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JOHANNESBURG

ASSESSING THE POLICIES FOR LEGALISING ARTISANAL AND SMALL-SCALE MINING IN SOUTH AFRICA

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A research report submitted to the Faculty of Engineering and the Built Environment, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Master of Science in Engineering.

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DECLARATION

I declare that this research report is my own unaided work. It is being submitted for the degree of Master of Science/Doctor of Philosophy at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination to any other university.

I have familiarised myself with the University of the Witwatersrand Student Academic Misconduct Policy (SAMP). I hereby declare that the work I am submitting for assessment is my original work. I affirm that I have not plagiarised, misrepresented, or colluded with any other person or source. I have properly acknowledged, cited, and referenced all the sources that I have used in my work. I also declare that I have used artificial intelligence (AI) tools only as a means of guidance. The ideas and arguments presented in my work are my original thoughts and interpretations. I acknowledge that any academic misconduct, such as plagiarism or collusion will result in serious consequences. These consequences may include a reduced grade, a fail mark, or disciplinary action according to the SAMP. The School of Mining Engineering has my consent to investigate any potential academic misconduct in my work. This investigation may include the use of similarity and AI detection software to check the originality of my work. I undertake to abide by the decision of any such investigation.

(Signature of Candidate)

_____09_____ day of ____December_____, _____2024_____

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“The joy of discovery is certainly the liveliest that the mind of man can ever feel”

Claude Bernard

ABSTRACT

This research examines the regulatory framework of artisanal and small-scale mining in South Africa, discussing issues around whether the current policies are up to the challenge of managing the realities and expectations of artisanal and small-scale miners. The research was conducted through a survey of three focus groups across four areas in South Africa using structured questionnaires and interviews. Data collection involved contacting individuals at the Department of Mineral Resources and Energy, Mine Health and Safety Council, and Mining Qualifications Authority, as well as Artisanal and Small-Scale Miners and mine representatives, and conducting interviews at their offices, homes, or workplaces based on their preferences.

Data collected from the three focus groups reveal a disconnect between the goals of the policies and how the artisanal and small miners' communities experience them, emphasising the need for effective policy implementation, comprehensive education initiatives, and avoidance of unrealistic expectations. Key recommendations of the research include the adoption of digital technologies for monitoring, fostering cooperative models, and encouraging international collaboration between local and foreign operators. It underscores the importance of creating and applying inclusive, equitable and sustainable policies to improve the socio-economic and environmental conditions of artisanal and small-scale miners in South Africa.

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LIST OF ABBREVIATIONS

Abbreviation	Description
AMDC	African Minerals Development Centre
ASM	Artisanal and Small-Scale Mining
AU	African Union
DEA	Department of Environmental Affairs
DMRE	Department of Mineral Resources and Energy
EIA	Environmental Impact Assessment
HDIs	Historically Disadvantaged Individuals
HDSAs	Historically Disadvantaged South Africans
MEPC	Mineral and Energy Policy Centre
MHS	Mine Health and Safety
MHSC	Mine Health and Safety Council
MMCZ	Minerals Marketing Corporation of Zimbabwe
MPRDA	Minerals and Petroleum Resources Development Act
MPSC	Mineral Policy Steering Committee
MQA	Mining Qualifications Authority
NEMA	National Environment Management Authority
NSC	National Steering Committee
RDP	Reconstruction and Development Programme
SAMRAD	South African Mineral Resources Administrative System
SSMB	Small-Scale Mining Board

1 INTRODUCTION

The mining industry plays a critical role in the South African economy. It has contributed greatly toward influencing the socio-economic landscape of the country positively over the last 150 years (Ledwaba & Mutemeri, 2018). According to Davenport (2013), South Africa is enriched with a wide variety of minerals, which have had a significant effect in uplifting the social economy of the country. Both large-scale and artisanal and small-scale mining (ASM) have played a key role in reducing poverty and enhancing livelihoods (Mtero, 2017). However, the ASM policies do not appear to be having the effect that artisanal operators and policymakers would have hoped.

