stems from shared experiences. Informal knowledge exchanged among friends, family, and neighbours facilitates the creation of workable solutions customised to the community's unique circumstances. Various residents noted:

“It gets hard, hey, especially when there’s no work. But what keeps us going is the way we talk to each other. We sit together and pour out our hearts. It’s like a relief, just knowing someone understands you, even if they can’t fix the problem” (Author’s interview with a 46-year-old male).

Furthermore, the resilience of the community is more broadly impacted by the intense sense of solidarity found throughout these networks (Leap & Thompson, 2018: 9). As seen by the neighbours coordinated efforts, solidarity builds a social cohesiveness framework that can withstand external pressures like economic downturns or environmental issues resulting from coal mining. Even in situations where resources are few, helping others makes a community more resilient overall by distributing the load more fairly and preventing any one household from suffering disproportionately from adversity (Martin, 2015: 55).

It is crucial to understand that although these informal support networks provide many people with a vital lifeline, they cannot replace the official support systems that, in an ideal world, should be supplied by institutional or governmental entities. Over time, the lack of formal frameworks can become an unmanageable burden for these informal networks (Horak *et al.*, 2020: 4). As the socio-economic strains of Schoongezicht intensify due to dwindling employment prospects and health hazards associated with coal mining, these social networks may find it difficult to take on more responsibilities.

Even though they are essential, informal support networks frequently have limited resources, which prevents them from adequately addressing the broader systemic problems that lay at the root of the community's problems. For example, while sharing food or borrowing money can help with immediate needs, they are not long-term solutions to structural economic issues that call for institutional action, including the absence of access to cheap healthcare or permanent employment (Horak *et al.*, 2020: 5). Moreover, because these networks are primarily built on mutual aid, people who are unable to contribute—because of a sickness, a disability, or severe poverty, for example—might find it more challenging to get assistance, which could result in gaps in the system.

Therefore, even while these informal networks show the Schoongezicht community's extraordinary adaptability and cohesiveness, they should be viewed as a component of a broader matrix of coping mechanisms that, ideally, incorporates both unofficial and official support services. Stronger ties with the local government, healthcare providers, and other formal institutions that can provide more long-term solutions to the underlying problems caused by coal mining would be beneficial to the community's efforts to develop long-term resilience (Munnik, 2010: 18). By establishing more organized and dependable safety nets, these collaborations could help legitimize some of the existing unofficial aid given, relieving some of the burden on local residents and families (Cole *et al.*, 2023: 330). Additionally, the

health impacts of coal mining are another significant concern for the residents of Schoongezicht, with participants expressing alarm at the increasing prevalence of respiratory and other health problems directly linked to the environmental degradation caused by mining activities. One resident shared:

“I’ve been shocked by the extent of these health problems linked to coal mining. To help, I support local health initiatives and partner with healthcare providers to offer wellness programs for the community. I also stay proactive by educating myself about the risks and advocating for cleaner air. Connecting with local groups focused on health and environmental issues helps me feel more empowered to address these challenges. Keeping the community healthy is essential for our economy to thrive” (Author’s interview with a 31-year-old male).

This remark illustrates a proactive, community-focused strategy that acknowledges the close relationship between economic sustainability and health to address the health crisis. A comprehensive response has been prompted by the increasing local awareness of the health dangers of coal mining. To lessen the negative effects of mining on community health, locals have taken matters into their own hands by collaborating with healthcare practitioners and sponsoring health-related projects. These wellness initiatives seek to conserve the environment by promoting safer mining methods, educating the public about preventive health measures, and offering basic healthcare services. A resident noted:

“We couldn’t wait any longer for the government or the mining companies to act. Too many people are getting sick, and nothing is being done. So, we started working with local doctors and nurses who understand our situation. We’ve organized health workshops where we teach people how to protect themselves from dust and pollution. It’s not just about fixing the problem after you get sick; it’s about stopping it before it starts. We’ve even managed to get a mobile clinic going, which comes every few weeks to check on people’s health, especially the elderly and kids. It’s been a tough journey, but we’re starting to see the difference. The people are getting stronger, and we’re showing that if we come together, we can protect our community, even if the big companies don’t care” (Author’s interview with a 52-year-old male).

The resident alluded to the growing body of collective action surrounding health issues by mentioning being "proactive" and interacting with neighbourhood organizations. In addition to benefiting the individual, this coordinated action increases the community's resilience because local livelihoods—especially in a region largely dependent on physically

demanding industries like mining—depend on healthy workers and families (Adranyi *et al.*, 2023: 12).

