

**AN ANALYSIS OF THE ROLE OF TAX LEGISLATION IN PROMOTING
SUSTAINABILITY IN THE MINING INDUSTRY: A SOUTH AFRICAN, AUSTRALIAN
AND UNITED KINGDOM PERSPECTIVE**

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By

TADIWANASHE DON MURAHWI

ORCID ID

<https://orcid.org/0009-0002-0131-8961>

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ABSTRACT

The mining industry contributes significantly to South Africa's economy, but is fraught with controversies due to its negative environmental, economic, and social impacts. Although tax measures are established to offset these negative externalities, the role of tax provisions in promoting sustainability within South Africa's mining sector remains underexplored. The goal of this study is to analyse the tax provisions aimed at promoting sustainability in the mining industry in South Africa, Australia and the United Kingdom, in order to identify tax provisions applying in Australia and the United Kingdom that could be introduced into South African tax legislation to strengthen the sustainability of the mining industry. In addressing the goal of the research, the thesis outlines the socio-economic and environmental impacts of mining in South Africa, discusses the sustainability discourse surrounding the industry, and analyses and compares tax provisions promoting sustainability in South Africa, Australia and the United Kingdom. An interpretative qualitative research methodology was applied in the study.

The research highlighted the significant environmental degradation caused by mining, including air and water pollution, biodiversity loss, and land degradation, while also noting the socio-economic consequences, particularly for local communities and vulnerable groups. South African tax legislation, such as the Income Tax Act, Mineral and Petroleum Resources Royalty Act, and the Carbon Tax Act, aim to promote mine rehabilitation, fair taxation, contribution to the fiscus, and a reduction in emissions. What is evident from the analysis of tax provisions in Australia and the United Kingdom is that tax measures go beyond mine rehabilitation, and address issues such as tax transparency, energy consumption, and community investments, promoting sustainability by balancing economic growth with environmental stewardship.

The study concludes that current tax interventions primarily address environmental degradation while neglecting the social impacts of mining. Optimizing tax policies to enhance sustainability requires a comprehensive, balanced approach that addresses environmental, economic, and social aspects, including adopting practices from Australia and the United Kingdom to promote tax transparency, community investment, and environmental protection.

Key words: Sustainability, mining industry, South Africa, Australia, United Kingdom, mine rehabilitation, environmental taxes.

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CHAPTER 1: INTRODUCTION

1.1 RESEARCH CONTEXT

The mining sector in South Africa, although it is a significant contributor to the fiscus, has many adverse consequences. Thambi (2019) reports that the mining sector in South Africa is plagued by environmental degradation, unfair labour practices, and inequality between mineworkers, communities, and mining companies. According to Hilson and Murck (2000), Bice (2016), and Yakovleva (2017) the adverse effects of mining have led to the adoption of sustainability principles in mining practices worldwide. The United Nations Development Programme and United Nations Environment (2018) assert that considering sustainability in the mining industry is being cognisant of the environmental, political, and socioeconomic impacts of the industry at the inception, design, execution, and eventual closure of mining projects. According to the United Nations Development Programme and the United Nations Environment (2018), sustainability in mining mitigates adverse effects and optimizes the positive outcomes of mining operations. The United Development Nations Programme and United Nations Environment (2018) explain that the broad reach of sustainable mining covers several areas of sustainable action, including sustainable economic development, governance, social inclusion, and environmental sustainability.

Muswaka (2017) observes that South Africa has made progress in promoting and regulating sustainability in the mining industry. Several laws have been enacted to ensure sustainable use of resources. Section 1(1) of the National Environmental Management Act, 107 of 1998, defines sustainable development as the integration of social, economic and environmental factors in decision making to ensure that development serves present and future generations. The preamble to the Mineral and Petroleum Resources Development Act, 28 of 2002, affirms the obligation of the state to ensure sustainable development and promote economic and social development. Muswaka (2017) and Igbayiloye and Bradlow (2021) analyse the broader legislative framework that provides for sustainability in the mining industry in South Africa. They focus on the Constitution of the Republic of South Africa, 1996 (the Constitution), the Mineral and Petroleum Resources Development Act, the National Environmental Management Act, and the National Water Act, 36 of 1998.

Muswaka (2017) highlights the inter-connected nature of environmental, social and economic impacts of mining, and refers to the *Fuel Retailers Association of Southern Africa v Director-General: Environmental Management, Department of Agriculture, Conservation and Environment, Mpumalanga Province*, 2007 (6) SA 4 (CC) case, where the minority decision of the court stressed that sustainable development is a balanced integration of socio-economic development and environmental priorities and norms. Muswaka (2017) expresses the opinion that, although there is legislation to govern and promote sustainability in the mining industry, detection of violations of the laws does not always lead to action; the legislation is hindered by the apparent lack of political will to enforce the mining industry's legal obligations by administering appropriate sanctions.

Scholars such as Readhead (2018) and Tyuleneva and Moldazhanov (2020) argue that taxation is an effective policy and legislative tool to ensure sustainability in the mining industry, by promoting positive environmental practices and community development, while ensuring the industry's economic viability. For example, the study by Song, Zhang and Zhang (2022) found that resource tax positively impacts the economic and environmental performance of China's mining firms since it is mandatory and backed by punitive measures. Taxation therefore promotes sustainable mining through mandatory environment-related taxes, with both punitive and incentive elements. Readhead (2018) and Tyuleneva and Moldazhanov (2020) add that the government is motivated to enforce tax provisions as it is a resource mobilization tool for the government, and on the other hand, mining companies may be motivated to comply with tax legislation due to the tax benefits and the risk of punitive measures.

The various taxes that are imposed on corporations and individuals to reduce actions that affect the environment are broadly categorised as environmental taxes or green taxes (Mehboob, *et al.*, 2024). Environmental taxes either encourage environmentally friendly behaviour or discourage behaviour that leads to degradation by providing incentives or imposing charges, respectively (Mehboob *et al.*, 2024). Environmental taxes are used in many jurisdictions and have been shown to significantly reduce emissions and pollution and promote a transition to sustainable economies (Labeaga & Labandeira, 2020; Javed, *et al.*, 2023; Zhang & Zheng, 2023). For example, environmental taxes improved the quality of the environment in European Union countries and other countries like Turkey, by reducing emissions and environmental degradation (Javed *et al.*, 2023; Telatar & Birinci, 2022; Youssef, Dahmani & Mabrouki, 2023; Mehboob *et al.*, 2024).

Australia and the United Kingdom (UK) are compelling examples of countries implementing taxes that promote sustainability, including in the mining sector. Australia's mining industry, which contributes significantly to the country's environmental taxes, and the UK's diverse environmental tax revenue, including from the quarrying industry, demonstrate the potential of such fiscal measures in driving sustainable practices in the mining sector (Resources Review, 2022; Minerals Council of Australia, 2022; UK Office for National Statistics, 2023; Statista, 2023; Innis, *et al.*, 2022).

The International Monetary Fund (2015) indicates that the South African income tax rules that apply to mining are scattered throughout the Income Tax Act, 58 of 1962, as amended, creating a disconnect between the main mining sector legislation and income tax and regulations dealing with mining royalties. The International Monetary Fund (2015) argues that this lack of comprehensive coordination of the rules often makes it challenging to efficiently determine the application of the rules where there are general rules and specific rules. Section 1 of the Income Tax Act defines "mining" and "mining operations" as encompassing every method or process used to extract any mineral from the soil. French and Stretch (2023) explain that this definition includes a broad range of activities for extracting minerals from the earth, including natural oil and mining methods such as underground and open-cast mining, quarrying, and mineral purification from ore.

Various studies have addressed different aspects or provisions but have not presented a consolidated analysis of key provisions and their role in promoting sustainability in the mining industry. The research by Thambi (2019), although not the focus of the study, highlights the link between tax and sustainability in the mining industry. Thambi (2019) explains that the amendment in terms of the Taxation Laws Amendment Bill, 17B of 2016, extends the relief provided under section 36(11)(e) of the Income Tax Act to include capital expenditure incurred on infrastructure to the benefit of mining communities, in terms of the social and labour plan requirements of the Mineral and Petroleum Resources Development Act. Although this provision would incentivise companies to invest in infrastructure, Thambi (2019) focuses on the modalities of ensuring that such deductions are not abused or granted to undeserving mining companies. The lack of a comprehensive analysis of the role of tax provisions in promoting sustainability in the mining industry presents an opportunity for the present study to address this gap.

It appears that most of the literature relating to taxation and sustainability in the mining industry in South Africa is focused on curbing carbon emissions. Nemavhidi and Jegede (2023), Greaver

(2021), and Masondo (2020) focus on the nexus between the Carbon Tax Act, 15 of 2019, and the reduction of emissions in mining. Greaver (2021) highlighted that the carbon tax is a form of Pigouvian tax that ensures that entities that pollute the environment bear the costs relating to environmental pollution and degradation, and the consequential adverse health effects. Greaver (2021), however, notes the inadequacy of the Carbon Tax Act, as the charges are too low to have a meaningful effect on reducing greenhouse gas emissions. In addition, the Carbon Tax Act gives unreasonably large allowances to taxpayers that effectively maintain “business as usual”. It can be argued that there is a tendency to relate sustainability in the mining industry mainly with the immediate impact of climate change and environmental degradation, however, sustainability in the mining industry is a broad concept and it covers both the socio-economic and environmental dimensions. Winkler and Marquard (2011) argue that tax should not be a mere revenue-raising instrument, but it should be structured to address equity demands.

The tax provisions that apply to mining are fragmented and are in different sections of the legislation and/or in different legislation. There is no evidence of studies that have sought to explore the role of the key tax provisions in promoting sustainability in the mining industry. Where there have been studies, they have addressed one aspect such as carbon tax, or specific tax provisions. There has been more emphasis on the scientific issues of mining such as emissions, climate change, land degradation, and pollution, which in turn have overlooked sustainable mining as a broad concept.

In view of the issues discussed, the research problem to be addressed in the present research is therefore to analyse of the role of taxation in promoting sustainability in the mining industry in South Africa, by considering the tax provisions in South Africa and adopting lessons from Australia and the UK.

1.2 GOALS OF THE RESEARCH

The main goal of the research is to analyse the role of tax provisions in promoting sustainability in the mining industry in South Africa, Australia and the UK, and is addressed by the following sub-goals:

- outline the socio-economic and environmental impact of mining in South Africa;
- examine the discourse around sustainability in the mining industry;
- discuss the South African tax provisions that promote sustainability in the mining industry;

- discuss the tax provisions in Australia and the UK that address sustainability in the mining industry; and
- recommend tax provisions that can be adopted in South Africa to address the multi-dimensional nature of sustainability in mining.

1.3 METHODS, PROCEDURES AND TECHNIQUES

This research is grounded in the interpretative paradigm, which assumes that knowledge and meaning are acts of interpretation, and that access to reality is through social constructs such as legislation (Antwi & Hamza, 2015; Pervin & Mokhtar, 2022). This research will apply a doctrinal research methodology. Doctrinal research is a systematic study of legal principles that involves the analysis of existing legal materials, which would include statutes, regulations, case law, and legal scholarly material (Hutchinson, 2013). Doctrinal research will allow a thorough examination of the tax provisions that are relevant to sustainability and mining. The research will be qualitative in nature, since it focuses on description, interpretation and understanding of statutes, regulations, case law, and legal scholarly material.

The primary data sources for this research consist of legal texts and documents related to mining taxation and the environment. These include legislation, case law, regulations, and international conventions related to mining taxation and sustainable development. Secondary data will include published articles, academic texts, and other sources of literature. Data will be accessed through online databases, legal libraries, government websites, and academic journals such as LexisNexis; Southern African Legal Information Institute; HeinOnline Law Journal Library; Sabinet African Journals; and Juta Law. Key documents will be selected based on their relevance to the research goals.

The research will begin with a detailed analysis of the legal framework and the literature that provides for sustainability in the mining industry. The data analysis will primarily involve the examination of South African, Australian, and UK tax laws in relation to sustainable mining. The data analysis will include the identification, compilation, and interpretation of specific key South African, Australian, and UK tax provisions.

1.4 ETHICAL CONSIDERATIONS

The data relevant to this research is publicly available therefore no ethical considerations related to data accessibility and privacy arise. The researcher notes that the duty of proper attribution,

responsible and transparent analysis and reporting remains paramount. No application for ethical clearance will be submitted using the Rhodes University Ethical Application System.

1.5 OVERVIEW OF THE CHAPTERS

The present chapter outlined the background of the study, specified the research question, together with the goal and sub-goals, detailed the research methodology employed, and confirmed that the study, relying solely on documentary sources, does not involve any ethical concerns.

Chapter 2 explores the socio-economic and environmental impacts of mining in South Africa. It highlights the significant contribution of mining to the economy and the environmental harm it causes, such as deforestation, soil erosion, water contamination, and air pollution. The chapter also discusses the socio-economic impacts on local communities, including displacement, health issues, and economic challenges.

Chapter 3 analyses the theoretical and legal frameworks of sustainability in the mining industry. It defines sustainability and traces its evolution, discussing various perspectives. The chapter examines international and South African legislative frameworks promoting sustainable development and the connection between tax provisions and sustainability in mining.

Chapter 4 analyses the South African tax provisions that promote sustainability in the mining industry. It discusses various legislative measures and their impact on encouraging sustainability in the mining industry.

Chapter 5 explores the tax provisions in Australia and the UK that promote sustainability in the mining industry. It discusses how these countries have established tax measures to foster environmentally responsible mining practices. The chapter examines the use of tax transparency, research and development tax credits, and environmental taxes, in encouraging sustainable practices.

Chapter 6 concludes the research by summarizing the findings and offering recommendations.

CHAPTER 2: THE SOCIO-ECONOMIC AND ENVIRONMENTAL IMPACT OF MINING IN SOUTH AFRICA

2.1 INTRODUCTION

This chapter addresses the first sub-goal of the research by outlining the socio-economic and environmental impact of mining in South Africa. The chapter provides context to these challenges associated with mining in South Africa that necessitate legislative intervention and other mechanisms to promote sustainability in the mining industry. Multifaceted aspects of degradation occur throughout the different stages of mining operations. By discussing the socio-economic and environmental challenges resulting from mining, this chapter highlights the need for policy interventions to reinforce the existing measures designed to promote sustainability in the mining industry.

The chapter broadly explains the degradation caused by mining in section 2.2, where it proceeds to outline the different forms of degradation. Land degradation is explained in section 2.3, air pollution in section 2.4, and water pollution in section 2.5. Section 2.6 explores the socio-economic effects of mining, including the interconnected considerations and health effects of mining. The chapter also provides examples to illustrate the degradation caused by mining. Section 2.5 addresses acid mine drainage in Mpumalanga province as an example of the water pollution caused by mining. The Silicosis class action is used as another example of the health effects of mining.

2.2 UNDERSTANDING THE DEGRADATION CAUSED BY MINING

Mining is one of the leading contributors to the South African economy and has been key to the development and industrialisation of the country. Despite the role of mining in promoting development, the exploitation of the minerals has been done with little or no regard for the environment and the accountability mechanisms in place have been ineffective (Makua & Kola, 2017). Haddaway, *et al.* (2019) explain that mining activities include the operations of mining at different stages, including prospecting, exploration, construction, operation, maintenance, expansion, abandonment, decommissioning, and repurposing.

The United Nations Environment Programme (2020a) and Ferreira and Odell (2023) refer to the irony of mining in the context of sustainable development; the mining sector produces the materials that are important in combating climate change, such as batteries in electric cars and materials for solar panels, yet mining operations are harmful to the environment. In *Director:*

Mineral Development, Gauteng v Save the Vaal Environment, 1999 (2) SA 719 (SCA), the court stated that mining should be allowed only when it is ensured that the benefits from mining do not harm the environment and impede the needs of future generations.

Mining is a significant contributor to environmental deterioration. From deforestation and land degradation caused by soil erosion, to river siltation, solid waste mismanagement, landscape impairment, and the contamination of water resources with harmful chemicals, the impact is far-reaching. The South African Human Rights Commission (2016) confirmed that the right to a clean environment is constitutionally guaranteed, and laws have been put in place to give effect to this right. The South African Human Rights Commission (2016) adds that, despite laws and efforts to implement progressive and sustainable projects, there are legal compliance issues and legislative gaps that affect progress.

The Constitutional Court in *Fuel Retailers Association of Southern Africa v Director-General: Environmental Management, Department of Agriculture, Conservation and Environment, Mpumalanga Province and Others* explained that there is a link between the environment and development, and if not monitored, unlimited development would be detrimental to the environment. This is often the case with mining, given the focus on the economic benefits of mining. Makua and Kola (2017) assert that mining results in environmental degradation due to a lack of adherence to environmental regulations.

Shackleton (2020) explains that mining-induced degradation refers to the negative impact of mining activities on the environment, ecosystems, and surrounding communities, and includes a myriad of direct and indirect negative impacts, environmental or socio-economic, that arise from mining activities. The degradation caused by mining extends beyond the visible effects on the land and includes air and water pollution. According to Shackleton (2020) and Mhangara, Tsoeleng, and Mapurisa (2020), the degradation encompasses a range of detrimental effects such as soil erosion leading to land degradation, improper disposal of solid waste, impairment of landscapes, river siltation, water pollution, deforestation, habitat destruction, air pollution, and contamination of soil with toxic chemicals. These impacts disrupt ecosystems and have adverse effects on human health and livelihoods. Makua and Kola (2017) and Shackleton (2020) state that the degradation caused by mining can devastate local economies, ecosystems, cultures, and livelihoods, and in some instances, the impacts are severe enough to make a place uninhabitable for humans, creating mining ghost towns.

The United Nations Environment Programme (2020a) clarifies that the impacts of mining differ between large-scale mining and artisanal and small-scale mining. Kemp and Owen (2019) support this view, and both highlight that artisanal and small-scale mining is characterized by manual labour and limited mechanization, and is typically a significant income generator for individuals, groups, and communities. Much (2020) indicates that artisanal and small-scale mining is often linked to the informal economy and is often considered to be illegal. In many cases, artisanal mining occurs in remote areas where monitoring by the government is weak (Ledwaba, 2017; Much, 2020).

The Minerals Council of South Africa (2022) reports that most artisanal mining in South Africa is carried out illegally. The Minerals Council of South Africa (2022) adds that illegal mining activities take place at abandoned and operating mines with illegal miners, known as “zama zamas”, often operating under dangerous conditions. Artisanal and small-scale mining also impacts the environment, as no consideration is given to sustainable practices. The Minerals Council of South Africa (2022) gives the example of the excessive use of water by the “zama zamas” to process the gold-bearing rock that impacts local communities.

Kemp and Owen (2019) state that large-scale mining, by contrast, is associated with multi-national or multi-site companies active in the national and international supply of minerals. These companies are registered and recognised, must comply with the law, and the government can monitor the activities of the entities and take measures against the entities.