1.1 Research Background and Context

Ledwaba & Nhlengetwa (2015) have noted that the South African mining industry has gone through numerous changes over the last three decades since ASM was officially recognised. The Department of Mineral Resources and Energy (DMRE) (2022, p. 6) defines artisanal mining as "*the traditional and customary mining operations using traditional or customary ways and means*" while small scale mining means "*a prospecting or mining operation which does not employ specialised prospecting, mechanised mining technologies, chemicals including mercury and cyanide or explosives; or the proposed prospecting or mining operations, do not involve an investment or expenditure which exceed such amount as may be prescribed"*. **In this document the term ASM will refer to both the artisanal and small-scale operators without distinction.**

In 1994, the Reconstruction and Development Programme (RDP) was established as a policy framework with the goal to addressing the socio-economic injustices created by the apartheid regime. According to the RPD Policy (Parliament of the Republic of South Africa, 1994), the framework was aimed to be coherent, supportive, and focussed on promoting growth in human resources, enhancing economy, meeting basic needs and democratising the state and society.

One of the goals highlighted in the RDP was the recommendation that government institute channels and means of supporting small-scale mining for job creation and community development (Davhana, 2022). This recommendation led to the establishment of the Mineral Policy Steering Committee (MPSC) in September 1995. This committee comprised representatives from government, organised business and organised labour (DME, 1998). The committee was given an instruction or goal to perform an extensive consultative process with all relevant stake holders to prepare for the new minerals and mining policy for South Africa in 2002 (Ledwaba & Nhlengetwa, 2015).

In March 1996, around four hundred people attended a workshop where most of the issues arising from the RDP policy document published in November 1995 were discussed (noteworthy was the fact that small-scale miners and communities were not invited to this workshop). The workshop culminated in the compilation of a proposal document which was submitted to the then Minister of Minerals and Energy. In May 1997 adjustments were made in line with views from different stakeholders, including the small-scale miners and communities that had not been consulted by the RDP committee. Subsequently, the document was redrafted into a Green Paper on Minerals and Mining Policy and finally, in September 1998 it was approved in the form of the White Paper on Minerals and Mining Policy of South Africa (DME, 1998).

Issues related to ASM in South Africa were first raised formally in this White Paper. The importance of ASM was recognised: *"Well managed small-scale mining has the potential to take over from and mine economically where large-scale mining is unable to mine profitably"* (DME, 1998, p. 24). Challenges identified, however, included the ability of government to encourage and facilitate sustainable development of the sector by certifying optimal exploitation of mineral deposits. Also addressed were issues around empowering ASM to make a beneficial contribution towards the economy as whole (Ledwaba & Nhlengetwa, 2015; Mhangara, et al., 2020). One of the driving factors towards the recognition of the ASM sector was due to its significant contribution as a socio-economic development. For instance, the job creation for the historically disadvantaged, livelihood, rural development, and poverty alleviation (Ledwaba P. F., 2017).

According to Ledwaba (2017), the Mineral and Energy Policy Centre (MEPC) undertook a study on the ASM sector in 1998. The aims of this study were to provide an overview of how the sector contributes towards the economy and also to provide recommendations on how ASM can be supported going forward. The study was to investigate both the positive influence the sector had towards the socio-economic development and its potential benefits in poverty alleviation, as well as the problems that surfaced, such as, lack of access to mineral rights, lack of access to finance, lack of appropriate structures in supporting the ASM and poor understanding of markets. This led directly to the launch of the National Small-Scale Mining Development Framework in April 1999 (Ledwaba & Nhlengetwa, 2015; Eniowo et al., 2022). The primary aim of this Framework was to give ASM the right technical and financial means of growing projects.