Furthermore, the increasing use of traditional herbal treatments, which several participants emphasized as an alternate method of treating the health issues brought on by coal mining, is an important component of this conversation. This aligns closely with the natural capital component of the Sustainable Livelihoods Framework. Natural capital refers to the natural resources and ecosystem services that communities rely on for their livelihoods and well-being, including biodiversity, clean air, and water, and the availability of plants used for traditional medicine (Bateman & Mace, 2020: 4). The degraded environment, including contaminated air, has resulted in respiratory ailments, skin disorders, and other health problems that the local healthcare systems are not always prepared to handle. Because of this, people in the area are resorting more and more to using traditional herbal remedies to cure illnesses associated with contaminated air and coal mine pollutants. These natural remedies are seen not just as an alternative but often as a primary form of care in the absence of formal medical interventions. This change demonstrates the community's tenacity and resourcefulness as members make use of their natural capital, particularly their understanding of and access to therapeutic plants in their surroundings. Community members who use these traditional therapies take care of their immediate health issues and protect a part of their cultural history that is fundamental to who they are. Residents noted:

“The dust and smoke from the mines have really affected our health. My kids have trouble breathing, and we can’t always go to the clinic because they just give us the same medicine that doesn’t help for long. So, we’ve gone back to the ways of our ancestors, using herbs that we know work. There’s a plant we boil to help with chest problems and another one we use for skin rashes caused by the dirty water. We share this knowledge with each other because it’s what’s keeping us alive when modern medicine can’t keep up with the damage the mines are doing” (Author’s interview with a 55-year-old female).

“My son’s skin started getting these terrible rashes, and the clinic couldn’t do anything. They just gave us ointments, but it didn’t work. So, I went to an elder in our community who knows the old ways. She gave us a mixture of herbs to rub on his skin, and within days, we saw an improvement. We’re going back to what we know because the medicines we’ve been getting aren’t enough for what’s happening to us now” (Author’s interview with a 35-year-old female).

“The mines have polluted everything. The air we breathe is full of dust, and it’s affecting our lungs. We’ve started using an herbal steam that our grandparents used to clear our chests. You boil the herbs, and then you breathe in the steam. It’s helped many of us when the clinics just hand out the same pills over and over” (Author’s interview with a 40-year-old male).

These responses reflect the growing dependence on traditional practices and highlight the limitations of local healthcare in tackling the mining-related health crisis. When official medical interventions are unaffordable, traditional medicines offer a culturally known and easily accessible remedy. The community has a long history of treating health issues with natural resources, a tradition that predates official medicine and is still important today because of environmental health concerns and financial constraints. This is the basis for the use of these plants. The participants’ experiences illustrate how traditional medicine has become a crucial component of many people’s health management strategies in light of the effects of coal mining. These treatments, which are frequently made from plants that are readily available in the area, are used to treat numerous health conditions made worse by mining operations, as well as respiratory disorders brought on by air pollution (Sobiecki, 2014: 9). By connecting the community to its cultural past and providing a cost-effective solution, the use of natural herbs strengthens the sense of resilience and self-reliance within the community (Torri, 2010: 42).

It is crucial to note that although conventional medical treatments, such as those provided by clinics and hospitals, offer some alleviation, they cannot completely address the underlying health problems the community faces. When there is insufficient healthcare infrastructure, the use of herbs is sometimes a temporary solution. Prolonged exposure to air pollution and the poisons emitted by coal mining can result in chronic illnesses that could need more extensive medical care (Munawer, 2018: 88). Therefore, even if customs provide a valuable coping strategy, they also draw attention to the larger need for better access to healthcare and more stringent environmental laws in order to address the underlying causes of the health issues facing the community (Munawer, 2018: 90)

Moreover, The strong relationship between economic sustainability and health is evident. The participant’s support of cleaner air and participation in neighbourhood health programs highlights the rising realization that a workforce that is in good health is crucial to the community’s long-term economic viability. Because mining work is physically demanding and poses health hazards due to pollution, worker well-being has a direct impact on local economic

viability and productivity. As a 25-year-old male participant noted, “Maintaining the community healthy is essential for our economy to thrive” (Author’s interview, 2024), thus acknowledging that mitigating the negative effects of mining on the environment's health is a prerequisite to achieving economic resilience. Local livelihoods will undoubtedly suffer in the absence of a robust workforce, and the community's capacity to adjust to more significant socio-economic crises will be jeopardized.