2.3 LAND DEGRADATION

The South African Human Rights Council (2016) remarks that mining occurs on land and takes the form of surface or underground mining. Kiran, *et al.* (2022) contend that mining is one of the human factors that can contribute to land degradation through the removal of vegetation and topsoil, and the disposal of large volumes of waste, most of which are toxic. Kiran, *et al.* (2022) explain that land degradation means the deterioration of land quality and productivity caused by natural or human factors, such as deforestation, soil erosion, desertification, and pollution. This deterioration can harm the environment, ecosystems, and people’s well-being. The authors add that mining leads to challenges such as lower crop yields, loss of plant and animal variety, and increased vulnerability to disasters such as floods and landslides.

Kiran, *et al.* (2022) point out how mining operations clear the land by removing the vegetation, including the trees that hold the soil together, a process referred to as deforestation, leading to the loss of forest cover and its associated ecological functions. Mining involves digging up and drilling the land thereby loosening the soil and creating depressions and slopes, which in turn lead to soil erosion (Kiran *et al.*, 2022). Loss of biodiversity refers to the destruction of natural habitats and ecosystems caused by mining activities, resulting in the disruption of the ecosystem (Kiran *et al.*, 2022).

Excessive disposal of large quantities of waste material, also known as tailings, leads to severe environmental damage. Roche, Thygesen and Baker (2017) and the United Nations Environment Programme (2020a) highlight that tailings are the waste material, comprising of ground-up rock or sand, chemical reagents and water used to extract the mineral left over after the valuable component has been removed in the mining process. Mendez and Maier (2008) and Sedibe, *et al.* (2017) observed that mine tailings are a global problem and are present in areas such as Western North America, South America, Spain, India, and Australia.

The heavy metals in the tailings are dispersed by wind and water, causing harmful impacts on both wildlife and humans. Due to this, tailings need proper treatment and storage as they pose risks to the environment due to their chemical nature. Roche, *et al.* (2017) warn that failure to store the tailings properly can lead to the release of water and sediment that contaminate and affect downstream communities and the environment.

2.4 AIR POLLUTION

According to Batur and Babii (2022), air pollution refers to the presence of harmful substances such as gases, particulates, and biological molecules in the atmosphere, which can have detrimental effects on human and animal health, the environment, and the climate. Batur and Babii (2022) identify and explain common air pollutants, including particulate matter, nitrogen oxides, sulphur dioxide, carbon monoxide, volatile organic compounds, and ozone. Particulate matter is composed of solid particles and liquid droplets that can lead to respiratory effects. Nitrogen oxides and sulphur dioxide, originating from fossil fuel combustion and industrial activities, contribute to acid rain and impact respiratory and cardiovascular health. Carbon monoxide, a colourless, odourless gas resulting from incomplete combustion, poses risks in high concentrations. Volatile organic compounds, emitted from sources like vehicle exhaust, can evaporate, leading to ground-

level ozone formation and health problems. Ground-level ozone, resulting from the reaction of volatile organic compounds and nitrogen oxides in sunlight, is a harmful air pollutant associated with respiratory and general health concerns.

Mining activities can contribute to air pollution through diverse processes and emissions, as outlined by Batur and Babii (2022). Mining generates substantial dust and particulate matter through activities like blasting, drilling, excavation, and material transportation. These airborne particles can negatively impact air quality and human health. Yu and Zahidi (2023) explain that the release of particulate matter and various pollutants into the air during mining activities is referred to as mine dust pollution. They add that the dust contains harmful substances like heavy metals and silica, with adverse effects on the environment, public health, and occupational health. Batur and Babii (2022) and Yu and Zahidi (2023) agree that mine dust pollution can occur in both underground and open-pit mining, affecting a wide area and impacting nearby residents and ecosystems. As confirmed by Makua and Kola (2017), Batur and Babii (2022) and Yu and Zahidi (2023), mine dust pollution poses severe health hazards, exposing mine workers to occupational diseases and increasing the risk of respiratory problems, silicosis, black lung disease, cancer, and other health problems. Yu and Zahidi (2023) further highlight that nearby residents face similar risks, including respiratory diseases and potential water source contamination, highlighting the interconnected threats to public health and environmental well-being.

Batur and Babii (2022) state that the use of heavy machinery and vehicles in mining operations results in the release of pollutants such as nitrogen oxides, sulphur dioxide, carbon monoxide, and particulate matter. They explain that fugitive emissions, involving unintentional releases from mining activities like leaks, spills, and evaporation from exposed surfaces, can introduce hazardous pollutants into the air. Batur and Babii (2022) note that certain mining processes, like the extraction and processing of metal ores, can trigger chemical reactions leading to acidic runoff and airborne emissions. This results in acid mine drainage, releasing sulfuric acid and heavy metals into the air and water, contributing to environmental pollution. The combustion of fuels, primarily from fossil fuels for machinery, releases air pollutants, including greenhouse gases like carbon dioxide and methane, affecting air quality (Batur & Babii, 2022).

There are gaps in the law relating to mining degradation, and there is no active monitoring of the sustainability of mining operations. In 2016 the South African Human Rights Commission held a national hearing to investigate the socio-economic challenges experienced by multiple

stakeholders in mining-affected communities in South Africa. The report of the South African Human Rights Commission (2016) evaluated the ability of South African laws to promote and protect the rights and interests of mining-affected communities. In its report, the South African Human Rights Commission (2016) observed that mining-affected communities experienced air pollution from blasting, coal stockpiles, coal truck haulage, sinkholes, abandoned mine dumps and noise and vibration disturbances.

The report of the South African Human Rights Commission (2016) also found that there was an information gap and inadequate research on the impact of dust and air pollution on the health of the communities. The report identified that blasting is widely practised in the country, and it negatively impacts communities and the environment, yet there is a lack of regulation dealing with blasting operations in mining. There is no monitoring and guidance regarding these activities by industry bodies, and mining companies should actively ensure that safety mechanisms are in place to prevent property damage and any risk to persons' health and safety (South African Human Rights Commission, 2016). The report of the South African Human Rights Commission (2016) concluded that the Department of Mineral Resources needs to be proactive in addressing the gaps that arise in mining that affect the environment.

2.5 WATER POLLUTION

Consumption and pollution of water are both concerns in mining. ActionAid (2016) observed that the water consumed by the mining industry is equal to that of the entire population of South Africa, yet the mining operations also lead to pollution of water sources such as rivers. Besides the high consumption, the pollution of water resources poses serious challenges to the livelihoods and health of communities. Ofosu, *et al.* (2020) note that rivers are sources of water for most rural communities, for watering crops, animal and human consumption, and recreational purposes. Ofosu, *et al.* (2020) and Kiran, *et al.* (2022) state that the discharge of mining-related pollutants, such as cyanide, mercury and other metal tailings and chemicals, can contaminate water sources, affecting aquatic life and posing risks to human health. Ofosu, *et al.* (2020) add that the continued use of acidic water for irrigation of agricultural lands contaminates food crops and makes the soil infertile.

According to McCarthy (2011) and Tiamgne, Kalaba, and Nyirenda (2022), acid mine drainage happens when a certain mineral, pyrite, reacts with water containing oxygen, which causes high

acidity of water. The acidic water can dissolve heavy metals thereby dispersing heavy metals into water bodies, making them toxic. Tiamgne, *et al.* (2022) highlight that acid mine drainage poses a significant threat to the environment and water resources in and around mine areas, due to the large amount of acidic wastewater they discharge into the environment. Viljoen and van der Walt (2018), Tiamgne, *et al.* (2022), and Atangana and Dzhangi (2023) emphasize that freshwater resources are scarce in South Africa, like many other Sub-Saharan African countries, and the contamination of the available resources in and around mining areas depletes the limited water that is available and accessible to local communities.

The case of *Federation for Sustainable Environment v Minister of Water Affairs*, (35672/12) [2012] ZAGPPHC 128 (10 July 2012), dealt with the government's duty to progressively realise the right of access to clean and safe water for residents, and mining water pollution was the cause of the lack of water for residents. The residents of Carolina and Sibolela townships approached the court for an urgent interdict to compel both national and local governments to supply them with adequate and safe drinking water. Acid mine drainage was the root cause of the water crisis; the water supplied to the community was not appropriately treated, either by the mines that caused the acid mine drainage or by the municipality that is responsible for the treatment of water. This case confirms that the water and environmental challenges created by mining companies are inherited by the government, as the citizens turn to the government to protect their rights.

As confirmed by the United Nations Environment Programme (2012) and Eskom (2021), South Africa is the third largest coal exporting country, and it has the fifth largest coal deposits in the world. Although the United Nations Environment Programme (2012), Laisani and Jegede (2019) and Eskom (2021) note that the contribution of coal to South Africa's primary energy needs has decreased from 93% in 2006 to 72.1% in 2021, and it is planned to reach 48% by 2030, it remains significantly high.

The extraction of coal employs either underground mining or opencast methods. In contrast to gold mining, there is little surface dumping in coal mining. McCarthy (2011) notes that both the coal and the surrounding rock contain pyrite, and when mining activities are concluded, the water that fills the voids in the fractured rock decants from the lowest opening. McCarthy (2011) explains that rainwater also infiltrates the soil after the rehabilitation of a mine, and it is acidified by pyrite in the backfill material and it decants on the surface.

Shongwe (2018) states that the coal industry in South Africa is found primarily in the Mpumalanga and Limpopo provinces, and clarifies that Mpumalanga province produces over 84% of South Africa's coal. Shongwe (2018) argues that the emphasis on coal mining in the province is overshadowing agricultural activities, as local communities engage in the re-mining of coal for their livelihood. ActionAid (2016) reports that the livelihoods of subsistence farming communities in Mpumalanga province are seriously threatened by the mining activities that occupy at least sixty percent of the land in the province. ActionAid (2016) and Shongwe (2018) observe that the coal fields abandoned after mining become barren for farming due to water pollution. ActionAid (2016) adds that the water pollution caused by coal mining is a direct cause of poverty in the province, and there is a lack of safe drinking water and nutritious food to replace the crops that are affected by the contaminated water. The livestock is also affected by the contaminated water and grazing fields. The South African Human Rights Commission (Online: n.d.) notes that the impact of coal mining in Mpumalanga on the freshwater sources is a serious concern; it is widespread and affects the major rivers.

A study by Laisani and Jegede (2019) found considerable environmental degradation in the Ogies District of the Mpumalanga province due to pollution from the Klipspruit mine operations. Ninety percent of the respondents interviewed by Laisani and Jegede (2019) complained about different forms of pollution caused by the Klipspruit mine, including water, air, and noise pollution. Laisani and Jegede (2019) contended that the ability of the government to consistently implement and enforce regulations was questionable, as well as the effectiveness of the interventions by mining companies. Laisani and Jegede (2019) concluded that despite the many laws and reported interventions, the local environment in Mpumalanga remains polluted and the communities continue to suffer.

Atangana and Dzhanghi (2023) assessed the water quality of the Boesmanspruit river, which flows in a coal mining area under the Inkomati–Usuthu Water Management Area in Mpumalanga province. The results indicated that the river has high concentrations of chemicals that are responsible for the poor water quality and the formation of acid mine drainage. The results showed that there were higher levels of pollution downstream from the mining activities and less in the areas further from the mining activities.

There are some progressive interventions being implemented to combat the environmental effects of coal mining in Mpumalanga. The South African Human Rights Commission (Online: n.d.)

reports that in 2007, Anglo American implemented the eMalahleni Water Reclamation Scheme to process water from its thermal coal activities and an inactive mine owned by a different entity in the Witbank coalfields of Mpumalanga province. The facility uses reverse osmosis desalination to transform mine water into drinkable water for both Anglo's mining activities and the water demands of eMalahleni (South African Human Rights Commission, Online: n.d.). Laisani and Jegede (2019) assert that despite these interventions, the extent of preexisting and continuous degradation from the mining operations makes the mines less effective in combating pollution.

It is clear that the effects of coal mining in Mpumalanga demonstrate the importance of interconnected considerations, that certain members are more affected, and that the impacts of mining perpetuate inequality. ActionAid (2016) found that women in Mpumalanga have the burden of taking care of the people in their households who fall ill due to environmental pollution. ActionAid also reports that the mines lead to an increase in alcohol abuse, young women engaging in sex work, human immunodeficiency virus (HIV) prevalence, and single parent households run mainly by women.

2.6 SOCIO-ECONOMIC IMPACTS

The environmental degradation caused by mining has a ripple effect on the socio-economic welfare of local communities. Kitula (2006) and Makua and Kola (2017) state that unsustainable mining practices can displace local communities from their homes and lands due to pollution and safety risks. Kitula (2006) adds that the displacement in the long-term leads to other challenges such as food insecurity, poverty, and conflict. Although the local people are offered or can claim compensation for displacement, the South African Human Rights Commission (2016) found that mining companies in South Africa tend to offer compensation that is far below the acceptable threshold set by global industry standards, leading to widespread economic displacement and impoverishment.

For example, Makua and Kola (2017) report that Tharisa Minerals relocated inhabitants of the Mmadithlokwa village in Marikana a short distance from the mining operations, resulting in adverse effects on the community. The community experienced negative impacts from the mining activities, which led them to move further away due to safety concerns (Makua & Kola, 2017). The residents who lacked the financial means to rebuild their homes remained, as the mine

demanded proof that the deterioration of their houses was directly caused by the mining activities (Makua & Kola, 2017).

Kiran, *et al.* (2022) argue that the health of local communities can be negatively impacted by mining-induced environmental degradation, leading to issues such as respiratory problems, waterborne diseases, and other health concerns associated with environmental pollution. Communities that live close to mining activities are at risk of health issues associated with mining. Lesnikov, Kunz and Harris (2023) give an example of research on small-scale gold mining in Nigeria that found high levels of aluminium and iron in surface water, exceeding the World Health Organization guidelines. The research suggested that cadmium and chromium, present in the water, could have carcinogenic effects due to these substances having the effect of producing or tending to produce cancer.

Shackleton (2020) examined the impact of open-cast mining on rural communal land villages. The study compared a village that lost land to a mine with an adjacent village that did not, Ga-Molekana and Chokoe respectively, both in the Limpopo Province, South Africa. Shackleton (2020) found that the loss of land and the ecosystem due to mining activities significantly affected people's livelihoods, particularly in terms of agricultural potential and access to grazing. The study emphasizes the negative long-term implications for local livelihoods in rural communal land areas. It highlights the importance of considering land access and associated land-based livelihoods in the context of disturbance and change. The study emphasizes the importance of compensation mechanisms and corporate social responsibility to prevent injustice and ensure the sustainability of local livelihoods.

2.6.1 Multi-sectional considerations

Lesnikov, *et al.* (2023) establish that mining affects people in diverse ways, and it is important to recognize multi-sectional differences influenced by factors like gender, race, ethnicity, poverty, indigeneity, or livelihood. Multi-sectionality recognizes that individuals may be positioned differently, and their differences influence their lived experiences. Lesnikov, *et al.* (2023) state that there is a need to understand that other variables such as class, caste, race, location, or other significant differences determine the lived experiences of individuals in the same community.

Hill and Newell (2009) and Stevens and Tekinbas (2023) argue that the socio-economic and environmental impacts of mining affect men and women differently, with women and girls often

experiencing the consequences of mining more noticeably than men, both directly and indirectly. Stevens and Tekinbas (2023) explain that women and girls do not benefit equally from opportunities such as employment or community benefits. Lesnikov, *et al.* (2023) state that dispossession of farmland can lead to the urban migration of rural men in search of jobs. This can lead to changes in traditional social structures and a loss of ethnic and cultural rights. From the studies by Lesnikov, *et al.* (2023) and Stevens and Tekinbas (2023), it can be concluded that women are often affected by these changes, especially when they devalue women's work and reduce their roles as decision-makers or landowners.

Stevens and Tekinbas (2023) observed that the recurrent themes on the gender-differentiated impacts of mining that have been outlined in recent studies and publications include the loss of land and livelihoods, impact on women's health, decrease in safety and security, increase in unpaid care work, and unequal access to employment. When rural communities are displaced due to unsustainable mining practices women suffer the most. Stevens and Tekinbas (2023) note that women are usually responsible for roles such as subsistence farming and gathering firewood and water, and they are unlikely to benefit from compensation for the lost land because they often do not have rights to the land.

It is important to note the different health impacts of mining, particularly from a gender perspective. Lesnikov, *et al.* (2023) and Stevens and Tekinbas (2023) argue that women experience health impacts more than men, and mining and environmental pollution affect their sexual, reproductive, and maternal health. Lesnikov, *et al.* (2023) give the example that breastfeeding mothers in gold mining communities can be exposed to mercury contamination and can experience contamination of breast milk.

Stevens and Tekinbas (2023) note that mining communities are also associated with increased instances of sexual violence and paid sex work, and young women are more prone to sexually transmitted infections and diseases due to power dynamics and violence. The scholars argue that the risk of gender-based violence increases because of male-dominated workplaces, shifts in social norms due to cash injections into previously rural subsistence economies, and mine closures and loss of jobs, which can lead to domestic violence.

Stevens and Tekinbas (2023) state that mining is a male-dominated sector, and women make up only about 5% to 15% of the formal workforce. They argue that women are underrepresented in

skills training programs in the mining sectors, and the work environment is not family-oriented to support women with families and care duties. Since mining work is male dominated, it means that men are not available to help with unpaid care work. Stevens and Tekinbas (2023) highlight that women must meet the demands of household care work, and this reduces the time they can engage in paid work and increases their financial dependence on men.

It is clear that mining, if not aligned with and monitored in line with national policies on equality, transformation, and gender equality, can negatively affect the national developmental efforts to meet the sustainable development goals. Mining can perpetuate gender inequality, unfair labour practices, and socioeconomic and environmental degradation.

2.6.2 The health effects of mining: the silicosis class action

In *Ex Parte Nkala and Others*, (44060/18) [2019] ZAGPJHC 260 (26 July 2019), the Johannesburg High Court approved a R5 billion (South African Rand) class action settlement with nineteen of the gold mining companies cited in a lawsuit against mineworkers affected by silicosis in South Africa. The Business and Human Rights Resource Centre (2019) and Legal Resources Centre (2022) note that this case has become known as the “silicosis case”. Two companies have not agreed to the settlement and the litigation is still ongoing. The Legal Resources Centre (2022) reports that DRDGold and East Rand Proprietary Mines Limited have persisted in litigating the matter, despite their gold mining operations in South Africa spanning over a century, making them long-standing perpetrators of the environmental issues in the class action. Brickhill (2021) notes that the silicosis case is the largest and most significant class action to date. The author explains that silicosis is an incurable lung condition resulting from breathing in silica dust, and that, while silicosis alone is not typically fatal, the disease increases the likelihood of developing tuberculosis (TB), a potentially fatal respiratory disease. The author concludes that gold miners face heightened risks as gold is typically found in proximity to silica.