With the persistence of these challenges, however, in 2000 the government saw a need to form the National Steering Committee (NSC). According to Eniowo et al. (2022), the intent of the NSC was to provide ASMs with accessible services. The NSC was composed of different stakeholders who were experienced, had a comprehensive understanding of the mine value chain and had access to financial institutes with investors who wanted to invest in ASM. The government injected R15 million into the NSC, which was to have been split evenly between some 20 ASM projects (around R750 000 per project) as loans. This money was expected to cover the purchase of earth moving machinery, for operation costs and for final rehabilitation. With these limited funds, however, the ASM operators were not able to capitalise their operations appropriately and this led to them not being able to repay the loans. This led to the ultimate failure of most of the ASM Projects. The failure to deliver led to the NSC being discontinued in October 2005 (Ledwaba & Nhlengetwa, 2015; Eniowo et al., 2022).

In 2002 the Mineral and Petroleum Resources Development Act 28 of 2002 (MPRDA) was introduced (DMRE, 2002) and which was purported to support all forms of mining, large and small (Cawood, 2004). However, right from the outset, challenges for the ASM operators were identified.

In 2004, the Small-Scale Mining Board (SSMB) was established as a statutory body falling under the MPRDA. The SSMB was established with the purpose of

promoting and regulating the ASM industry of South Africa. Additional objectives were to ensure that the ASM industry operates within the legal and environmental framework while supporting economic development and community livelihoods or empowerment. The SSMB had a similar structure to the NSC, but with fewer participants (Ledwaba & Nhlengetwa, 2015). The committee was more effective in comparison with the previous NSC. However, the funding situation was still not resolved and the unsuccessful SSMB was phased out by the end of 2009.

It soon became readily apparent that none of the existing structures supported the ASM sector adequately. Resultant frustrations due, inter alia, to the lack of support mechanism from government resulted in a call for the introduction of policies and legislative reforms into formalising the ASM sector. This resulted in the birth of the Artisanal and Small-Scale Mining Policy in March 2022. The intent of the policy is to profile government's interventions by addressing the challenges and to also support the socio-economic development of the sector (DMRE, 2022)

1.2 Problem Statement

As a distinct form of mining, ASM is not covered in section 27 of the MPRDA. Much of the current legislation is directly applicable to large-scale miners (for example, the requirements relating to environmental management, water use, health and safety, land use and financial provisions). As a result, the ASM operators are disadvantaged before they even start and may, subsequently, resort to mining illegally because they feel they just don't fit into the current regulatory framework.

In addition, the ASM communities believe that the policymakers do not really understand the practical issues faced by them daily. They are also of the opinion that many of the regulations in the MPRDA should not apply to them, given the small-scale nature of their operations and their associated lack of (especially financial) resources.

So, the problem becomes – is the current policy up to the challenge of managing the realities and expectations of ASMs? Is it the policy that is inadequate or is it

the application/implementation of the policy that falls short? In either case, how can the problem be resolved?

1.3 Justification for Research

The lived experience of the ASMs forces many to mine illegally because of lack of finances and structural capacity to obtain mining permits (Ledwaba & Mutemeri, 2018). The 2022 Artisanal and Small-Scale Mining Policy was developed to address this situation. Given these issues and the problems highlighted above, a study is needed to assess the extent to which the 2022 ASM Policy addresses the challenges faced by the ASM community and to highlight suggestions on how to improve the situation.

For purposes of clarity, this research will focus on the issues faced by the legal ASM community. However, mention will be made also of the illegal mining community where appropriate.

1.4 Research Objectives

The following objectives were established to evaluate the impact of South Africa's mining legislation in general, and how the 2022 ASM policy in particular, affects the ASM sector:

- To review the current policies and legislative frameworks for the ASM sector in South Africa.
- To assess the challenges affecting ASM communities.
- To evaluate why challenges, exist in the implementation of the ASM policies.
- To recommend how current policies can be reformed to ensure a more sustainable ASM sector.

1.5 Research Methods

For this study, a qualitative approach was selected as the research strategy. In Phase I of the research, the researcher held several discussions with ASM groups. These discussions examined the challenges faced by ASMs and their recommendations for the development of a future framework. Transcripts produced from the focus groups and interviews were analysed by summarising and categorising them according to themes that emerged and related to the research objectives.

This was followed by Phase II in-depth interviews with the DMRE as well as various governmental organisations (Mine Health and Safety Council (MHSC) and Mining Qualifications Authority (MQA)).