5.3.10. Conclusion.

In conclusion, the study emphasizes how coal mining has significantly changed the social, economic, and health dynamics of the Schoongezicht community. Although some households have benefited financially from mining operations, there are significant socioeconomic disparities because of the unequal distribution of these benefits. The gap between those who benefited from stable mining jobs and those forced into informal, precarious labour has grown, increasing employment inequality. Moreover, the health hazards linked to coal mining are extremely concerning, made worse by insufficient environmental safeguards and a deficient healthcare system. Residents with low incomes, who are disproportionately impacted by hazardous working conditions and pollution, frequently do not have access to essential medical care, which feeds the cycle of poverty and marginalization.

It is evident that the mining industry has also put a strain on Schoongezicht's social fabric, seriously undermining traditional family structures and community cohesion. The sporadic nature of some mining jobs and demanding work schedules have caused social fragmentation, which has elevated mental health problems among locals. Socioeconomic vulnerability has gotten worse because of environmental degradation, which has put the livelihoods of people who depend on agriculture and other non-mining activities in danger. These findings emphasize the necessity of a thorough community development strategy that considers the interrelated problems of social stability, employment, and health.

Chapter 6: Conclusion

The socioeconomic effects of coal mining in the Schoongezicht neighbourhood of Witbank, Mpumalanga, have been examined in this thesis. It has offered a nuanced understanding of how coal mining, although economically advantageous for some, imposes significant social and environmental costs on local communities by analyzing the intersection of livelihoods, social dynamics, and health.

The results show two realities: coal mining stimulates the economy by creating jobs and sustaining auxiliary industries. However, these jobs created are given to people from other provinces; these jobs created are given to people from other provinces; therefore, the local population does not benefit. Disruptions to traditional livelihoods, a worsening of income inequality, and a decline in community cohesion, however, offset this progress. These problems are made worse by environmental deterioration, such as air and water pollution, which leads to health crises that disproportionately impact vulnerable groups, especially the elderly.

Furthermore, The Sustainable Livelihoods Framework (SLF), a powerful analytical tool, is at the center of this study. It has shed light on the complex interactions and disruptions caused by outside forces such as mining between human, natural, social, financial, and physical capital. The framework's focus on sustainability and resilience provides insightful information about how communities like Schoongezicht can adjust and lessen their vulnerabilities when faced with socioeconomic pressures.

This study's main conclusion is that mining operations and policies urgently need to put sustainability, equity, and inclusivity first. Economic gain is frequently given precedence over social and environmental concerns in current mining practices, which has long-term effects on the most marginalized communities. These difficulties are made worse by the dearth of significant community consultation and the meagre funding allocated to local development.

Moreover, this study aimed to add to the expanding corpus of literature that highlights regional viewpoints on the socioeconomic effects of coal mining by elevating the voices and experiences of Schoongezicht locals. It urges policymakers and industry stakeholders to embrace a more comprehensive approach to development, challenging traditional narratives that only concentrate on economic metrics.

Overall, this thesis is a call to action as well as a critique. It emphasizes how important it is to strike a balance between social justice, environmental preservation, and economic growth. The

Schoongezicht community's experiences provide important insights into resilience and the significance of inclusive, sustainable development in mining regions across the globe. All parties involved in the mining industry may have a more sustainable and equitable future if systemic injustices are addressed and community empowerment is promoted.

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Appendix A: Interview schedule

Interview Schedule.

Research Objective a): To examine the influence of coal mining on local livelihoods (jobs, income, economic stability).

- 1). How has coal mining affected job opportunities for people in the community?
- 2). Are these jobs mainly for local residents or for people from outside the community?
- 3). What types of jobs are available to the local population due to coal mining?
- 4). Are there significant differences in income between those employed in the mining sector and those in other sectors?
- 5). How has coal mining influenced local businesses in the community?

Research Objective b): To investigate social changes caused by coal mining (community unity, cultural changes, social inequalities).

- 6). What changes in community relationships and social networks have been observed since the introduction of coal mining?
- 7). What cultural changes have you noticed in the community because of coal mining?
- 8). How has coal mining affected local traditions and cultural practices?
- 9). In what ways has coal mining contributed to social inequalities within the community?
- 10). How have relationships between different social groups in the community changed due to coal mining?
- 11). What social conflicts or tensions have come up in the community because of coal mining?
- 12). How do you feel the community has changed overall since coal mining started?

Research Objective c): To explore how the Schoongezicht residents cope with the socio-

economic difficulties that are a product of coal mining.

13). What coping strategies do residents employ to deal with the economic challenges posed by coal

mining?

14). How effective are these coping strategies in mitigating economic hardships?

15). How does the community help each other with the difficulties caused by coal mining?

16). Have you changed your way of making a living because of coal mining? If yes, how?

17). What are your hopes and worries about the future of coal mining in your community?

18). How do you see coal mining affecting your life and the community in the long term?