The Business and Human Rights Resource Centre (2019) reports that the settlement of the case was an outcome of the extended legal struggle for compensation due to illnesses contracted by miners over many years, resulting from negligence in health and safety practices. Brickhill (2019) explains that litigation for silicosis began in 2003 when the Legal Resources Centre and a UK-based law firm, Leigh Day, initiated and settled test cases against Anglo American. The author confirms that Leigh Day pursued numerous individual claims after the initial test cases, resulting

in a settlement for over 4,000 former miners, and this led to other local and international firms initiating their class action. Brickhill (2019) notes that, eventually, the cases were combined into one, known as the *Nkala* case. The High Court granted the application for certification of the class action in *Nkala and Others v Harmony Gold Mining Company Limited and Others*, 2016 (5) SA 240 (GJ). The *Nkala* case was initiated by 69 applicants, who represented a potential class ranging from 17,000 to 500,000 mineworkers. Among the applicants, 45 were representatives for silicosis, 25 for tuberculosis, and included widows of former mineworkers who had passed away due to these illnesses.

In *Nkala v Harmony Gold Mining Company Limited*, the court explained that gold mining has been going on for over a century in South Africa, starting in the Witwatersrand and expanding to various parts of the country. Gold mining has significantly contributed to the country's gross domestic product over the years, and the South African currency was closely tied to the value of gold. The court noted that the silicosis case shows that the economic growth brought by gold mining has health related consequences. The risk of mineworkers being adversely affected by exposure to silica dust has been known since the commencement of gold mining. The court highlighted that commissions of enquiry, and other studies and investigations have been conducted for over a century, investigating the causes and prevalence of silicosis. The investigations established that the inhalation of excessive silica dust was the sole cause of silicosis and recommended that dust control and dust elimination measures be introduced.

Field (2019) concludes that the silicosis case shows the systemic prejudice against mineworkers, who provide labour in a lucrative industry that benefits large-scale mining companies and the economy, at the expense of their health and the well-being of their families. The legal battle exposed the enduring impact of silica dust on mineworkers and the mining industry's negligence in health and safety practices, leading to an incurable lung condition and heightened risks of tuberculosis.

2.7 CONCLUSION

This chapter explained the impact of mining activities, shedding light on the interconnected environmental, socio-economic, and health impacts. The constitutional perspective, as exemplified in the *Fuel Retailers* case, emphasizes the delicate balance required between development and environmental preservation. Mining, often touted for its economic benefits, exacts a heavy toll on

the environment, ecosystems, and the well-being of surrounding communities. The scope of mining degradation encompasses diverse negative impacts, from land degradation to air and water pollution. The lack of adherence to regulations and the absence of effective monitoring contribute to the severity of these impacts.

The case of the coal mining in Mpumalanga illustrates the detrimental effects of coal mining on water resources, agriculture, and the overall well-being of local communities. Acid mine drainage emerges as a significant threat, affecting both the environment and water sources. The health effects of mining, as exemplified by the Silicosis class action, demonstrate the enduring consequences of negligence in health and safety practices in the mining industry.

Multi-sectional considerations emphasize the disproportionate burden borne by women and other vulnerable groups due to the socio-economic consequences, such as displacement, health hazards, and economic impoverishment. The wide-reaching consequences highlight the effect of mining on other areas of development such as equality, labour, and health.

The chapter underscores the need for better and innovative interventions and mechanisms to ensure that the government and the mining companies implement sustainable practices in the mining industry. Striking a balance between economic development and environmental protection is not only a constitutional duty but a necessity for the well-being of communities, ecosystems, and future generations. The challenges posed by mining demand a collective effort from the government and industry stakeholders to foster sustainability in mining.

The discussion in Chapter 2 necessitates a discussion of the theoretical and legal framework of sustainability in the mining industry. Chapter 3 examines the discourse surrounding sustainability in the mining sector. Building on the insights on the impacts of mining on communities and ecosystems, Chapter 3 examines the narratives, policies and laws concerning conservation and addressing environmental degradation, which apply to the mining sector and activities. Tax as a tool to address sustainability in the mining industry is founded on the understanding and regulation of sustainability and environmental conservation. Understanding the discourse surrounding sustainability in the mining industry will provide a foundation to analyse the role of the mining related environmental taxes.

CHAPTER 3: THE DISCOURSE ON SUSTAINABILITY IN THE MINING INDUSTRY

3.1 INTRODUCTION

This chapter addresses the second sub-goal of the research by examining the discourse on sustainability in the mining industry. The chapter explores the theoretical and legal framework that promotes sustainability in the mining industry. The theoretical framework explains the concept of sustainability and what it encompasses. The legislative framework is about the normative instruments that regulate the behaviour of states, companies, and individuals to ensure sustainability. The legislative framework includes the laws and regulations that govern sustainability practices in the mining industry.

The chapter discusses the concept of sustainability or sustainable development in section 3.2. It proceeds to outline the legislative framework relevant to sustainability in mining in section 3.3, which includes international law and South African law. The chapter highlights the need for more legislative interventions to promote sustainability in section 3.3. It explains the interconnectedness of tax provisions and sustainability as a mechanism to reinforce the regulation of environmental sustainability in mining in section 3.4.

3.2 UNDERSTANDING SUSTAINABILITY

Sustainability, as a field, has made significant progress in finding the balance between environmental destruction and economic growth. Gibbons (2020) and Salim (2007) point out that despite the progress, environmental degradation persists, and achieving thriving ecosystems remains elusive. Salim (2007) argues that environmental degradation persists despite efforts because development has put the economy at the centre of growth while subordinating social and environmental factors.

The terms environmental sustainability and sustainable development are used interchangeably in the literature as both recognise the need to protect the environment whilst exploiting it for human benefit and development. Tomislav (2018) argues that environmental sustainability, in its literal sense, refers to the ability to maintain an entity over time by conducting activities that do not deplete the resources on which the entity relies. Tomislav (2018) notes that this simple definition overlooks environmental boundaries and the necessity of aligning human actions with the sustainability of natural systems. Tomislav (2018) explains that the concept of sustainable development is based on the “triple bottom line” concept, which emphasises balance while

ensuring a healthy environment for economic activities and people's quality of life; social sustainability, by upholding human rights, equality, cultural identity, and diversity; and economic sustainability, which is vital for income and living standards.

Emas (2015) states that the concept of sustainability first emerged in 1987 in the Brundtland report commissioned by the United Nations General Assembly. The report published by the United Nations General Assembly (1987) explored the causes of environmental degradation, studied the connection between social equity, economic growth, and environmental issues, and proposed an integrated approach to balance these issues. The report defined sustainable development as meeting the development needs of today without compromising future generations' ability to meet their needs. Scholars such as Dotsenko, *et al.* (2021), Gibbons (2020), Tomislav (2018), and Walker (2007) agree that the views of sustainable development have evolved since the definition by the Brundtland report to address a broader spectrum of concerns to suit different industries, interests, and views.

Gibbons (2020) explains the evolution of the concept of "sustainability" and categorises the prominent views, including conventional, contemporary, regenerative, and natural capitalism. Gibbons (2020) suggests that the idea of sustainability articulated in the Brundtland report describes conserving environmental resources for human benefit, and it recognises that the use of environmental resources, if not checked, is detrimental in the long term. Gibbons (2020) refers to this as "conventional sustainability," which emphasises economic development in the context of limited resources. Gibbons (2020) further explains that this understanding of sustainability juxtaposes the efficient use of resources and mitigating environmental damage, as well as economic growth and ensuring the well-being of people and nature.

Emas (2015) highlights that the proponents of resource efficiency, such as Porter and van der Linde (1999), held that improvements in production processes to reduce pollution could create mutually beneficial outcomes for the environment and the economy. Gibbons (2020) explains that the examples of conventional sustainability include using technology to ensure efficiency, economically driven environmental regulations, and economic incentives. Gibbons (2020) argues that conventional sustainability is ambiguous and omits essential elements to ensure sustainable practices. Emas (2015) notes that the view that sustainable development that aims to maintain economic advancement is also widely criticized as scholars argue against a trade-off between environmental sustainability and economic development.

Gibbons (2020) observes that the concept of “contemporary sustainability” was developed in the late 1990s after conventional sustainability, and it focuses on science for sustainable development. Although it adds considerations such as ecosystem viability, social justice, social-ecological systems, and livelihoods, it is submitted that it is similar to conventional sustainability as it focuses on surface issues rather than the root causes of the lack of sustainability. For instance, Gibbons (2020) states that contemporary sustainability supports ongoing economic growth, resource management for human consumption, and efficiency, even if these practices are not sustainable. In contrast, Gibbons (2020) explains that the concept of “regenerative sustainability” views humans and all other life forms as part of a single self-determining system. Gibbons (2020) adds that in this self-determining system, developmental changes should realise the potential of the place or community. The goal of regenerative sustainability is to create thriving and flourishing living systems.

The concept of natural capitalism mentioned by Gibbons (2020) focuses on resource efficiency, renewable energy, and market-driven solutions. Lovins, Lovins and Hawken (2007) argue that it is an economic concept, emphasizing the importance of integrating sustainability and environmental stewardship into business practices. Similar to conventional sustainability, it emphasizes the efficient and responsible use of natural resources while promoting innovation and economic growth. Lovins, *et al.* (2007) explain that the principles of natural capitalism include reducing waste and optimizing the use of energy, water, and materials, recycling and reusing by harmlessly returning materials to the ecosystem or using them as inputs in production and restoring ecosystems.

Tomislav (2018) also gives an overview of the evolution of sustainable development from 1987 to 2015, and agrees that the concept was initially defined in the Brundtland Report as meeting present needs without compromising future generations, and that subsequent perspectives expanded on this. Tomislav (2018) states that various authors and organizations have contributed nuanced perspectives. Tomislav (2018) adds that Harwood (1990) depicted sustainable development as an ongoing system focused on maximizing human benefits while efficiently using resources in harmony with the environment.

Tomislav (2018) notes that by 1991, the International Union for Conservation of Nature, the United Nations Development Programme, and the World Wide Fund for Nature highlighted sustainable development as improving the quality of human life in a sustainable ecosystem. Tomislav (2018)

explained that Meadows (1998) viewed sustainable development as a social construct integrating human population, economic growth, and ecological systems. In contrast, Tomislav (2018) adds that Vander-Merwe and Van-der-Merwe (1999) stressed a shift in economic development to safeguard the quality of life and ecosystems.

Tomislav (2018) explained that scholars such as Vare and Scott (2007) and Sterling (2010) envisioned sustainable development as institutional and technological advancement to meet human needs while safeguarding the environment and averting resource depletion. Tomislav also stated that Duran, *et al.*(2015) emphasized that sustainable development balances development and environmental protection. Tomislav's (2018) synthesis illustrates the multifaceted evolution of sustainable development, encompassing economic, social, and environmental considerations towards achieving long-term human well-being and environmental sustainability.

Despite the various perspectives given by many scholars, Vogt and Weber (2019) assert that misunderstandings about the content of the concept of sustainability persist, and this discredits the idea. It is submitted that a holistic understanding of sustainability across various dimensions is essential to address it. Salim (2007), Walker (2007), Emas (2015), and Dotsenko, *et al.* (2021) assert that the different views of sustainability show the interconnectedness of environmental, social, and economic growth and challenges. Salim (2007) argues that sustainable development requires a fundamental shift away from traditional development paradigms, aiming to better balance short-term and long-term goals.

Tost, *et al.*(2018) critically analyse the different sustainability paradigms, especially regarding mining. They give the example of the use of coal in energy production. They state that when there is "strong sustainability," the use of coal in energy production would be limited by concerns such as climate change and air pollution. The use of coal in energy production would be unlimited under "weak sustainability" due to the focus on the benefits of cheap energy and jobs. The earlier views of sustainability would err on the side of weak sustainability due to the emphasis on economic goals and trying to continue to meet these goals. In contrast, the environment is viewed as an outlier.

Cowell, *et al.*(1999) and Vintró, Sanmiquel, and Freijo (2014) state that sustainable development is closely associated with the extractive industry, since the extractive industry exploits natural resources for economic advancement. The United Nations Development Programme and United

Nations Environment (2018) establish that sustainability in the context of mining is about considering the environmental, political, and socio-economic dimensions in the inception, design, execution, and eventual closure of mining projects. According to the United Nations Development Programme and United Nations Environment (2018), sustainable mining practices mitigate adverse effects and optimize the positive outcomes of mining operations.

The United Nations Development Programme and United Nations Environment (2018) explain that sustainable mining is a broad concept and covers several areas of sustainable action, including sustainable economic development, social inclusion, and environmental sustainability. It is submitted that the definition by the United Nations Development Programme and United Nations Environment (2018) shows the broadness of sustainability in mining; it relates to the argument presented by scholars such as Glazewski and Posnik (2000), Salim (2007), Walker (2007), Emas (2015), and Dotsenko, *et al.* (2021) about the integration of the environmental, social, and economic concerns in sustainability.

The United Nation's (2015) Sustainability Development Goals have shaped the current understanding of the concept of sustainability. The Sustainability Development Goals are a set of 17 interconnected global objectives established by the United Nations in 2015 to address a wide range of global challenges, including poverty, inequality, health, gender disparities, climate change, environmental degradation, peace, and justice (United Nations, 2015). This indicates that the concept of sustainability is broad, and it has evolved to include the environmental, social, and economic aspects.

Malan (2021) argues that the concept of sustainability in mining initially seems contradictory because minerals, once extracted, cannot be naturally replenished. Malan (2021) acknowledges that despite this truth, the significant value of minerals can substantially benefit communities or nations. Malan (2021) contends that sustainability in this context means addressing the environmental footprint and resource depletion and ensuring sustainable mining practices such as community consultation, reducing waste, and adopting low-impact mining techniques. It is submitted that by emphasizing the role of government policies and corporate initiatives, Malan underscores the importance of regulatory frameworks and corporate responsibility in advancing sustainable practices in the mining industry. This perspective aligns with the broader perspectives on sustainable development.

The theoretical understanding of sustainability influences the design of normative instruments such as laws, regulations, policies, and guidelines that guide behaviour toward a more sustainable future. This has led to many international agreements for environmental sustainability, and binding rules and laws to address environmental degradation.

3.3 THE LEGISLATIVE FRAMEWORK OF SUSTAINABILITY IN MINING

3.3.1 International law

International law provides a normative framework for responsible mining practices, emphasizing environmental protection, community engagement, and sustainable resource management. Several international laws directly or indirectly address sustainability in mining; most of these come from the perspective of environmental law and sustainable development. The United Nations Development Programme and United Nations Environment (2018) state that the international laws that shape the legal framework for environmental sustainability in mining include international investment treaties, human rights laws and standards, and environmental conventions and treaties. Gevers, *et al.* (2015) explain that international law comprises customary laws and treaties. Gevers, *et al.* (2015) and Bodle, *et al.* (2021) clarify that treaties are rules agreed upon between countries and apply only to the countries that are party to them, whereas customary law usually applies to all states. These laws turn the concept of environmental sustainability into normative rules that are enforceable against states, individuals, and companies.

3.3.1.1 Customary international law

Article 38 of the Statute of the International Court of Justice (1946) establishes that customary international law comes from general practice and law principles recognized by civilised nations. Bodle, *et al.* (2021) and Gevers, *et al.* (2015) explain that customary international law entails norms that enjoy extensive acceptance across national legal systems worldwide, obligating states under international law as well. According to Bodle, *et al.* (2021), to establish a customary legal norm, states must demonstrate that there is significant adherence by states to that rule and that states recognize it as a legal obligation. It is submitted that several customary law principles are relevant to sustainability in the mining industry. Lavrik (2022) explains that examples of customary law principles include permanent sovereignty over natural resources, common concern for humankind, prevention of transboundary environmental harm, sustainable development, and “the polluter pays” principle.

Schrijver (2013) and Bodle, *et al.* (2021) explain that sovereignty regarding natural resources underscores the entitlement of both states and their inhabitants to manage their natural assets autonomously. The International Court of Justice, in its ruling in the *Case Concerning Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v. Uganda)* judgment of 19 December 2005, also confirmed the principle of permanent sovereignty over natural resources. Bodle, *et al.* (2021) further confirm that the principle of permanent sovereignty over natural resources also requires the responsible exercise of this sovereignty within the ambit of environmental and investment laws. It includes the right of states to choose not to exploit resources and encompasses both their use and disposal.

In contrast, the concept of common concern for humankind is about the collective interest of all states in certain ecological protection. Bodle, *et al.* (2021) explain that the principle has universal implications, which are enforceable by any state, particularly in areas like climate change. Bodle, *et al.* (2021) further report that the 1992 Convention on Climate Change and the 2015 Paris Agreement are examples of treaties that apply the principle of common concern for humankind. Bodle *et al.* (2021) also confirm that preventing transboundary environmental harm is based on acceptance of common harm and heritage, similar to humankind's principle of common concern. They state that the principle of avoiding transboundary environmental harm requires states to take all necessary measures to prevent activities that occur in their territory or jurisdiction from causing significant damage to the environment of another state. They also explain that this obligation counterbalances sovereignty and resource exploitation freedom, with a stronger emphasis on ensuring results rather than merely avoiding harm.

Bodle, *et al.* (2021) indicate that “the polluter pays” principle asserts that those responsible for pollution should bear the associated costs, aligning with the idea that environmental degradation often occurs due to externalizing pollution costs. Bodle, *et al.* (2021) explain that the principle is based on the view that environmental harm arises when polluters are not punished. This has been applied in provisions such as principle 16 of the Rio Declaration on Environment and Development (1992), which provides for internalizing environmental costs.

Other than the established customary law principles, Bodle, *et al.* (2021) confirm that whether the principle of sustainable development is an established customary international law principle is contested. They explain that some scholars and legal practitioners view it as a global policy goal that does not have a normative character, while others see it as law. In *Gabcikovo-Nagymaros*

Project (Hungary v. Slovakia) ICJ Reports (1997), Judge Weeramantry gave a separate opinion that the principle holds normative value as customary international law; it is a principle that reconciles environmental and development regulations. Bodle, *et al.* (2021) argue that while it promotes the efficient use of resources, it needs more precise normative guidance, and its application in legal contexts is still evolving.

3.3.1.2 International Treaties

Malan (2021) explains that the provisions in international investment treaties, international human rights law, and environmental conventions and treaties can assist in regulating sustainability in the mining industry. Malan (2021) argues that investment treaties present the opportunity to balance the economic protection given to investors with protection for the environment and communities affected by mining investments. This balance currently needs to be improved. It can be argued that the view by Malan (2021) aligns with the scholarly views of sustainable development that emphasise the interconnectedness of the social, political, economic, and environmental spheres.

Malan (2021) further explains that human rights agreements can protect the rights of workers and communities living near mining operations. Malan gives the following agreements as examples: the Universal Declaration of Human Rights (1948), the International Covenant on Economic, Social, and Cultural Rights (1966), the United Nations Declaration on the Rights of Indigenous Peoples (2007), and the United Nations Guiding Principles on Business and Human Rights (2011).