- The DMRE is a government department in South Africa that supervises the South African mineral resources and energy. It issues mining permits and licences and even develop policies and legislation around the management of mineral resources and energy of South Africa.
- The MHSC plays an important role by promoting the health and safety standards of South Africa in making research, developing regulations and giving training that improves the South African mining practices.
- MQA is a statutory body formed under the Mine Health and Safety Act of 1996 that supervise and controls the education, training and skills development with financial supports to people furthering their studies in the mining sector.

These interviews attempted to understand the government's viewpoint on ASM and what they consider important for the implementation of their strategies.

1.6 Sources of Data

The researcher has obtained information from investigating relevant legislation, policy documents and peer-reviewed articles. Further, data has been acquired from structured questionnaires and discussions with relevant parties affected by the ASM legislation.

1.7 Research Validation

As part of the validation of the research, it will be important to correlate the recommendations with the proposals of the ASM operators, where realistically feasible. However, the ultimate validation of the research would only be apparent in due time, once the recommendations had been implemented – whether the ASM operations and the lives of the local communities would have been improved.

1.8 Structure of the Research Report

This research report consists of six chapters. Chapter 1 is the introduction and covers the background of the research topic, the problem statement, the justification for the research, and the research objectives. The research methodologies followed by this study and the sources of the information are introduced. The research validation criteria are discussed.

Chapter 2 is the literature review. It covers the introduction, key concepts, theories and studies that gives an overview of artisanal miners, small-scale miners and illegal miners. The chapter also cover the global context of ASM, with a focus on South Africa with the key debates and controversies.

Chapter 3 is the research approach. It covers the methodology of the research, the research design, the data collection processes, and the data analysis approach. The chapter concludes with a summary.

Chapter 4 presents the data used in the study. The chapter includes a synopsis of the responses of the interviewees and concludes with a summary.

Chapter 5 synthesises the findings of the research. The introduction is followed by an interpretation of the results which are discussed in terms of different themes highlighted by the research.

Chapter 6 is the conclusions and recommendations. It comprises a summary of all chapters, providing an overview of what has been accomplished in the research.

This chapter also provides recommendations for the implementation of ASM policy. It further identifies the limitations of the research and concludes with recommendations for future research.

2 LITERATURE REVIEW

This chapter introduces the concepts and theories that are key to the understanding of ASM. It discusses the issues around defining ASM and their place in the mining value chain. South Africa is not the only country where ASM is viewed as being an important contributor to the local economy – this chapter also reviews some of the policies elsewhere in Africa, Latin-America and Southeast Asia with a view to identifying which policies have been implemented and how effective they may have been.

The policies and practices of South Africa relating to ASM are described in some detail, also focussing on how effective they have been. This is then followed by a synthesis of the key debates and controversies that affect the ASM industry.

2.1 Key Concepts of ASM

Ledwaba (2017) describes ASM as a complex and multifaceted sector pivotal to many developing economies. She argues that to understand ASM fully, it is essential to explore its intricate interplay of social, environmental, economic, and cultural factors. The author highlights ASM's deep historical roots, noting that communities have engaged in small-scale mining activities for over centuries. Ledwaba assert that historically, ASM has been crucial for supporting marginalized and rural populations as a livelihood source. She further argues that ASM typically operate with basic tools and traditional knowledge transmitted across generations. Ledwaba contends that this bond with heritage and culture fundamentally characterises ASM.

Goetz (2022) found that ASM typically engage in an array of commodities, with the selection influenced by factors such as deposit accessibility, ease of mining and extraction, and market demand. The primary resources mined by ASM operators globally include gold, coal, diamonds, and construction materials such as clay, sand, sandstone, granite and slate. The extent to which value can be added depends on the particular commodity involved. Katz-Lavigne (2020) asserted that while construction minerals can be processed into bricks by ASM entrepreneurs,

precious metals must typically be sold in their raw form as ASM lacks the capacity for refining. Due to the fundamental characteristics of ASM operations, their mining methods are typically limited to simple open pit rather than underground excavations.