Malan (2021) indicates that the environmental laws that are relevant to the mining sector protect natural areas and resources; some of them have the effect of listing areas where mining should not be conducted. An example is the 1972 Convention Concerning the Protection of the World Cultural and Natural Heritage by the United Nations Educational, Scientific and Cultural Organization (1972), which safeguards nature and preserves cultural properties. The World Heritage Convention has a significant impact on mining activities, particularly affecting natural World Heritage Sites. The International Union for Conservation of Nature (2013) confirms that the World Heritage Committee, responsible for decisions related to the World Heritage Convention, has consistently held that mineral and oil or gas exploration and exploitation are incompatible with World Heritage sites and should not negatively impact their value.

Another example is the United Nations Environment Programme's (1989) Basel Convention on the Transboundary Movement of Hazardous Wastes and their Disposal, which addresses the

transboundary movement of hazardous waste, and can include the disposal of tailings. The United Nations Environment Programme (2020b) points out that the Basel Convention impacts mining by promoting responsible and environmentally sound waste management practices globally. Another example is the Minamata Convention on Mercury (2017). Article 1 of the Minamata Convention states that the objective of the Convention is to protect the environment from emissions and releases of mercury. Bodle, *et al.* (2021) point out that the Minamata Convention adopts a comprehensive approach to reducing global mercury usage, prioritizing environmental and health concerns over resource efficiency. Bodle, *et al.* (2021) and Malan (2021) suggest that the treaty can indirectly influence the use of other materials like gold and coal. In the opinion of Claire (2021), the Minamata Convention shows the progress in the evolution of governing the risks associated with the extraction of minerals. Claire (2021) further indicates that, if successful, states will reduce and eliminate the mining of minerals that affect health and the environment.

International law promotes environmental sustainability in mining by providing a framework of norms and principles that shape responsible practices worldwide. These laws, encompassing international treaties and customary principles, not only set standards for environmental protection but also influence the domestic legislation of countries. The legislative framework of South Africa concerning environmental sustainability in mining shows how these international legal principles intersect with and influence domestic laws, furthering the pursuit of mining practices that promote environmental sustainability on a national scale.

3.3.2 South African law

South Africa is a signatory of many agreements and international treaties that address environmental sustainability, including the Minamata Convention, Basel Convention, and World Heritage Convention. The Constitution incorporates international law into the domestic legal framework. This means that international laws relating to environmental sustainability are applicable at the state level and in international courts and tribunals, and become part of South African law. Section 231(4) of the Constitution states that any international agreement becomes law in two instances. The first instance is where it is enacted into law by national legislation; the second instance is where the agreement has a self-executing provision consistent with the Constitution or an act of Parliament, and it is approved by Parliament. Section 232 of the Constitution states that customary international law that is consistent with the Constitution or an

Act of Parliament is law in South Africa. The Constitution provides for international laws to be part of the national legislative framework, and the state and individuals must observe these laws. The Constitution directs courts to prefer an interpretation of legislation consistent with international law, indicating a commitment to aligning domestic laws with international standards and norms. Section 39(1) states that the courts must consider international law when interpreting the Bill of Rights. Section 233 also states that courts must prefer a reasonable interpretation of the legislation consistent with international law.

International laws, comprising agreements, treaties, and customary law, are a starting point for analysing the legal framework that regulates and encourages mining practices that promote environmental sustainability. Besides the critical role of international law in ensuring environmental sustainability in South Africa, national legislation has also been enacted to address sustainability. Muswaka (2017) expresses the opinion that South Africa has made progress in promoting and regulating environmental sustainability in mining. The South African Human Rights Council (2016) reports that South Africa has established a comprehensive regulatory framework over the past two decades to ensure that the mining industry protects and promotes the well-being of mining-affected communities.

Environmental sustainability is provided for in the Bill of Rights, and the wording in section 24 is similar to the definition of sustainable development provided in the Brundtland Report. Section 24 of the Constitution provides for the right to an environment that is not harmful to health or well-being and protected for the benefit of future generations. It is submitted that the wording of the section relates to the concern for future generations as in the Brundtland report. The Supreme Court of Appeal in *Ezulwini Mining Company (Pty) Ltd v Minister of Mineral Resources and Energy*, 2023 (5) SA 112 (SCA), stated that section 24 of the Constitution is the founding provision for the legislative framework regulating all aspects of mining. The South African Human Rights Commission (2016) confirms that the right to an environment that is not harmful to health or well-being recognises the link between sustainability and social and economic development. Several laws have been enacted to address environmental sustainability or have aspects that are not the legislation's primary purpose; these include the National Environmental Management Act, the Mineral and Petroleum Resources Development Act, and the National Environmental Management: Air Quality Act, 39 of 2004.

Muswaka (2017) and Igbayiloye and Bradlow (2021) analyse the broader legislative framework for sustainable mining in South Africa. They focus on the Constitution, the Mineral and Petroleum Resources Development Act, the National Environmental Management Act, and the National Water Act. Muswaka (2017) highlights the interconnected nature of mining's environmental, social, and economic impacts. Muswaka (2017) refers to the *Fuel Retailers Association of Southern Africa v Director-General: Environmental Management, Department of Agriculture, Conservation and Environment, Mpumalanga Province* case, where the minority decision of the court stressed that sustainable development is a balanced integration of socio-economic development and environmental priorities and norms. Muswaka (2017) expresses the opinion that, although there is legislation to govern mining practices that promote environmental sustainability, detection of violations of sustainable mining laws only occasionally lead to action. The effectiveness of legislation is hindered by the apparent lack of political will to enforce the mining industry's legal obligations by imposing appropriate sanctions.

Glazewski and Posnik (2000) state that the national environmental management principles in the National Environmental Management Act, are anchored on sustainable development. Section 1(1) of the National Environmental Management Act provides that sustainable development requires the integration of social, economic, and environmental factors in decision-making to ensure that development serves present and future generations. It was held by the Supreme Court of Appeal in *Ezulwini Mining Company (Pty) Ltd v Minister of Mineral Resources and Energy* that the National Environmental Management Act is the primary legislative instrument to give effect to section 24 of the Constitution by providing a framework for the authorization and management of activities that impact or affect the environment. The court also noted that the definition of the "environment" in the National Environmental Management Act is broadly in line with the Constitution, as it captures the connection between the social, economic, and environmental conditions that determine human well-being. The South African Human Rights Commission (2016) notes that the National Environmental Management Act recognises that the state's environmental responsibility is linked to the obligation to respect, protect and fulfil socio-economic rights.

The preamble to the Mineral and Petroleum Resources Development Act confirms the obligation of the state to ensure sustainable development and promote economic and social development. The court in *Ezulwini Mining Company (Pty) Ltd v Minister of Mineral Resources and Energy*, held

that the Mineral and Petroleum Resources Development Act also gives effect to section 24 of the Constitution by promoting justifiable social and economic development, and it refers to and relates to the environmental management principles set out in the National Environmental Management Act. For example, section 37 of the Mineral and Petroleum Resources Development Act provides that the principles in section 2 of the National Environmental Management Act apply to all mining operations. Section 38A of the Mineral and Petroleum Resources Development Act also mandates the Minister of Minerals and Energy Resources to implement the provisions of the National Environmental Management Act.

The principles outlined in section 2 of the National Environmental Management Act emphasize placing people and their needs at the forefront of environmental management. Section 2 provides that development should be socially, environmentally, and economically sustainable, considering factors such as ecosystem disturbance, pollution, and degradation. It is submitted that environmental management should be integrated, acknowledging the interconnectedness of all elements of the environment and promoting environmental justice to prevent unfair discrimination against vulnerable individuals. Section 2 also provides for the "polluter must pay" principle, an established customary international law principle. Section 2 states that the environment is held in public trust, and those responsible for environmental harm should bear the costs of remediation and prevention.

The National Environmental Management: Air Quality Act provides for national norms and standards regulating air quality. Bezuidenhout (2023) explains that the National Environmental Management: Air Quality Act addresses the emission of greenhouse gases from a pollution prevention and air quality perspective and through preventative action. The South African Human Rights Commission (2016) explains that the National Environmental Management: Air Quality Act seeks to prevent pollution and ecological degradation. Section 33 of the National Environmental Management: Air Quality Act pertains to the rehabilitation obligations when mining activities are expected to cease in five years. The mine owner must write to the Minister about the anticipated cessation of mining operations and any existing or potential plans for rehabilitating the mined area and preventing atmospheric pollution from dust post-operation.

The domestic legal framework regarding environmental sustainability in mining outlined above is influenced by international agreements and treaties incorporated into domestic legislation through the Constitution. The legal framework emphasizes sustainable development, integrating social,

economic, and environmental factors to ensure the well-being of present and future generations. Despite comprehensive regulatory frameworks like the National Environmental Management Act and the Mineral and Petroleum Resources Development Act, challenges persist in enforcing mining practices that promote environmental sustainability, due to inadequate enforcement mechanisms.

Scholars and human rights organisations such as the South African Human Rights Commission (2016) and ActionAid (2016), and scholars such as Chibbabbuka, Masinja and Franco (2021) and Malan (2021), argue that there is ineffective implementation of environmental laws. ActionAid (2016) claims that in most cases, the economic interests of the government and the mining companies often trump the interests of the affected communities. Chibbabbuka, *et al.* (2021) and Malan (2021) confirm that the economic, social, and environmental decline of mining communities is a result of the lack of enforcement of legislation. The South African Human Rights Commission (2016) reported a disjuncture between the intended impact of social and economic development and the situation that mining-affected communities endure.

Malan (2021) indicates that the lack of solid penalties or political will to enforce penalties is a primary challenge. For example, the South African Human Rights Commission (2016) reported uncertainty around the applicability of the National Environmental Management: Air Quality Act to mining activities. The regulations of the Act had come into effect, but they were not fully operational, and many mining companies were unaware of the requirements under the rules. Malan (2021) and the United Nations Development Programme and United Nations Environment (2018) also confirm that most governments have embedded the “polluter pays” principle into their policies as laws to make them stringent enough to address environmental degradation. The United Nations Development Programme and United Nations Environment (2018) emphasise that the elements of the legal and normative framework of mining, which include domestic laws, contracts, international laws, and sector standards and rules, are often inconsistent and leave gaps in addressing environmental sustainability. It is submitted that these laws underscore the importance of placing people and their needs at the forefront of environmental management, promoting environmental justice, and holding polluters accountable for the costs of remediation and prevention. It can be argued that the limitations of current legislation in ensuring environmental sustainability in mining show that further interventions are needed to strengthen enforcement mechanisms and enhance accountability in the mining industry.

Inadequacies in enforcement lead to ineffective environmental laws. Economic interests often precede community and environmental concerns, resulting in economic, social, and environmental decline in mining communities. Mechanisms must encourage compliance to encourage behavioural change. The interrelationship between tax provisions and environmental sustainability in mining shows that innovative approaches are necessary and can effectively enforce environmental regulations and protect mining-affected communities.

3.4 THE INTERRELATIONSHIP BETWEEN TAX PROVISIONS AND SUSTAINABILITY IN MINING

The United Nations Development Programme and United Nations Environment (2018) assert that governments are responsible for safeguarding individuals from the degradation caused by mining and offering redress to the communities whose lives and rights are impacted by mining activities. Salim (2007) confirms that incentives and disincentives can reinforce the efforts towards sustainable development. Governments should use disincentives to discourage unsustainable behaviour.

Emas (2015) asserts that economic tools have been used for many years to protect the environment and, at the same time, to promote innovation and increase revenue. Emas (2015) also notes that tax, an economic tool, is often used to offset negative externalities and balance the costs and benefits of any activities. For example, a carbon tax is a way to address the negative externality associated with carbon emissions. By using carbon tax to make it more expensive to produce emissions, companies and individuals will be incentivized to reduce their carbon footprint. Governments can use the revenue from the carbon tax in various ways to benefit society. For example, governments can use the revenue to fund renewable energy projects. In this way, the costs and benefits of burning fossil fuels are more balanced. Tax policies can significantly influence mining practices. By aligning tax provisions with environmental goals, governments can encourage responsible mining and foster long-term sustainability.

The Green Fiscal Policy Network (2018) argues that the tax system can influence environmental outcomes from mining activities if environmental concerns are integrated into the tax system, and emphasises that taxation to address environmental protection in the mining sector needs to be explored further. The tax provisions can reinforce the pre-existing laws protecting the environment. The Green Fiscal Policy Network (2018) suggests three ways tax provisions can

influence environmental outcomes in mining. Firstly, the tax treatment of the provisions for mining companies to set aside funds for decommissioning and rehabilitation can encourage compliance and avoid abandoning mines after the mineral extraction phase. Secondly, the tax system can also promote behavioural change through green taxes that target specific environmentally damaging activities and inputs in the mining sector. Fuel and carbon taxes can influence mining companies to invest in environmentally safer alternatives. The tax system should not reduce the sector's profitability; governments must balance the green taxes with reducing other taxes applicable to the mining companies, such as payroll taxes. The third option is to use income tax to reward company investment in green technologies by offering accelerated depreciation for assets, based on an environmental criterion.

Ostensson and Roe (2017) suggest that the tax system can ensure sustainable development by sharing tax revenue between national and lower-level governments. Revenue sharing would allow the local authorities to fund the development of resource-rich areas where the tax revenue is generated. Although tax revenue sharing is argued to be effective in ensuring that mining directly benefits the towns and cities where the mining activities occur, the present research does not discuss it further as the research focuses on the tax provisions and mechanisms relevant to the mining industry.

The International Institute for Sustainable Development and the Organisation for Economic Co-operation and Development (2018) propose that tax incentives may also influence environmental outcomes in mining, and describe a "tax incentive" in the mining sector as any unique tax benefit given to mining investors or other sectors, including the mining sector, that allows for a beneficial divergence from the standard tax obligations that apply to all corporate entities. For example, a tax incentive may be in the form of a lower tax rate than the rate applicable to other companies, and this could be for income tax, mineral royalties, or a tax on imports or exports.

Tax incentives can be given to mining companies that implement corporate social responsibility activities that are development oriented. For example, the Columbia Center on Sustainable Investment, United Nations Development Program, United Nations Sustainable Development Solutions Network, and World Economic Forum (2016) state that governments offer tax incentives to mining companies for employee education and training, and such skills accrue to local communities. It is submitted that these tax measures extend the concerns about sustainability to

the social and economic aspects, and this aligns with the broader understanding of the concept of sustainability.

Although the International Institute for Sustainable Development and the Organisation for Economic Co-operation and Development (2018) make a strong case against the use and effectiveness of tax incentives to attract mining investment, it can be argued that tax incentives can still encourage behavioural change for environmental sustainability among the mining companies that are already operating. The International Institute for Sustainable Development and the Organisation for Economic Co-operation and Development (2018) argue that governments must carefully consider tax incentives and risks because corporate taxpayers will change their behaviour and look for loopholes that are of more benefit to them.

Revenues from mining contribute to a large portion of the government's budget; this means that paying a fair share of taxes and royalties is essential for mining to have a developmental impact. The Columbia Center on Sustainable Investment, *et al.* (2016) highlight that mining revenues contribute a significant portion of the government's budget in many resource-rich countries, and state that sustainable development can only occur if the mining sector pays its fair share of taxes and royalties, as such revenue can improve health, education and other social services, and infrastructure sectors.

Payment of fair share of taxes and royalties from the mining sector can be achieved by ensuring that the tax provisions reduce tax evasion and ensure compliance and transparency. The Columbia Center on Sustainable Investment, *et al.* (2016) explain that tax provisions that can prevent tax evasion in the mining sector include transfer pricing and profit shifting rules. Davis (2024) states that transfer pricing refers to the pricing of goods, services, or intellectual property transferred between connected or associated entities in a multinational organization across international borders. Davis (2024) explains that the practice of transfer pricing often leads to the shifting of profits from high-tax jurisdictions to low-tax ones, and states that there is a risk of over or undercharging for the goods or services exchanged, since these transactions are between related parties are not governed by market forces. Davis (2024) highlights that tax authorities globally have adopted and are enforcing transfer pricing regulations due to the potential loss of tax revenue, and adds that many countries have based their regulatory frameworks on the Organisation for Economic Cooperation and Development (OECD) (2023) Guidelines for Multinational Enterprises and Tax Administrations.

Tax transparency in the extractive industries has become increasingly important in recent years. The OECD (2021a) observed that the COVID-19 pandemic further influenced tax transparency, as governments and the international development efforts turned to domestic resource mobilization to fund development and established the role of taxes in achieving sustainable development. For example, the Columbia Center on Sustainable Investment, *et al.* (2016) and KPMG (2022) note that initiatives such as the OECD's BEPS Action Plan, European Union directives, and the Extractive Industries Transparency Initiative have gained traction in supporting mandatory tax reporting standards in mining. The Columbia Center on Sustainable Investment, *et al.* (2016) point out that the Extractive Industries Transparency Initiative requires comprehensive public disclosure of taxes paid by extractive industry companies to governments, and it is being implemented in over 51 countries.

3.5 CONCLUSION

This chapter explored the concept of sustainability, tracing its evolution from the Brundtland Report to contemporary interpretations such as regenerative sustainability. It highlighted that sustainability goes beyond the natural environment and discussed the interconnectedness of environmental, social, and economic factors in sustainability paradigms, emphasizing the need for a holistic approach to development that balances short-term economic gains with long-term environmental and social well-being. The chapter explained the theoretical underpinnings of sustainability in the context of the mining industry, where the extraction of natural resources presents unique challenges and opportunities for sustainable development.

The chapter outlined some international laws and treaties that shape the legal framework for environmentally sustainable mining practices, including environmental protection, human rights, and sustainable resource management principles. The legislative framework regarding environmental sustainability in mining in South Africa incorporates international law into domestic law through the Constitution. Despite a robust regulatory framework that includes the National Environmental Management Act and the Mineral and Petroleum Resources Development Act, enforcement mechanisms still need to be improved. Economic interests often precede community and environmental concerns, leading to economic, social, and environmental decline in mining communities. Governments need mechanisms that motivate compliance and penalize non-compliance to encourage behavioural change.

Tax provisions offer a promising avenue for promoting sustainability in mining. Governments can encourage responsible mining practices by aligning tax provisions with environmental goals. Integrating environmental concerns into the tax system can reinforce existing environmental laws. Tax provisions can influence environmental outcomes by promoting compliance with decommissioning and rehabilitation requirements, targeting environmentally damaging activities through green taxes and other taxes, and rewarding investments in green technologies through income tax incentives. While tax incentives have been criticized for their potential drawbacks, they still hold the potential to encourage behavioural change among mining companies toward environmental sustainability. The interrelationship between tax provisions and sustainability in mining highlights the importance of innovative approaches in ensuring effective enforcement of environmental regulations and protecting mining-affected communities.

Chapter 4 discusses the South African tax provisions that promote sustainability in the mining sector.

CHAPTER 4: SOUTH AFRICAN TAX PROVISIONS THAT PROMOTE SUSTAINABILITY IN THE MINING INDUSTRY

4.1 INTRODUCTION

This chapter addresses the third sub goal of the research by identifying the key South African tax provisions that promote sustainability in the mining industry. The chapter also explores provisions that, while not explicitly aimed at sustainability in mining, may inadvertently influence and encourage practices that promote sustainability in the industry. By exploring the legal framework, this chapter seeks to shed light on the intricate interplay between fiscal policy and the imperative of sustainability in one of South Africa's most crucial economic sectors.

Section 4.2 provides an overview of the royalties payable on the extraction of mineral resources. Section 4.3 discusses the provisions dealing with mine rehabilitation. Section 4.4 highlights the deductions for energy efficient savings. Sections 4.5, 4.6, and 4.7 address the research and development tax incentives, carbon tax, and transfer pricing rules, respectively.

4.2 ROYALTIES ON THE EXTRACTION OF MINERAL RESOURCES

Dale, *et al.* (2023) note that the Mineral and Petroleum Resources Royalty Act, 28 of 2008, seeks to reconcile and implement the principle established in section 3 of the Mineral and Petroleum Resources Development Act that the mineral and petroleum resources are common heritage of all South Africans. Dale, *et al.* (2023) add that the state acts as the guardian of these resources and should ensure that they are managed for the collective benefit of the nation. The Mineral and Petroleum Resources Royalty Act imposes royalties on the extraction of mineral resources. It provides for different royalty rates based on the profitability and environmental performance of mining operations, thus incentivizing more sustainable practices.

Zulman, *et al.* (2023) highlight that the Mineral and Petroleum Resources Royalty Act prescribes a royalty payable to the state on the utilization of mineral and petroleum resources in South Africa, levied by the South African Revenue Service (SARS). Section 2 of the Mineral and Petroleum Resources Royalty Act requires a person to pay a fee when transferring a mineral resource extracted in South Africa, and this fee goes into the National Revenue Fund. Section 1(1) of the Mineral and Petroleum Resources Royalty Act defines a "person" as specifically including trusts, estates of deceased persons, and insolvent estates, thus all nature of persons. Section 1 of the Act defines "transfer" as the disposal of a mineral resource, or the consumption, theft, destruction or

loss of a mineral resource, except when it is intentionally released into the air during exploration or production, as long as it has not previously been disposed of, used up, stolen, damaged, or lost.

There is no fixed royalty rate; instead, a formula-based royalty is applied (Dale *et al.*, 2023). This formula adjusts the tax rate based on profitability thereby ensuring that more profitable mines are taxed at a higher rate than less profitable ones (Dale *et al.*, 2023). The formula provides for fair taxation, especially during challenging times such as when a mine is just starting, near the end of its life, or when commodity prices are low (Dale *et al.*, 2023). The formula also allows the government to collect higher revenue without compromising the tax base, which is primarily determined by gross sales, with minor adjustments (Dale *et al.*, 2023).

The royalties under the Mineral and Petroleum Resources Royalty Act promote sustainability in the mining industry by ensuring that mining operations proportionately contribute their fair share of tax to the fiscus. The Act imposes royalties on the extraction of mineral resources, and it allows for different royalty rates based on the profitability and environmental performance of mining operations. By using a formula-based approach to determine the royalty rate, the Act ensures that more profitable mines are taxed at a higher rate. This approach encourages mines to be efficient and to maintain profitability, while being taxed fairly. The approach also supports less profitable mines by reducing their tax burden, which could help sustain operations and prevent premature closure due to financial constraints. This ensures fair contribution to tax revenue by mining operations of different sizes and that the mining operations continue to function and provide revenue to the fiscus and other economic benefits, such as employment. The formula ensures that mines are not disproportionately burdened when they are less financially capable, which can promote long-term sustainability in the industry.

4.3 MINE REHABILITATION

The Mineral and Petroleum Resources Development Act provides that mining companies have to establish financial provisions for mine closure and rehabilitation. Section 41 of the Mineral and Petroleum Resources Development Act also provides that applicants seeking a prospecting right, mining right, or mining permit must set aside the required funds for environmental rehabilitation or management of negative environmental impacts before the Minister approves the environmental plan. Section 41 mandates holders of these rights or permits to review their environmental obligations annually and adjust their financial provisions accordingly.

The National Environmental Management Act regulates the financial provision for environmental rehabilitation. Section 1 of National Environmental Management Act defines the financial provision as the money that an old order right holder or an applicant must set aside to ensure that there are sufficient funds available to carry out tasks like gradual land restoration, decommissioning, closure, and activities after closure. This includes tasks like treating polluted water to prevent the government from having to cover the costs that the holder should be responsible for. Section 24P(5) of National Environmental Management Act, read with section 41(2) of the Mineral and Petroleum Resources Development Act, states that if a mining right holder does not fulfil the obligations to rehabilitate or manage environmental impacts, or if incapable of doing so, the Minister has the authority to utilize the financial resources (funds and assets) of the mining rehabilitation entity (company or trust) to perform the necessary rehabilitation in the affected areas.

SARS (2022) explains that the term “rehabilitation” is not explicitly defined in the National Environmental Management Act, the Mineral and Petroleum Resources Development Act, or the Income Tax Act, and as such it should be understood in its ordinary sense, considering its context and application to the specific subject matter. SARS (2022: 4) refers to the definition by Chamber of Mines of South Africa, which explains that:

Rehabilitation from the mining industry perspective, means putting the land impacted by the mining activity back to a sustainable usable condition. It recognises that the restoration of what was previously there is simply impossible with current best practice. This definition (and implied intention) includes the concepts of minimisation of loss of land use capability and of net benefit to society.

This definition provides the understanding that mine rehabilitation means making land that has been impacted by mining activities usable and sustainable once more. Although it is impossible to fully restore the land to its original state, efforts can be made to minimize the loss of land utility and provide a net benefit to society. The land should remain valuable and functional for both environmental and community needs after mining activities have taken place.

4.3.1 Tax deduction for payments made to mining rehabilitation funds

SARS (2022) explains that section 37A of the Income Tax Act seeks to align tax policy with environmental regulation by providing for the tax consequences of payments made to mining

rehabilitation companies or trusts. Tax incentives are provided for contributions to mining rehabilitation funds, encouraging companies to set aside funds for environmental rehabilitation and closure costs (Strydom & McMeekin, 2014). Cash contributions to these funds are deductible in terms of section 37A of the Income Tax Act and the income generated by these funds is exempt from tax in terms of section 10(1)(cP).

Section 37A of the Income Tax Act grants a deduction from the taxable income of a person of the cash payments made to a mining rehabilitation company or trust, if certain requirements are met. The first requirement is that the deduction sought should be for a cash payment by a person carrying on any trade. Section 1(1) of the Income Tax Act defines a “person” as including trusts, estates of deceased persons, insolvent estates, and a portfolio of a collective investment scheme. Clegg and Stretch (2022) explain that the definition in the Income Tax Act is not exhaustive and does not expressly mention natural persons although natural persons are the primary meaning of person. A person can be a natural or a juristic person, therefore this section applies to mining companies or individuals conducting mining operations.

The term “trade” as defined in section 1 of the Income Tax Act includes every profession, trade, business, employment, occupation or venture, rental of property and the granting of rights to use intellectual property like patents, designs, trademarks, copyrights, and similar assets. The court in *CIR v Pick ‘n Pay Employee Share Purchase Trust*, (1992 (A)), explained that carrying on a trade constitutes the operation of a business in carrying out a scheme of profit making. To be considered to be carrying on a trade under section 37A, an individual or company must be actively involved in activities aimed at earning income. SARS (2022) explains that the “cash payment” in section 37A refers to money and does not cover the transfer of non-cash assets. SARS (2022) gives the example that a financial guarantee would not be a cash payment to a mining rehabilitation company or trust, and as a result, would not be eligible for a deduction under section 37A(1).

The second requirement is that the individual or mining company must hold a relevant permit or right for prospecting, exploration, mining, or production, or be engaged in these activities under a valid permit, right, reservation, or permission. The third requirement is that the individual or mining company should make the cash payment to the rehabilitation fund after approval by the Commissioner, and the payment should not be part of a scheme designed to shift the tax deduction from another person.

The fourth requirement is that the individual or mining company must ensure that the cash payment is made to a qualifying mining rehabilitation company or trust. In terms of section 37(A), a qualifying mining rehabilitation company or trust is dedicated solely to environmental rehabilitation activities, such as restoring land, and the recipient company or trust must primarily focus on land rehabilitation after the early decommissioning and final closure of mining activities. The rehabilitation company or trust must hold assets for rehabilitation purposes, and distribute funds in line with these goals. French and Stretch (2023) and SARS (2022) note that that the mining rehabilitation funds are limited to trusts or company structures and must cover premature or final closure, decommissioning and post closure latent environmental impacts.

4.3.2 Tax exemption for receipts and accruals by mining rehabilitation funds

Section 10(1)(cP) exempts from normal tax the receipts and accruals of the company or trust established for mine rehabilitation in terms of section 37A, subject to two conditions that must be met for the income to be eligible for the exemption. The first condition is that the constitution of the company or trust should incorporate the provisions of section 37A. The second condition is that, if the constitution of the company or trust does not include the provisions of section 37A, the person managing the funds and assets in a fiduciary role must give the Commissioner an undertaking that the company will be administered in compliance with section 37A, as required by section 37A(5). The undertaking is valid for two years. No penalty is imposed where the rehabilitation company or trust does not comply with rules of section 37A, but the company or trust will not be eligible for deductions in terms of section 10(1)(cP).

The exemption in terms of section 10(1)(cP) triggers paragraph 63 of the Eighth Schedule to the Income Tax Act, which provides that persons that are exempt from tax on any income received or accrued in terms of section 10 of the Income Tax Act, should ignore any capital gain or loss from the disposal of an asset. This exemption in paragraph 63 is applicable to an amount received by or accrued to a person that is wholly exempt from income tax (SARS: 2022). Therefore, if the income received or accrued to a company or trust is eligible for exemption from normal tax in terms of section 10(1)(cP), the capital gain or loss will also be ignored for capital gains tax purposes.

Similarly, section 64F(1)(a) and (b) provides that a dividend received by or accruing to a beneficial owner that is a resident company or trust as contemplated in section 37A is exempt from dividends

tax if the dividend does not comprise the distribution of an asset *in specie*. The result is that a mining rehabilitation company and trust in terms of section 37A is exempt from dividends tax.

The mining rehabilitation provisions therefore promote sustainability in the mining industry in several ways. These tax measures support the sustainability of the mining industry by ensuring that adequate financial resources are available for environmental rehabilitation, incentivizing responsible environmental practices, and protecting these funds from taxation, thereby aligning the economic activities of mining companies with sustainable environmental outcomes.

The requirement under the Mineral and Petroleum Resources Development Act and the National Environmental Management Act for mining companies to set aside funds for environmental rehabilitation ensures that funds are set aside specifically for land restoration and the management of environmental impacts. This measure promotes sustainability by ensuring that mining companies are financially prepared to undertake necessary rehabilitation activities, preventing the abandonment of mines without adequate restoration, which could lead to long-term environmental degradation. By mandating holders of mining rights or permits to review and adjust their financial provisions annually, the legislation ensures that the funds set aside for rehabilitation are adequate to cover the actual environmental impacts of mining operations. This requirement aligns the financial provisions with the evolving environmental responsibilities of the mine over its lifecycle. By allowing the Minister to utilize the financial resources of a mining rehabilitation entity if the mining right holder fails to fulfil the rehabilitation obligations, the provision ensures that environmental restoration is carried out, even in cases where the mining company is unable or unwilling to do so. This safeguard promotes the sustainability of the mining industry by ensuring that environmental impacts are addressed, protecting the surrounding ecosystems and communities.

4.4 DEDUCTION IN RESPECT OF ENERGY EFFICIENCY SAVINGS

Section 12L provides for environmental-related tax deductions to address concerns related to global warming and energy security (SARS: 2019). The deductions aim to help to reduce energy consumption and combat the adverse effects of greenhouse gas emissions by incentivising businesses to become more energy-efficient (Hamer, *et al.*, 2020; Campbell, Booysen & Vosloo, 2017).

Section 12L provides a tax deduction for energy-saving actions related to the business or income generation, reduces the taxable income or increases an assessed loss. The deduction encourages

investment in industrial projects that promote energy efficiency, cleaner production, and resource conservation. Mining projects that meet the criteria may benefit from this incentive.

Section 12L(1) provides that:

For the purpose of determining the taxable income derived by any person from carrying on any trade in respect of any year of assessment ending before 1 January 2026, there must be allowed as a deduction from the income of that person an amount in respect of energy efficiency savings by that person in respect of that year of assessment determined in accordance with subsection (2), subject to subsection (3).

The Regulations (Government Gazette No 37136) in terms of section 12L of the Income Tax Act define “energy efficiency savings” as the reduction in energy used for a specific activity or trade during a certain time compared to what would have been used if energy-saving measures were not in place.

Section 1(1) of the Income Tax Act defines a “person” to include trusts, estates of deceased persons, insolvent estates and a portfolio of a collective investment scheme. The definition in the Act is not exhaustive and does not expressly mention natural persons, although natural persons are the primary meaning of person (Clegg & Stretch, 2022). Section 2 of the Interpretation Act, 33 of 1957, assists by providing that a person includes a body of persons corporate or unincorporated, and any company incorporated or registered as such under any law. A person is a juristic person, is granted legal subjectivity and gains certain rights and duties by operation of law, and acts through its functionaries (Heaton, 2017; *Webb & Co Ltd v Northern Rifles*, 1908 TS 465). According to section 12L(1) persons should be carrying on any trade and be responsible for energy-efficiency savings. It is the person in whose name the activity is registered, and not a third party employed to manage an activity for a taxpayer that is able to claim a deduction (SARS: 2019).

Section 1(1) of the Income Tax Act provides a broad definition of “trade” that encompasses various activities such as professions, businesses, jobs, renting property, and using or allowing the use of patents, designs, trademarks, copyrights, or similar types of property. “Trade” includes a wide range of economic and professional activities and the use of intellectual property and similar assets. The courts interpret “trade” broadly, encompassing activities where people take risks for profit, but emphasize that profit-making is not the sole essence of trading (SARS: 2019; *Modderfontein*

Deep Levels Ltd & Another v Feinstein, 1920 TPD 288).

The section 12L tax deduction therefore promotes sustainability in the mining industry by incentivizing energy efficiency, reducing greenhouse gas emissions, enhancing energy security, supporting economic viability, and encouraging cleaner production and resource conservation. These benefits align the financial interests of mining companies with broader environmental and societal goals, fostering a more sustainable and responsible mining sector. Section 12L encourages mining operations to invest in technologies and processes that reduce energy consumption. The tax deduction makes it more financially attractive for mining companies to reduce their overall environmental footprint. Section 12L helps to mitigate the adverse effects of mining on climate change. The tax deduction encourages the adoption of cleaner production methods and the conservation of resources, which directly contribute to lowering the carbon emissions associated with mining activities.

By reducing energy consumption, the mining industry can contribute to improving energy security in the broader economy. The less energy the industry consumes, the more energy is available for other sectors, reducing the strain on limited national energy resources. This is particularly important in South Africa, where there is what Vanheukelom (2023) refers to as a paralysing electricity crisis. Promoting energy efficiency in mining helps to stabilize the energy grid and supports the sustainability of the entire economy.

Energy efficiency measures can result in lower operating costs over time. Investments in projects that ensure energy saving can extend to cleaner production and resource conservation. For mining companies, this might involve implementing new technologies or processes that reduce waste, minimize water usage, or improve the overall efficiency of resource extraction. These practices contribute to the sustainable management of natural resources.

4.5 RESEARCH AND DEVELOPMENT TAX INCENTIVE

The research and development tax incentive can foster development if the research and development spending is dedicated to areas that are aligned with the developmental needs of the country. For example, at the time of the COVID-19 pandemic, many countries enhanced research and development tax incentives or made changes to how these incentives are administered to ease and speed up funding for research and development (OECD, 2021b). Mining companies investing

in research and development for sustainable mining practices may be eligible for tax incentives to offset some of their research and development expenditures.

Section 11D provides for the deduction of spending on research and development activities carried out in South Africa. Research and development involves systematic activities aimed at finding new scientific or technological knowledge. Section 11D(1) explains that “research and development” refers to organized experiments or investigations with uncertain outcomes, conducted to uncover new and not immediately obvious scientific or technological knowledge. Although the definition in section 11D(1) expressly excludes activities for the purpose of oil and gas or mineral exploration in the definition “research and development”, it qualifies such exclusion by including research and development carried on to create the technology used in exploration processes.

The allowable deduction in terms of section 11D(2) and (3) comprises of the total amount of the expenditure actually incurred and an additional 50% of the expenditure if the taxpayer has filed an application with the Department of Science and Innovation and the research and development is approved by the Minister of Science and Technology.

The condition applying in order to qualify for the 50% deduction is that the expenses should be related to research and development activities conducted by the taxpayer (French & Stretch, 2023). Section 11D(6) states that the term “carried on by that taxpayer” means that these persons should be able to decide on or change the research methodology. Where a third party is paid to conduct the research, the entity responsible for determining or modifying the research approach can claim the deduction (French & Stretch, 2023). The section 11D deduction is not available for expenses related to immovable property, machinery, plant, utensils, or articles that are not intended to be utilised for production purposes after the research and development, or for financing, administration, compliance, and similar costs (French & Stretch, 2023).

The research and development tax incentives in section 11D of the Income Tax Act promote sustainability in the mining industry by encouraging companies to invest in innovative technologies and practices for mineral exploration and mining processes. The tax incentive can encourage mining companies to invest in sustainable practices. These could include developing methods to reduce environmental impact, improve energy efficiency, and minimize waste, which is critical for long-term sustainability in the industry.

4.6 CARBON TAX

The Carbon Tax Act is a significant milestone in the country's efforts to address climate change and reduce greenhouse gas emissions. South Africa is one of the biggest emitters of global greenhouse gases and is ranked 14th on the global emissions list (Global Carbon Atlas, 2021). Carbon tax was introduced through the Carbon Tax Act, which imposes charges on companies, institutions, and individuals exceeding specific thresholds of emissions, to encourage cleaner practices (Deloitte, 2019). The Carbon Tax Act was enacted to align with international commitments and environmental sustainability goals to reduce the carbon dioxide emissions produced by industrial and commercial activities. Nemavhidi and Jegede (2023) state that the enactment of the Carbon Tax Act demonstrates a clear determination to adhere to the commitments in international agreements such as the United Nations Framework Convention on Climate Change (1992), the Kyoto Protocol (1997), the Paris Agreement (2015), and the United Nations sustainable development goals (2015).