Bester & Groenewald (2021) pointed out that the MPRDA categorised the artisanal mining sector together with the small-scale mining sector as ASM. They further note that this legislation focusses primarily on large-scale mining and, where it references small-scale mining, it is not really applicable to the artisanal miners. The Act is not able to differentiate between the small-scale and the artisanal sectors because it lacks a simple definition for each. This lack, coupled with recommendations from different authors, led to the DMRE working to differentiate and define the two concepts. Consequently, the DMRE (2022) defined artisanal mining as "*the traditional and customary mining operations using traditional or customary ways and means*" while small scale mining means "*a prospecting or mining operation which does not employ specialised prospecting, mechanised mining technologies, chemicals including mercury and cyanide or explosives; or the proposed prospecting or mining operations, do not involve an investment or expenditure which exceed such amount as may be prescribed"* (p.6).

Bester & Groenewald (2021) defined illegal mining in South Africa as a mining activity conducted outside the regulatory framework and without the requisite permits or rights. typically, associated with criminal activities, known as Zama Zamas (a Zulu name meaning "*we are trying*"). Factors contributing to illegal mining include poverty, high profit margins, corruption, lack of alternative means, demand for minerals and inadequate monitoring and surveillance. However, it is important to note that not all individuals participating in ASM activities as Zama Zamas are involved in criminal activities; many artisanal miners undertake ASM activities simply to survive economically.

ASM encounter numerous challenges, with miners often working in difficult conditions that expose them to occupational hazards and health risks. Additionally, environmental degradation poses a significant concern, given that unregulated practices may cause deforestation, water pollution and soil erosion. Further, the lack of formalisation and oversight can contribute to illegal activities, including child

labour and minerals smuggling. Despite these obstacles, Hoadley & Limpitlaw (2004) argue that ASM plays a crucial economic role by providing livelihoods for millions, especially in remote areas of South Africa. Moreover, it serves as a vital source of essential minerals used in industries like electronics and jewellery. According to Arthur-Homes & Busia (2022), ASM frequently functions as an essential support system for communities during economic downturns or crises.

2.1.1 The Mine Value Chain and its applicability to ASM

In the context of the mining industry, Figure 1 illustrates the value chain as a transformative journey from resource extraction to sustainable practices, potentially establishing a significant source of competitive advantage (Boaduo, 2022). At each stage, value is added until the mineral is sold to the market. The value chain is generally applicable to the mining industry irrespective of the commodity and the scale of mining.

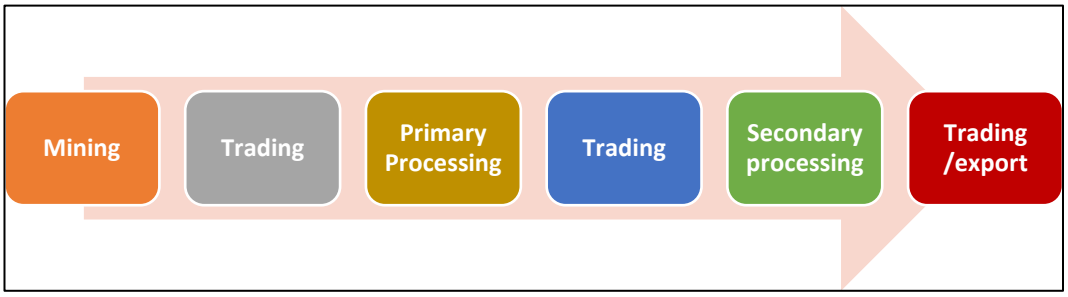

Figure 1 Generic ASM Value Chain (redrawn from Boaduo, 2022)

With respect to ASM, most operators will sell their product as soon as they have extracted it from the ground, with little thought as to how it might be moved along the value chain to deliver a higher value. Consequently, it is imperative for such operators to understand their value chain as it can assist them to appreciate where they may attain the most value for their product.