The Carbon Tax Act imposes a tax on greenhouse gas emissions to encourage polluters to reduce their greenhouse gas emissions by setting charges for carbon emissions through a "polluter pays" principle (Greaver, 2021; Glazewski & du Toit, 2022). Mining companies are encouraged to reduce their carbon emissions through energy efficiency measures and sustainable practices.

Section 1 of the Carbon Tax Act defines "carbon tax" as tax on the carbon dioxide equivalent of greenhouse gas emissions. Carbon tax is imposed in terms section 2 of the Carbon Tax Act. Section 3 of the Carbon Tax Act provides that the persons subject to carbon tax are the persons engaging in an activity that leads to greenhouse gas emissions exceeding a specified threshold as outlined in Schedule 2 of the Act and must pay a calculated carbon tax in terms of the Act. Schedule 2 of the Carbon Tax Act specifically refers to mining and quarrying as one of the activities that lead to greenhouse gas emissions, and which attract carbon tax.

The carbon tax is enforced on the greenhouse gas emissions of the taxpayer, measured in terms of carbon dioxide equivalent (Glazewski & du Toit, 2022). This measurement is based on emission factors determined through a methodology approved by the Department of Environmental Affairs in terms of section 4 of the Carbon Tax Act. In situations where there is no established reporting method, the carbon tax will be imposed on greenhouse gas emissions calculated as the carbon dioxide equivalent using the formulae outlined in section 4.

Section 5(1), read with 5(2)(a), of the Carbon Tax Act provides that the rate of the carbon tax on greenhouse gas emissions is R159 per ton carbon dioxide equivalent of the greenhouse gas emissions of a taxpayer, for the period 1 January 2023 until 31 December 2023. The rate will increase to R190 from 1 January 2024 until 31 December 2024; and further rate increases will apply for periods beyond December 2024. The carbon tax regime envisions a green economy that consists of sustainable industries that prioritize both environmental and economic well-being, promote energy efficiency, and create employment in renewable and low-carbon sectors (Greaver, 2021).

The Carbon Tax Act promotes sustainability in the mining industry by incentivizing companies to reduce greenhouse gas emissions through financial penalties tied to carbon output. By encouraging energy efficiency and the adoption of cleaner technologies, the Carbon Tax Act drives innovation and aligns the industry with national and international environmental commitments. This approach not only helps to reduce the environmental impact of mining but also supports the transition to a green economy, creating new opportunities in renewable and low-carbon sectors.

4.7 TRANSFER PRICING

According to the Natural Resource Governance Institute (2016), a transfer price refers to the price set for a transaction between two entities in the same corporate group, often referred to as “related parties”. The Natural Resource Governance Institute (2016) provides the example of a South Africa-based company selling mining equipment and machinery to its Ghana-based subsidiary, where the agreed-upon price is termed the "transfer price," and the process of setting this price is called "transfer pricing." Related parties can distort the prices to reduce their taxable income and move it to a jurisdiction that charges less tax. Roper and Ware (2000) contend that, from a tax perspective, multinational enterprises can structure inter-company transactions to claim deductions in high-tax countries while taxing profits in low-tax countries. To prevent this kind of price manipulation, high-tax jurisdictions have introduced transfer pricing rules into their laws.

South African transfer pricing rules apply where a transaction or agreement constitutes an “affected transaction” that leads to a party to the agreement deriving a tax benefit. Section 31(1) of the Income Tax Act describes an "affected transaction" as any transaction or agreement between connected persons or associated enterprises who are either a resident and a non-resident, two non-residents where one has a permanent establishment in South Africa, a resident and another resident

with a permanent establishment outside South Africa, or a non-resident and a controlled foreign company related to a resident. The terms or conditions of the transaction must differ from those that would have existed if the parties were independent and dealing at arm's length. In terms of section 31(2) of the Income Tax Act, the taxable income and tax payable by any of the persons involved in and that derives a tax benefit from an affected transaction must be calculated based on the terms and conditions that would have existed had those persons been independent persons dealing at arm's length. SARS Practice Note 7 (SARS, 1999) explains that the arm's length principle means that the transaction should have the substantive financial characteristics of a transaction between independent entities acting in their own interest, without special arrangements, striving to realise the utmost possible benefit from the transaction. If the terms of the transaction are not based on an arm's length, section 31(2) of the Income Tax Act requires SARS to use the arm's length conditions or pricing to calculate the taxable income or tax payable of any person who derives a tax benefit from the transaction.

It is submitted that transfer pricing rules promote sustainability in the mining industry by ensuring that transactions between related parties, such as a parent company and its subsidiary, reflect fair market conditions, preventing tax avoidance and profit shifting to low-tax jurisdictions. By enforcing the arm's length principle, these rules help maintain equitable tax revenues, including for South Africa where the mining activities occur. This ensures that mining companies contribute their fair share to the local economy, supporting sustainable development and the responsible management of natural resources.

4.8 CONCLUSION

This chapter explored the various South African tax provisions that promote sustainability in the mining industry. Through an analysis of the Mineral and Petroleum Resources Royalty Act, the Income Tax Act, and the Carbon Tax Act, it is evident that tax measures are instrumental in promoting sustainability in the mining industry. The tax provisions in these Acts ensure efficient and profitable operations, while ensuring that the environmental impact of mining activities is adequately managed. Taxes for mine rehabilitation further align the economic activities of mining companies with environmental stewardship, ensuring that land restoration and impact mitigation are integral to mining operations.

Energy efficiency and research and development tax incentives encourage the adoption of cleaner technologies and innovation, which are critical for the long-term sustainability of the industry and the reduction of greenhouse gas emissions. Additionally, the implementation of a carbon tax enforces accountability in reducing greenhouse gas emissions, promoting a transition to a green economy. Collectively, these tax provisions not only support the financial viability of sustainable practices in the mining industry but also contribute to the broader goals of environmental protection and sustainable development in South Africa.

The following chapter addresses the fourth sub-goal of the research by discussing the tax measures in Australia and the United Kingdom (UK) that promote sustainability in the mining industry, providing a further perspective on these tax practices.

CHAPTER 5: TAX PROVISIONS IN AUSTRALIA AND THE UNITED KINGDOM THAT ADDRESS SUSTAINABILITY IN THE MINING INDUSTRY

5.1 INTRODUCTION

This chapter addresses the fourth sub-goal of the research by discussing the tax measures in Australia and the United Kingdom (UK) that deal with sustainability in the mining industry. Chapter 5 also explores Australian and UK tax provisions that, while not explicitly aimed at sustainability in mining, may indirectly influence and encourage sustainability in the mining industry.

Australia and the UK, similar to South Africa, are signatories to several agreements and international treaties relating to environmental sustainability, including the Minamata Convention and Basel Convention. Australia has a well-established mining sector that contributes significantly to the economy and has experience dealing with the complexities of mining operations and sustainability. The UK has a long-standing history of mining, which, despite its reduced size and small fiscal contribution in comparison to Australia's mining sector, is still important. It continues to be a leading market, housing the headquarters of many of the world's top mining companies, consultants, and experts. The substantial environmental impacts of the mining sectors in both countries necessitate policy mechanisms to ensure sustainability. By exploring the tax provisions in Australia and the UK aimed at promoting sustainability in the mining sector, this chapter provides insights into these tax measures.

Section 5.2 provides an overview of Australian tax provisions relating to environmental protection, mine rehabilitation, and land care. Additionally, it addresses Australia's carbon tax and transfer pricing rules. Section 5.3 explores the tax provisions in the UK that address environmental objectives and sustainability in relation to mining. These provisions include critical environmental taxes like the climate change levy, landfill tax, and aggregates levy, which promote resource efficiency, waste management, and the use of recycled materials. The section also provides details of mining-specific tax provisions, such as restoration costs and enhanced capital allowances. Section 5.3 also highlights tax transparency requirements for multinational enterprises and discusses research and development tax credits and community investment tax relief.

5.2 AUSTRALIA

Similar to South Africa, Australia's mining industry is a major contributor to the fiscus. The Australian Bureau of Statistics (2024) highlights that mining contributed over 350 billion Australian dollars to the overall gross domestic product in the 2022-23 financial year, and it had the largest industry growth in earnings of 52 billion Australian Dollars in the same financial year. The Australasian Institute of Mining and Metallurgy (Online) reports that Australia's mining industry accounts for 75% of the country's exports and employs over a million people. Yet, the country's resources are still under-explored.

This section discusses the taxation provisions relating to environmental protection, land rehabilitation, and land care operations in the Australian mining industry. Several Australian tax provisions outline the conditions under which taxpayers can claim deductions for addressing environmental impacts. Through these provisions, the Australian tax system attempts to balance environmental responsibility with the economic realities of the mining industry.

5.2.1 Mine rehabilitation

Joseph (2013) argues that quarrying or mining gives rise to an obligation to rehabilitate the site after operations conclude. This underpins the rationale for a special deduction for mine site rehabilitation expenditures. Rehabilitation costs, typically incurred after mining operations end, are not incurred to generate assessable income, so they would normally not qualify for tax deductions. Joseph (2013) points out, however, that some expenditures under Australian tax law become deductible because their significance was previously unrecognised until there was significant lobbying from the mining sector.

Section 40-735 of the Income Tax Assessment Act, 38 of 1997 (the Income Tax Assessment Act), provides a deduction for expenditure incurred in that year on rehabilitation of a mining site on which the taxpayer previously carried on mining or quarrying operations or conducted exploration or prospecting. Section 40-735(4) and (5) explain that mining site rehabilitation refers to the full or partial restoration or rehabilitation of a site or a part of the site, even when there is no intention of completing the restoration or the restoration is only to a reasonable approximate of the site's condition before the mining activities. Section 40-735(4) explains that mining site rehabilitation refers to restoring or rehabilitating the mining site or part of the site to the condition it was in before, or to a reasonable approximation of the original condition. A taxpayer can seek a deduction

from assessable income of the expenses incurred in rehabilitating the mining site. By providing a deduction for these specific rehabilitation activities, section 40-735 encourages responsible environmental practices by mining operators, ensuring that they address the environmental impact of their activities and contribute to the restoration of mining sites.

In the Australian Tax Office Interpretive Decision 2008/72, the Australian Tax Office explained that the interpretation of the tax expenditure in section 40-735 is restrictive since the rehabilitation should be on the mining site to meet the threshold of the provision. The Australian Tax Office explained that the rehabilitation expenditure should be directly or at least closely connected to the site rehabilitation. The Australian Tax Office Interpretive Decision 2008/72, describes the situation where a taxpayer sold the mining site and contracted with the purchaser stating that the taxpayer would provide the purchaser with the funds for rehabilitation and the taxpayer would be entitled to claim the tax expenditure once the purchaser had rehabilitated the site. The Australian Tax Office (2008) explained that in such an instance, by selling the mining site and then providing the new owner with the funds for rehabilitation, the taxpayer could not show that the expenditure was directly or closely connected to the site rehabilitation. The restrictive interpretation of section 40-735 ensures that the threshold is high, and that the deduction is not misused.

Joseph (2013) explains that the provision for mine site rehabilitation deductions does not achieve complete deductibility. The criteria for qualification as a deductible is narrowly defined, excluding many significant environmental liabilities, particularly those occurring off-site. Joseph (2013) also argues that allowing only partial rehabilitation without penalties for incomplete efforts, especially intentional non-completion, undermines environmental principles. Joseph (2013) claims that excluding tailings dams from deductible expenditures is a significant oversight that creates a gap in the Australian mining industry's tax provisions related to environmental protection.

5.2.2 Environmental protection activities

Section 40-755(1) Income Tax Assessment Act provides a deduction for expenditure that a taxpayer incurs in an income year for the sole or dominant purpose of carrying out environmental protection activities. The provision allows for deductions for expenses related to environmental protection activities directly associated with income-generating activities or sites owned or controlled by the taxpayer. Section 40-755(1) explains that environmental protection activities entail the activities aimed at preventing, combating, or rectifying pollution caused or likely to be

caused by the taxpayer's income-generating activities, or on the site where the taxpayer generates income. It also includes activities related to treating, cleaning up, removing, or storing waste generated by the income-generating activities, or on the site where the income is generated.

Section 40-755(1) explains that an earning activity refers to any activity conducted to generate assessable income for the income year, including exploration, prospecting, mining site rehabilitation, or activities with similar purposes. If the earning activity involves leasing, granting a right to use, or similar activities with a site, that site is considered the site of the taxpayer's earning activity.

The Australian Taxation Office Taxation Ruling TR 2020/2 explains what qualifies as "environmental protection activities", details the criteria for deducting related expenditures, sets the limits on deductible amounts, and explains the tax treatment of recouped expenditures. The Australian Taxation Office Taxation Ruling TR 2020/2 explains that the expenses must be solely or dominantly for environmental protection activities. There are restrictions on deducting certain types of expenditure, such as capital expenditure, unless it involves replacing pollutant materials. Apportioning the expenditure is unnecessary if it serves multiple purposes. Deductions would be capped at market value if the transaction from which the expenditure arises was not at arm's length.

Australian Taxation Office Taxation Ruling TR 2020/2 explains that environmental protection activities include actions to prevent, combat, or remedy pollution resulting from or likely to result from the taxpayer's earning activity, as well as treating, cleaning up, removing, or storing waste related to the taxpayer's earning activity. The environmental protection activities must be carried out by or for the taxpayer, including when performed by another entity on the taxpayer's behalf. The pollution envisioned in the provision refers to harmful or poisonous contamination caused by substances, noise, or energy. It excludes merely aesthetic effects. The waste encompasses anything left over or extra that is not useful for the current work. The pollution or waste must result from or be likely from the taxpayer's earning activity, or from a site the taxpayer acquired and carried on substantially unchanged.

5.2.3 Land degradation

Joseph (2013) refers to the global consensus on combating land degradation, exemplified by the ratification of the United Nations Convention to Combat Desertification by 193 countries, including Australia. This international agreement underscores the importance of addressing land

degradation issues. Joseph (2013) explains that the primary aim of land-care operation tax provisions is to incentivise actions to combat land degradation problems, such as erosion and salinity. The land-care provisions offer tax incentives to support capital works designed to address land degradation, thus fostering long-term environmental sustainability.

Section 40-630 of the Income Tax Assessment Act allows a deduction of capital expenditure that the taxpayer incurs in an income year on a land-care operation on land used for a primary production business, or a business, for a taxable purpose from the use of that land. It can be contended that section 40-630 also applies to businesses that conduct exploration or prospecting in mining. Section 40-635 of the Income Tax Assessment Act defines “land-care operations” as operations encompassing a range of activities to improve land quality and mitigate degradation. This includes erecting fences to delineate different land classes, excluding animals from areas impacted by land degradation, and constructing embankments or similar improvements to manage water flow. Additionally, the section includes constructing drainage works primarily for salinity control or aiding drainage management, these activities qualifying as a land-care operation. These operations extend to activities focused on eradicating pests or detrimental plant growth. Notably, the section defines a land-care operation as any activity primarily and principally aimed at preventing or combatting land degradation, except for simply erecting fences. Furthermore, the provision encompasses repairs, alterations, additions, or extensions to assets related to land-care operations, as well as structural improvements that are reasonably incidental to these activities.

The Australian Taxation Office Interpretative Decision ATO ID 2002/110 defined a land-care operation pursuant to section 40-635(1)(e)(iii) of the Income Tax Assessment Act. The section provides that a land-care operation is an operation primarily and principally to prevent or fight land degradation. The term “primarily and principally” was interpreted based on Taxation Determination TD 94/9, which emphasises that the focus should be on the primary and principal function or purpose of the result produced by the expenditure. To qualify as a land-care operation, the expenditure must primarily and principally aim to prevent or fight land degradation. According to Joseph (2013), an evaluation of the effectiveness of the land degradation tax concession by the Australian Bureau of Agricultural and Resource Economics found that the tax deduction was a highly effective tool with a high uptake rate. However, Joseph notes that the benefits of land care tax deductions tend to be greater for taxpayers with higher taxable incomes, highlighting a regressive aspect of the system. This disparity suggests that while the provisions promote

environmental conservation, their financial benefits are unevenly distributed, favouring wealthier landowners.

5.2.4 Carbon tax

The OECD (2022) indicates that Australia does not have a carbon tax or levy an explicit carbon price. Verrender (2021) reports that a carbon tax was introduced in 2012 as part of the Clean Energy Futures plan to reduce greenhouse gas emissions, but it was removed two years later. Verrender (2021) explains that the tax faced significant opposition and was replaced with a subsidy that was given as an incentive to reduce emissions, shifting the focus from actively pursuing polluters. Verrender (2021) argues that the carbon tax led to a decline in carbon dioxide emissions; however, emissions began to rise again after the government repealed the tax. Jotzo (2023) indicates that Australia is now introducing a carbon price for the industry sector to stimulate broader economic climate action.

The carbon tax would promote sustainability by pursuing emitters through set prices on emissions for mining companies to reduce their carbon emissions. This would make it more costly for mining companies to operate using carbon-intensive processes and make it rewarding to meet the reduction targets provided for in the carbon tax provisions. This encourages companies to invest in cleaner technologies and practices that emit less carbon.

5.2.5 Transfer pricing rules and profit shifting

The Natural Resource Governance Institute (2016) highlights that multinational mining companies often operate through intricate networks of interconnected subsidiaries, some based in low-tax jurisdictions. These subsidiaries may transact with each other, selling minerals at reduced prices or inflating costs for goods, services, and assets to shift profits to lower-tax jurisdictions. Such transfer pricing can significantly reduce income tax revenues. Although the loss of revenue affects bigger and more advanced economies like Australia, the loss hinders the development of the lower income countries even more. The Natural Resource Governance Institute (2016) explains that most developing countries, particularly in Africa, rely more heavily on income tax receipts than the developed economies. As developing countries seek to increase funding for social services and national development, curbing transfer mispricing is essential for effective domestic resource mobilization. It can be argued that Australia's transfer pricing rules are crucial in maintaining tax revenue by promoting fair pricing and preventing profit shifting in the mining industry. The arm's

length principle and review and audit by the Australian Taxation Office on businesses with significant related-party dealings help to prevent revenue loss in the mining industry.

Chenoweth (2015) reported in the Financial Review, an Australian business newspaper, that in 2008 the Australian Tax Office became concerned about aggressive tax strategies used by multinational mining companies, including Rio Tinto Ltd. While it paid substantial taxes in Australia, Rio Tinto Ltd also operated marketing hubs in Singapore, where tax rates were significantly lower. Chenoweth (2015) reported that Rio Tinto Ltd received a special tax status in Singapore that reduced its tax rate to 5% until 2022. Through these hubs, Rio Tinto Ltd sold iron ore to related companies at a markup, allowing profits to be shifted to Singapore and reducing their taxable income in Australia. This practice drew scrutiny from Australian tax authorities, who audited the operations. The Australian Taxation Office (2022b) reported that it reached a settlement with Rio Tinto Ltd, ending all tax disputes, including those related to the Rio Tinto Ltd Singapore marketing hub. The settlement amounted to nearly \$1 billion Australian dollars and locked in future tax outcomes so that additional profits from the sale of Rio Tinto Ltd Australian owned commodities would be taxed in Australia in future years.

The Australian Taxation Office (2022a) states that Australia's transfer pricing rules prevent tax avoidance by ensuring that companies price their related-party international transactions as independent parties would price the same transaction in the same situation. Transfer pricing provisions such as the Australian provisions, help to prevent tax base erosion and profit shifting, which are essential for maintaining the fiscal growth of countries reliant on mining revenue. This, in turn, allows mining to contribute to the fiscus and economic growth, which is critical for economic development. The Natural Resource Governance Institute (2016) asserts that transfer pricing provisions can ensure that countries, especially developing ones, receive fair tax revenues from mining activities.

5.3 THE UNITED KINGDOM

The UK has a rich history of mining and includes materials such as tin and copper. Carey, *et al.* (2023) report that mining activities in the UK can be traced back to the Middle Bronze Age, notably in regions such as the Cornwall tin mines. The mining sector has decreased in size and its contribution to the fiscus over the years. To date, the extractive industries in the UK comprise oil and gas production, mining and quarrying. According to the Department for Business, Energy &

Industrial Strategy and the Department for Energy Security & Net Zero (2019), the mining industry in the UK has long made a sizeable contribution to the economy, especially through the oil and gas sectors. The Department for Business, Energy & Industrial Strategy and the Department for Energy Security & Net Zero (2019) indicate that the gross value added was approximately £18 billion in 2018, and according to the UK Extractive Industries Transparency Initiative (2024) this increased to £26 billion in 2022 and decreased to £14 billion in 2023. Although this is a sizeable contribution, it is significantly less than the contribution of mining in Australia.

The UK is a leading market for the global mining industry, housing headquarters of many of the world's top mining companies, consultants, and experts. According to the Department of Business and Trade (2024), London is a major hub for global mining finance, hosting 171 metals and mining companies and accounting for 21% of the total market capitalization of all listed mining companies worldwide. Additionally, four of the ten largest publicly traded mining companies are listed in London. Despite the reduced mining activity in the UK, the UK's role in the global mining industry is highly influential, it as a leading centre for mining expertise, investment, and corporate governance.

The National Audit Office (2021) explains that several taxes in the UK have environmental objectives, such as the climate change levy, landfill tax, and aggregates levy. These taxes influence behaviours related to resource efficiency and conservation, waste management, and the use of recycled materials. Basu and Ghosh (2021) report that taxes have successfully reduced air pollution in the UK, whilst other environmental taxes that address waste and resources have not shown significant impacts. Basu and Ghosh (2021) emphasise the importance of understanding the effectiveness of existing environmental tax instruments in the UK to achieve pollution abatement goals cost-efficiently. Basu and Ghosh (2021) categorise the environmental taxes into transport taxes, pollution and resource taxes, and energy taxes. Some of these environmental taxes apply to mining and thus also contribute to sustainability in the mining industry.

5.3.1 Restoration tax benefits

His Majesty's Revenue and Customs (HMRC) (2024a) explains that restoration costs qualify for tax benefits if certain conditions are met. The relief is limited to the net restoration costs, with any related receipts offsetting the qualifying expenditure within three years. Section 416 of the Capital Allowances Act, 2 of 2001, details the conditions under which expenditures for the restoration of

mineral extraction sites can be considered qualifying expenditures for tax purposes. Section 416 provides that if a relevant mineral extraction trade has ceased and restoration expenses are incurred within three years of ceasing trade, they can be considered qualifying expenditures, provided they meet certain conditions. The expenses must not have been previously deducted for tax purposes. Instead, they must have been deductible or considered qualifying expenditures if incurred while the trade was active. The qualifying expenditure is treated as incurred on the last trading day, allowing full relief. The expenditures are deductible in calculating income for tax purposes. The section defines “restoration” as landscaping and any required work for planning permissions, excluding decommissioning plants or machinery. A relevant site refers to the source site of the mineral extraction trade, or land used in connection with a source.

The net cost of the restoration is the expenditure minus any amounts received within three years related to the restoration, such as revenue from the removed mine spoils. Mine spoils are the waste materials left after mining operations, and mining companies can generate revenue from mine spoils by selling them for the remnant minerals that were not fully extracted during the initial mining process, or for land reclamation and environmental rehabilitation projects. Any revenue received in the course of rehabilitation is deducted from the gross cost of the restoration to establish the net cost of restoration applying to the tax benefits.

5.3.2 Enhanced capital allowances

The Green Fiscal Policy Network (2018) argues that governments can use tax provisions to reward investment in green technologies by using environment-based criteria to offer tax benefits. The Green Fiscal Policy Network (2018) gave enhanced capital allowances in the UK as an example of a tax mechanism to reward investment in green technologies. Sections 45A to 45C and 45H to 45J of the Capital Allowances Act, although now repealed by section 33 of the Finance Act, 1 of 2019, provided first-year allowances and first-year tax credits for energy-saving plant and environmentally beneficial plant or machinery.

Although the UK repealed the enhanced capital allowances, understanding them remains pertinent when exploring how tax policies can contribute to sustainability in the mining industry. As detailed by the Green Fiscal Policy Network (2018), the enhanced capital allowances exemplify how tax provisions can incentivise investments in green technologies. The financial incentives provided by capital allowances can encourage businesses, including mining companies, to expedite their

adoption of green technologies leading to transformation of their processes to more sustainable practices. According to the Green Fiscal Policy Network (2018), enhanced capital allowances were available for the acquisition of specified energy-saving technologies. Typically, a UK company could offset 20% of the remaining asset value annually, but the costs of designated technologies would be wholly offset against tax in the purchase year. Mining or environmental ministries and agencies could create lists for mining-related products, incentivising mining companies to buy equipment with reduced environmental impacts. However, the complexity of developing these product lists and implementing such a scheme would pose a significant challenge, particularly for developing countries with limited capacity.

According to the HMRC (2018), first-year allowance schemes enabled businesses to write off 100% of the cost of qualifying plant and machinery against taxable income in the year the investment was made, thus improving cash flow. Capital expenditure on plant and machinery typically qualified for tax relief through capital allowances. After using the annual investment allowance of £200,000, since January 1, 2016, businesses could claim plant and machinery allowances at 18% as the main rate and 8% as the special rate. These first-year allowance schemes provided an alternative 100% allowance for certain energy-saving or environmentally beneficial technologies, but primarily benefited businesses already using their annual investment allowance. The HMRC (2018) noted that ending these enhanced allowances would not impact the environment, and the revenue saved would fund the Industrial Energy Transformation Fund.

5.3.3 Tax transparency in the extractive industries

Tax transparency in the extractive industries has become increasingly important in recent years. KPMG (2022) notes that multinational enterprises with UK operations and turnover that exceeds £200 million or a balance sheet that exceeds £2 billion are required to publish a tax strategy. Although the strategy does not need extensive detail, companies voluntarily report more extensively using standards like the Global Reporting Initiative Standard 207. The UK Extractive Industries Transparency Initiative (2024) explains that the Extractive Industries Transparency Initiative is a global standard to ensure transparency in the payments made for natural resource extraction. The UK Extractive Industries Transparency Initiative (2024) explains that under the Extractive Industries Transparency Initiative, companies must disclose the payments they make to the government for oil, gas, and mining operations, while governments must reveal the payments they receive from these companies. An independent administrator then reconciles these figures and

publishes a report. The UK Extractive Industries Transparency Initiative (2024) notes that the UK government committed to implementing the Extractive Industries Transparency Initiative in 2013 to enhance public accountability and foster a more transparent global economy beneficial for business.

The UK Extractive Industries Transparency Initiative (2024) indicates that the reported tax payments that are included in the UK Extractive Industries Transparency Initiative report for mining and quarrying companies include corporation tax, payments to the Crown Estate or Crown Estate Scotland related to extractive activities, and payments under the Town and Country Planning Act, 1990. These payments must be reported if they exceed £86,000. Other payments to national or local governments, such as the aggregates levy and non-domestic rates, are not included in Extractive Industries Transparency Initiative reporting requirements. The UK Extractive Industries Transparency Initiative (2024) further specifies that, in terms of the 2023 Extractive Industries Transparency Initiative Standard, companies are requested to provide contextual information, including their anti-corruption policy, ownership structure, financial statements, environmental, social, and governance data, and gender pay gap data.

Tax transparency enhances accountability, ensures fair taxation and resource distribution, combats corruption, and fosters ethical practices. By providing insights into environmental and social impacts, as well as promoting gender equity, these disclosures help align mining operations with broader sustainability goals, supporting long-term, responsible development in the industry. Transparent tax reporting in the extractive industries promotes sustainability in mining by fostering accountability by mining companies for their financial contributions to the economies they operate in. Governments can better monitor and regulate the mining industry, leading to improved governance and compliance. Tax transparency can help to identify and manage risks related to tax avoidance. Comparable to transfer pricing rules, tax transparency assists in ensuring that mining companies pay their fair share of tax.

5.3.4 Research and development tax credits

Research and development tax credits incentivise investment in new technological innovations, which can contribute to more sustainable mining practices. HMRC (2024d) states that the research and development tax reliefs are designed to assist UK companies engaged in innovative scientific and technological projects. Activities must represent a scientific or technological innovation that

has yet to be undertaken elsewhere. Advances in the arts, humanities, and social sciences, including economics, do not qualify for this relief.

Section 417 of the Capital Allowances Act grants allowances to persons who incur qualifying research and development expenses. In this section, “research and development” refers to activities recognised as research and development according to standard accounting practices, including oil and gas exploration and appraisal activities. However, activities deemed as research and development in terms of regulations made under section 1006 of the Income Tax Act, 3 of 2007, are also considered to be research and development for this section, while activities not considered to be research and development are not. This ensures consistency in classifying and treating research and development activities across different sections of the tax code.

Section 1006 of the Income Tax Act provides that “research and development” includes activities recognised as research and development under generally accepted accounting practice, with additional considerations in subsection 3. Section 1006 empowers the Treasury to issue regulations to designate certain activities as research and development or exclude specific activities from being considered research and development for the purposes of this section. Section 1006 specifies that research and development does not cover oil and gas exploration and appraisal unless explicitly stated otherwise.

Research and development tax credits encourage companies to develop and adopt more efficient, environmentally friendly, and socially responsible practices. These credits make it more attractive for companies, including mining companies, to invest in innovations that can minimize environmental impact, such as reducing energy consumption, lowering emissions, and improving waste management. Additionally, technological advancements can lead to safer working conditions, better resource management, and more sustainable extraction methods.

5.3.5 Climate change levy

McEldowney and Salter (2016) explain that the climate change levy is a tax imposed by energy suppliers and paid by businesses and the public sector. This levy aims to incentivise increased energy efficiency and reduce greenhouse gas emissions. HMRC (2024b) indicates that a business energy supplier is responsible for charging the correct levy to its customers, and an entity that generates electricity is responsible for accounting and charging the correct Carbon Price Support rate. This ensures that the energy cost reflects its environmental impact, further motivating

businesses, including those in the mining sector, to reduce their carbon footprint. The National Audit Office (2007) clarifies that the levy seeks to encourage efficient energy use by businesses and reduce greenhouse gas emissions. The National Audit Office explains further that by taxing energy consumers rather than suppliers, the levy tends to promote energy efficiency rather than absolute reductions in carbon emissions. This approach would also help the mining industry to go beyond reducing overall carbon emissions and to focus on reducing energy consumption.

Section 30, read with Schedule 6 of the Finance Act, 17 of 2000, provides for a climate change levy. According to the regulations outlined in Part II of the Schedule, the levy is applied to taxable supplies, including any supply of a taxable commodity. Paragraph 3(1) provides that a taxable commodity includes several items, subject to certain conditions and regulations. These include electricity, certain gases supplied by a gas utility, liquid petroleum gas, coal, lignite, coke, semi-coke, and petroleum coke.

The climate change levy promotes sustainability in mining by imposing a financial charge on the supply of energy, including electricity, certain gases, and fossil fuels like coal and petroleum coke. By taxing these energy-intensive and carbon-emitting commodities, the levy is designed to encourage mining companies to adopt cleaner, more energy-efficient technologies and to transition to renewable energy sources, which contributes to reducing the industry's overall environmental impact. The levy can also mobilize resources to fund development or the government's climate change prevention or mitigation efforts.

5.3.6 Landfill Tax

The National Geographic (Online) explains that landfills are designated sites to store solid waste to minimize the effects of waste on human health and the environment. Mohammed and Sallam (2020) confirm that the landfills also impact health and the environment through material destruction, damage to health, loss of aesthetic values, ecosystem imbalance and climate change. Mishra, *et al.* (2020) observe that landfills also contribute to higher levels of greenhouse gas emissions and do not guarantee reuse and recycling of waste.

The National Audit Office (2021) states that a landfill tax is imposed on landfill operators to encourage waste diversion from landfills to more environmentally friendly waste management methods. HMRC (2024c) adds that all materials disposed of in a landfill cell are subject to landfill tax, subject to certain exemptions. A landfill cell is a primary area for disposal activities on a

landfill site, which can either be a natural geological feature like a disused mine or an engineered unit on the site. These cells are enclosed by an impermeable layer at the base, sides, and top, except when containing inert material. The impermeable layer is not considered part of the cell and thus does not count as material placed in it. A landfill operator is liable for the landfill tax for operating a landfill site with a licence or permit authorising disposals in or on the land.

Sections 39 and 40 of the Finance Act, 8 of 1996, state that the landfill tax is administered by the Commissioners of Customs and Excise and imposed on taxable disposals made in England and Northern Ireland. A taxable disposal occurs when material is disposed of at a licensed or unlicensed landfill site. The regulation ensures that both authorised and unauthorised disposals are covered under the landfill tax to promote proper waste management and discourage illegal dumping. Land is classified as a landfill site if it has an active permit or licence, authorising deposits or disposals. HMRC (2024a) also explains that a waste management licence under the Waste and Contaminated Land Order 1997, or corresponding legislation authorising disposals in Northern Ireland, can also classify land as a landfill site.

Material from mining and quarrying operations disposed of at an authorised landfill site is exempt from landfill tax if it adheres to the requirements for this exemption. Section 44 of the Finance Act of 1996 addresses mining and quarrying, specifying that disposals at a landfill site will be taxed if they do not meet the criteria for exemption set by the Commissioners. To qualify, the material must come from commercial mining or quarrying operations, be naturally occurring, extracted from the earth during these operations, and not have undergone any non-qualifying process between extraction and disposal. A non-qualifying process includes any process separate from the mining or quarrying operations or one that permanently alters the chemical composition of the material.

Based on the requirements under section 44, the exemption from landfill tax of disposals from quarrying and mining in the UK is primarily based on the nature of the material being disposed of. If the material is naturally occurring and has not undergone any separate processing or chemical alteration between extraction and disposal, it falls into the exempt categories. Essentially, the exemption recognises that these materials are not waste in the traditional sense but rather part of the geological landscape.

The landfill tax creates two situations where mining is involved; either the material is exempt from land fill tax for being naturally occurring and not having undergone any separate processing or

chemical alteration, or it is taxed for being modified and having been chemically altered. In both instances this promotes sustainable waste management in mining. Where the material is exempt, this encourages mining companies to use designated landfill areas as they do not incur tax-related surcharges; this avoids mine dumps such as mine spoil heaps where mining operations leave accumulated waste material removed during mining. These mine spoil heaps can look like miniature hills, which change the landscape of the area where mining was done. Where the material incurs landfill tax, it addresses the chemical alteration of the waste thereby taxing the company for the potential harm that the waste will do to the environment whilst in the landfill.

5.3.7 Aggregates levy

The National Audit Office (2021) explains that the aggregates levy is a tax designed to promote the use of recycled materials instead of extracting rock, sand, and gravel, which can harm the environment. Tax and Sustainability (Online) notes that the environmental impact associated with aggregate extraction, and which is subject to the aggregates levy, includes the loss of biodiversity, the aesthetic and recreational value of the environment, and noise and dust pollution. The Aggregates Levy, provided for in section 16 of the Finance Act, 9 of 2001, is a tax on the commercial exploitation of aggregates such as rock, gravel, and sand extracted from the ground or seabed in the UK. Section 16 of the Finance Act of 2001 provides that the levy applies to any commercially used aggregate, unless it is specifically exempt under section 17, has previously been used for construction, has already been taxed without subsequent relief, or was removed before April 1, 2002, and not returned to its original site. Aggregates include rock, gravel, sand, and naturally occurring substances, such as spoil, waste, off-cuts, and other by-products. Additionally, aggregates located on specific sites may also be non-taxable. Tax & Sustainability (Online) explains that all individuals or entities that commercially exploit aggregates must register with HMRC unless they are working on the exploitation of soil, organic matter, spoil or waste from industrial combustion, drill-cuttings from licensed exploration, and aggregates arising from road works for utilities.

Seely (2011) explains that the aggregates levy was introduced for several reasons, including environmental sustainability and revenue. The levy aimed to ensure that the environmental impact of aggregates extraction was more fully reflected in prices. It sought to encourage a shift in demand away from primary aggregate towards alternatives such as recycled construction and demolition waste and other materials like china clay waste, waste glass, and tyres, in aggregate mixes. The

levy was part of a broader effort to promote sustainability in the construction industry by encouraging the more efficient use of aggregates and greater resource efficiency overall. Seely (2011) adds that the receipts from the levy were intended to be recycled back to businesses through a cut in employers' national insurance contributions and the establishment of a sustainability fund to deliver local environmental benefits. The sustainability fund was also intended to reduce the amount of primary aggregate extracted, overcome market barriers, and promote increased use of alternative materials.

The aggregates levy directly promotes sustainability in the mining industry by imposing a tax on the extraction and commercial exploitation of natural aggregates like rock, sand, and gravel. This levy promotes the use of recycled materials instead of newly extracted aggregates, thereby reducing the environmental impacts associated with aggregate extraction, such as loss of biodiversity, pollution, and habitat disruption. The levy encourages a shift towards more sustainable practices, such as recycling construction waste and using alternative materials. Additionally, the revenue generated from the levy is recycled back to businesses and used to fund local environmental initiatives.

5.3.8 Community investment tax relief

Section 334 of the Income Tax Act states that an individual, the investor, is eligible for community investment tax relief on an investment if the recipient body is accredited as a community development finance institution at the time of the investment, and if the investment qualifies and meets the general conditions in the Act. HMRC (2023) explains that the community investment tax relief scheme aims to stimulate private investment in disadvantaged communities. It provides a tax incentive to individuals and companies that invest in accredited community development finance institutions. In turn, these community development finance institutions invest in enterprises located in or serving those communities. The relief is up to 25% of the value of the investment made in the community development finance institution, spread over five years, starting from the year the investment is made.

Abreu and Jones (2021) argue that most UK mining communities remain economically peripheral. The community investment tax relief can promote sustainability in the mining industry by encouraging investment in institutions that support enterprises in disadvantaged communities. This relief ensures sustainability by fostering economic growth and development in communities

impacted by mining activities. By providing financial support to local enterprises through community development finance institutions, the scheme helps create alternative economic opportunities, reducing reliance on mining and fostering more diverse and sustainable local economies. This mitigates the social and environmental impacts of mining, contributing to the industry's overall sustainability.

5.4 CONCLUSION

This chapter investigated the tax measures designed to promote environmental sustainability in the mining industries of Australia and the UK. It highlighted how both countries use their tax systems to balance economic growth with environmental responsibility. In Australia, the focus on mine rehabilitation, environmental protection activities, and land care operations underscores the commitment to mitigating the environmental impacts of mining. The tax deductions and incentives outlined in the Income Tax Assessment Act and interpretative rulings demonstrate a comprehensive approach to promoting sustainability. Australia's carbon tax and transfer pricing rules illustrate Australia's multifaceted strategy to ensure that mining activities contribute to environmental and economic goals.

Similarly, the UK use of various environmental taxes, such as the climate change levy, landfill tax, and aggregates levy, reflects a proactive stance on resource efficiency and waste management. Tax transparency and the research and development tax credits highlight the importance of accountability and innovation in achieving environmental objectives.

The tax provisions in Australia and the UK offer lessons on integrating economic and environmental policies and provide a foundation for and different perspective on the role of tax measures in promoting sustainability in the mining industry.

The following chapter concludes the research by providing the summary, findings and recommendations.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 INTRODUCTION

This chapter concludes the research by providing a summary and highlighting the findings of the research. The main goal of the research was to analyse the role of tax provisions in promoting sustainability in the mining industry in South Africa, Australia and the UK, and was addressed by the following sub-goals:

- outline the socio-economic and environmental impact of mining in South Africa;
- examine the discourse surrounding sustainability in the mining industry;
- discuss the South African tax provisions that promote sustainability in the mining industry;
- discuss the tax provisions in Australia and the UK that address sustainability in the mining industry; and
- recommend tax provisions that can be adopted in South Africa to address the multi-dimensional nature of sustainability in mining.

In the summary of the chapters that follows, how each sub-goal was addressed is explained. Following this, the chapter presents the research findings. The chapter then offers recommendations based on these findings to optimise tax policies to enhance sustainability in the mining industry in South Africa.

6.2 SUMMARY OF CHAPTERS

Chapter 1

The chapter provided the context for the research, resulting in the development of the research question, stated the goals and sub-goals of the research, and detailed the research methodology employed. The research methodology this thesis is rooted in the interpretative paradigm, which emphasizes understanding reality through social constructs like legislation. A doctrinal research methodology was applied, involving a systematic analysis of legal principles by examining statutes, regulations, case law, and scholarly material relevant to mining taxation and sustainability, focusing on South African, Australian, and UK tax laws. This qualitative study relied on both primary sources, such as legal texts and international conventions, and secondary sources, including academic literature and published articles.

The chapter introduced the central theme of the thesis, which is an analysis of how tax legislation can promote sustainability in the mining industry. The chapter outlined the significant impact of the mining sector on the South African economy while also highlighting the environmental and social challenges it poses, such as land degradation, unfair labour practices, and inequalities.

The chapter introduced the South African legislative framework that promotes sustainable development, focusing on laws such as the National Environmental Management Act and the Mineral and Petroleum Resources Development Act. Despite the existing legislation, it was noted in the chapter that enforcement remains a challenge due to an apparent lack of political will, which undermines the effectiveness of these laws in ensuring sustainable mining practices. The role of taxation as a policy tool is emphasised, particularly how environmental or green taxes can incentivise sustainable behaviour and disincentivise practices that harm the environment. The chapter introduced the South African approach and that of Australia and the UK, which have effectively used environmental taxes to drive sustainability in their mining sectors.

Chapter 2

Chapter 2 addressed the first sub-goal of the research by exploring the socio-economic and environmental impacts of mining in South Africa and emphasising the need for legislative and policy interventions to address these challenges. The chapter highlighted the significant contribution of mining to South Africa's economy, albeit at the expense of the environment. The chapter discussed the irony of mining's role in sustainable development, as it produces materials essential for combating climate change but also causes environmental harm, including deforestation, soil erosion, water contamination, and air pollution. Land degradation is a significant issue, with mining leading to deforestation, soil erosion, and improper waste disposal, mainly through tailings, which pose significant environmental risks if not properly managed. Air pollution from mining activities is substantial, generating dust and particulate matter, adversely affecting human health and the environment. Water pollution is another critical concern, with mining consuming large amounts of water and often leading to contamination, notably through acid mine drainage in places like Mpumalanga province, which affects local communities. The socio-economic impacts of environmental degradation from mining are profound, causing displacement, health issues, and economic challenges for local communities, with women and marginalised groups often bearing the brunt of these effects. The chapter also discussed *Nkala & Others v Harmony Gold Mining Company Limited*, the silicosis class action, where mineworkers

affected by silicosis sued gold mining companies for compensation, underscoring the long-term health impacts of mining and the industry's negligence in protecting workers.

Chapter 3

The chapter addressed the second sub-goal by examining the discourse surrounding sustainability in the mining industry. The chapter discussed the theoretical and legal frameworks of sustainability. It started by defining sustainability, tracing its evolution from the 1987 Brundtland Report, which emphasised meeting present needs without compromising future generations. The chapter outlined various perspectives on sustainability: the conventional perspective, which focuses on resource efficiency and economic growth; the contemporary perspective, which includes ecosystem viability and social justice; the regenerative perspective, which views humans and nature as a single system; and natural capitalism, which emphasises resource efficiency and market-driven solutions.

The legislative framework for sustainability in mining was examined from both an international and South African perspective. Internationally, customary law principles such as permanent sovereignty over natural resources, common concern for humankind, and the “polluter pays” principle were discussed, along with treaties like the Minamata Convention on mercury and the Basel Convention on hazardous wastes. South Africa is a signatory of many agreements and international treaties that address environmental sustainability. The South African Constitution incorporates international law into the domestic legal framework. Key acts like the National Environmental Management Act and the Mineral and Petroleum Resources Development Act in South Africa promote sustainable development and environmental protection.

The chapter also highlighted the interconnectedness of tax provisions and sustainability in mining. It explained how economic tools like taxes can promote environmental protection and innovation, suggesting that green fiscal policies can integrate environmental concerns into the tax system to influence mining practices.

The chapter underscored the necessity of a holistic approach to sustainability in mining, integrating environmental, social, and economic factors. It emphasised the role of international and national laws and the potential of tax provisions to foster sustainable mining practices.

Chapter 4

Chapter 4 addressed the third sub-goal by discussing the South African tax provisions that promote sustainability in the mining industry. The critical role that South African tax provisions play in promoting sustainability in the mining industry was emphasized. How various legislative measures, such as the Mineral and Petroleum Resources Royalty Act, the Income Tax Act, and the Carbon Tax Act, are designed to align the economic activities of mining companies with environmental and social responsibilities, was highlighted.

The Mineral and Petroleum Resources Royalty Act encourages sustainable mining by linking royalty rates to mining operations' profitability and environmental performance, thereby incentivising more efficient and responsible extraction practices. The chapter also discussed the importance of tax provisions for mine rehabilitation, mandated by the Mineral and Petroleum Resources Development Act and the National Environmental Management Act. These provisions ensure that funds are reserved for environmental restoration, preventing long-term degradation and promoting the sustainable use of land post-mining.

The chapter also explained the impact of tax incentives on energy efficiency and research and development. These incentives reduce the financial burden of adopting cleaner technologies and innovative practices, thus supporting the transition to more sustainable mining operations. The Carbon Tax Act further reinforces this by imposing penalties on greenhouse gas emissions, driving the industry toward lower carbon footprints and contributing to national and global climate goals.

Overall, Chapter 4 demonstrated that South African tax policies are not just fiscal tools but are also essential mechanisms for fostering sustainability in the mining sector. These provisions ensure that mining activities contribute positively to economic development while minimising environmental harm, supporting the country's broader sustainable development objectives.

Chapter 5

The chapter dealt with the fourth sub-goal by discussing the tax provisions in Australia and the UK that promote sustainability in the mining industry. Both countries have established tax measures that, while not always explicitly aimed at mining sustainability, play a significant role in fostering environmentally responsible mining practices. In Australia, tax provisions relating to mine rehabilitation, environmental protection activities, and land care operations demonstrate a

comprehensive approach to mitigating the environmental impacts of mining. These provisions, together with Australia's focus on preventing profit shifting through stringent transfer pricing rules, collectively support sustainable economic and environmental outcomes.

In the UK, environmental taxes, such as climate change, landfill, and aggregate levies, are designed to encourage resource efficiency and sustainable waste management practices. The chapter also highlighted the importance of tax transparency and research and development tax credits in the UK, which incentivise innovation and ensure that mining companies contribute fairly to the economy while minimising their environmental impact.

Overall, this chapter underscored the critical role of tax policy in balancing economic growth with environmental stewardship in the mining industry. The experiences of Australia and the UK offer valuable insights into how tax provisions can be leveraged to enhance sustainability, providing potential lessons for other countries seeking to improve their tax frameworks in the context of sustainable development.

6.3 FINDINGS

This section presents the key findings of the research, which are discussed in detail below. The findings highlight the multidimensional impacts of the mining industry, the relationship between tax provisions and sustainability, and the role of tax in environmental rehabilitation and protection.

6.3.1 The multidimensional impact of the mining industry

The research found that the impacts of mining are multidimensional and far-reaching, affecting various aspects of the environment, society, health, and gender dynamics. The study emphasized the significant environmental degradation caused by mining activities in South Africa, including land degradation, air and water pollution, and biodiversity loss. Mining operations, particularly in regions such as Mpumalanga, have led to widespread environmental damage, with acid mine drainage being a critical issue.

As observed by Kitula (2006) and Makua and Kola (2017), the socio-economic effects of mining are profound, particularly for communities living near mining sites. The displacement of communities due to mining activities leads to food insecurity, loss of livelihoods, and heightened poverty. The health impacts of mining, particularly respiratory diseases such as silicosis and tuberculosis, are significant. *Nkala & Others v Harmony Gold Mining Company Limited*, the

silicosis class action lawsuit, underscores the long-term health consequences for mineworkers exposed to silica dust in South Africa's gold mines.

The research revealed that mining activities exacerbate gender and social inequalities, particularly affecting women and girls. Stevens and Tekinbas (2023) argue that women bear the brunt of the negative impacts, including increased unpaid care work, loss of livelihoods, and heightened exposure to health risks and gender-based violence.

6.3.2 Tax and environmental rehabilitation and protection

The research established that tax provisions can reinforce sustainability in the mining industry. Governments can encourage responsible mining practices by aligning tax provisions with sustainable development goals. Emas (2015) and the Green Fiscal Policy Network (2018) explain that tax measures can drive behavioural change in the industry, promoting compliance with environmental regulations and supporting sustainable development.

South Africa, Australia, and the UK are leveraging tax to encourage environmentally responsible practices in industries like mining, balancing economic activity with environmental sustainability. In South Africa, mining companies set aside financial resources for environmental rehabilitation. Similarly, Australia's section 40-735 of the Income Tax Assessment Act offers deductions for expenditures on mine site rehabilitation. Section 40-755(1) of the Australian Income Tax Assessment Act also allows deductions for expenditures to prevent, combat, or rectify pollution caused by income-generating activities. The UK also promotes responsible site restoration through section 416 of the Capital Allowances Act, which provides tax relief for restoration costs incurred within three years of ceasing mineral extraction. The UK also has other tax provisions encouraging environmental sustainability in mining, including a landfill tax and aggregates levy.

While all three countries provide tax incentives for mine rehabilitation and environmental protection, South Africa and Australia have specific energy efficiency and pollution control provisions that encourage mining companies to adopt energy-saving measures, reducing their overall environmental impact. By contrast, the UK's enhanced capital allowances, which previously incentivised investments in green technologies, have been repealed.

6.3.3 Tax and economic sustainability

The economic impacts of mining are addressed through various tax provisions in the three countries. South Africa's Mineral and Petroleum Resources Royalty Act imposes royalties based on profitability and environmental performance, ensuring that more profitable mines contribute higher taxes. Section 31 of the Income Tax Act also ensures fair taxation and market conditions for transactions between related entities, preventing profit shifting through transfer pricing. Australia's Division 815 of the Income Tax Assessment Act also ensures that multinational mining companies price their related-party transactions at arm's length. The UK emphasises transparency and accountability in the extractive industries by requiring multinational enterprises to produce reports under the Extractive Industries Transparency Initiative, disclosing the payments they make to the government for oil, gas, and mining operations.

Furthermore, section 334 of the UK Income Tax Act provides tax relief for investments in accredited community development finance institutions, directly targeting economic growth in disadvantaged mining communities. While South Africa and Australia focus on fair taxation and preventing profit shifting, the UK's approach strongly emphasises community investment.

South Africa and the UK also provide research and development tax incentives that have the potential to ensure both economic and environmental sustainability by promoting innovation and the development of sustainable technologies.

6.3.4 Tax and carbon emissions and climate change

While South Africa, Australia, and the UK have mechanisms to address carbon emissions, South Africa has a carbon tax. Australia is introducing a carbon pricing mechanism, and the UK targets energy suppliers rather than directly taxing emissions from mining companies. South Africa's Carbon Tax Act taxes greenhouse gas emissions, encouraging mining companies to implement energy efficiency measures and adopt cleaner technologies. Although Australia does not currently have a carbon tax, a carbon pricing mechanism for the industry sector is being introduced to stimulate broader economic climate action. The UK climate change levy, imposed on energy suppliers, incentivises increased energy efficiency and reduced greenhouse gas emissions. These mechanisms highlight how tax policies can effectively promote environmental sustainability and reduce carbon emissions across various sectors.

6.3.5 Tax and the social aspect of sustainability

Optimising tax policies to enhance sustainability requires a comprehensive, balanced approach that addresses environmental, economic, and social aspects. Although the impacts of mining affect the environmental, economic, and social aspects, the research showed that the tax provisions tend to focus on the environmental and economic aspects of sustainable development. The UK's community investment tax relief and transparency and reporting mechanisms are good examples of tax mechanisms that can reconcile the sustainability in the mining industry with social concerns. For example, the UK transparency and reporting mechanisms may allow mining companies to show how corporate structures address other aspects of sustainable development, such as gender equality and equitable employment creation. Sex disaggregated data can show the representation of different groups in employment and management in the mining industry, including women and other marginalised groups.

6.4. RECOMMENDATIONS

Enhancing tax transparency in the mining sector can promote accountability and ensure that companies contribute fairly to the economy. Tax transparency can be achieved by requiring mining companies to publish detailed reports on their tax contributions, environmental impact, and social investments. A tax transparency initiative, modelled after the UK Extractive Industries Transparency Initiative, could be introduced in South Africa to enhance accountability in the mining industry. While the UK mandates the disclosure of payments related to natural resource extraction, a South African version could require mining companies to report key financial contributions to the government, including company tax and other relevant levies.

Similar to the tax transparency approach in the UK, the figures reported by the company and government would be reconciled by an independent administrator and the report would be published. Implementing such a transparency standard would ensure fair taxation and reduce opportunities for tax avoidance. By encouraging the disclosure of social, environmental, and corporate governance factors, this policy could further align mining operations with the broader sustainable development goals, fostering better governance, ethical practices, and long-term development in the mining industry.

A community investment tax relief scheme, inspired by the UK model, could be adapted for South Africa to promote sustainability in mining-affected regions. While the UK offers up to 25% tax

relief, South Africa could determine a context-appropriate percentage to incentivize private investment in community development financial institutions. These community development financial institutions would, in turn, support local enterprises, fostering economic diversification and reducing dependence on mining. By encouraging investment in alternative livelihoods, the scheme could help mitigate the social and environmental impacts of mining, contributing to sustainable development in these communities.

South Africa could enhance the post-mining responses to environmental damage by implementing a tax incentive encouraging environmental protection during the subsistence of mining activities. South Africa could consider implementing a tax deduction modelled after section 40-755(1) of the Australian Income Tax Assessment Act, which allows deductions for expenses incurred for environmental protection activities. In South Africa, this could involve providing tax deductions for expenditures related to preventing, mitigating, or rectifying pollution caused by mining operations, as well as managing waste generated at mining sites. Tailoring the policy to South African conditions, the tax incentives could encourage mining companies to undertake environmental protection efforts as part of their income-generating activities.

The UK climate change levy could also be applied in South Africa to encourage mining companies to reduce their carbon emissions and increase energy efficiency. The levy would promote the adoption of cleaner technologies and a transition to renewable energy sources by levying energy-intensive commodities, such as coal and petroleum coke energy consumption. Whereas South Africa's Carbon Tax Act focuses on emissions, a climate change levy would reinforce the efforts to reduce emissions by targeting energy-intensive commodities at the source.

A landfill tax provision modelled after the UK landfill tax would encourage mining companies in South Africa to manage waste, particularly waste materials that have undergone chemical alteration, and which contribute to environmental harm. In the UK, this tax is imposed on landfill operators to encourage the diversion of waste from landfills toward more environmentally friendly disposal methods. Naturally occurring materials extracted during mining that have not been chemically altered could be exempt, as in the UK. This policy would support the sustainable management of mining waste by discouraging mine dumps and spoil heaps, while taxing waste that poses potential environmental risks.

South Africa could adopt an aggregates levy similar to the UK. The levy, outlined in section 16 of the UK Finance Act, taxes the commercial exploitation of aggregates such as rock, gravel, and sand, commonly extracted for construction purposes. A similar tax in South Africa would encourage companies to reduce their reliance on newly extracted aggregates and promote recycling of construction and demolition waste, thus fostering environmental sustainability. The levy could help to address the environmental costs associated with both mining and construction. Furthermore, as with the UK approach, South Africa could consider using revenues from the levy to support local environmental initiatives, thus reinvesting in sustainable development projects. Supporting local environmental initiatives from the levy would create a dual benefit of reducing environmental harm from extraction while funding broader conservation efforts.

6.5 CONCLUSION

This research examined the role of tax provisions in promoting sustainability in the mining industry. The findings highlight the multifaceted impacts of mining, including significant environmental degradation, socio-economic challenges, health issues, and gender inequalities. Despite comprehensive regulatory frameworks, enforcement gaps persist, allowing ongoing harm to the environment and communities.

South Africa offers a comprehensive approach with tax provisions for rehabilitation, energy efficiency, and carbon emissions. Australia has detailed environmental protection and rehabilitation tax provisions, while the UK emphasises transparency and community investment. However, there are opportunities in each country's approach. The concept of sustainability has evolved, and there is a need for an approach that integrates environmental, social, and economic dimensions. Tax provisions can be leveraged to encourage responsible mining practices and align fiscal policies with sustainable development goals.

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