2.1.2 ASM Policies elsewhere in Africa

ASM activities are common to most African countries. While commodities and the number of people involved in ASM activities may vary, many similarities are seen in all the countries where ASM is an important contributor to the local economy. One feature common to all legislation perused is that there are no clear definitions

of artisanal vs small-scale mining, although they are informally discussed in terms of scale of operation, number of people employed, type of mining methods employed and whether they have formal permits to operate.

Tychsen et al., (2017) contend that countries are faced with difficulties where ASM is popular. Many of the challenges faced by the ASM sectors in these countries are similar and include issues around gender-based violence, child labour, mine health and safety as well as criminality associated with illegal mining activities. Associated environmental issues of ecological degradation, deforestation and the destruction of habitats for humans, fauna and flora are also common.

Many African countries have attempted to mitigate the problems of ASM by creating policies specific to this sector. Several of these are discussed below with a view to which policies have been implemented and how effective they have been.

Ghana

The Small-Scale Mining Law of 1989 and many of the provisions of the Minerals Act of 2006, applied exclusively to Ghanaians (The Republic of Ghana, 2006). These legislative measures were implemented to provide a source of livelihood and income for the people of Ghana.

In terms of the 1989 Act, formal ASM (often referred to as small-scale mining) have licences and permits granted by law, and they operate within policies, regulations and mining standards. For a person to apply for such permits or licences they must be over 18 years of age. The informal ASMs typically do not have the required permits and licences and are legally non-compliant. However, according to Bansah et al., (2017) they typically operate with the social licence granted by the local communities and are called "*galamsey*".

The Minerals Commission is regulatory body established by the Minerals Commission Act of 1993 to regulate and manage the mineral resources of Ghana, mainly to manage the development, utilisation, and the exploration of the mineral resources (Appiah, 1998). The Minerals and Mining Act of 2006 authorised the Minister to designate ASM operations areas. Tychsen et al., (2022) highlight that

this Act was subsequently amended by the Minerals and Mining Amendment Bill of 2014 (Mineral Development Fund Bill), which amended the Minerals and Mining Act of 2006 to enable the Minister of Lands and Natural Resources to enable the confiscation of equipment used in illegal artisanal and small-scale mining operations.

The Precious Minerals Marketing Corporation Law of 1989 plays a significant role in the marketing and regulation of the precious mineral sector, as it promotes sustainable development by trying to ensure that the mineral resources are effectively managed and benefit the people of Ghana. The law outlines the standards on meeting requirements for permits and licences for mining. Tychsen et al., (2017) emphasize that the law primarily focusses on regulating the precious minerals sector, establishment of the precious minerals marketing corporation, promotion of fair-trade practices, revenue generation and management and support of small-scale miners.

Gatune & Besada (2020) and McQuilken & Hilson (2016) suggest that Ghana has made many attempts to regulate ASM using various amended polies under the Minerals and Mining Act of 2006. However, challenges still persist and ASM operators continue mining informally, primarily due to financial constraints (Mensah, 2021). Nevertheless, despite the challenges, ASM contributes greatly towards the socioeconomic development of the community. Currently the status on formalizing ASM in Ghana is still an ongoing process.

Zimbabwe

The Zimbabwe Economic Policy Analysis and Research Unit (ZEPARU) notes that all mining activities, including the ASM sector in Zimbabwe, are managed and registered by the Ministry of Mines and Minerals Development under the provisions of the Mines and Minerals Act of 1996 (ZEPARU, 2018). The associated Environmental Management Act includes ASM activities in terms of environmental impact assessments and rehabilitation requirements. However, the requirements on the Environmental Management Act tend to favour the large-scale operators – the provisions for acquiring licences are onerous and do not apply directly to the ASM situation.

Hentschel et al., (2003) argue that the lack of applicability of these regulations to the ASM sector generally results in limited mine closure procedures being followed, with no rehabilitation requirements being met, resulting in, *inter alia*, acid mine drainage. Further, the irresponsible use of mercury in the refining of gold poses a threat to the health of human, animal, and aquatic life since much of the minerals processing is done closer to riverbanks and contaminates both water bodies and soils.

The Mineral and Marketing Corporation of Zimbabwe Act established the Minerals Marketing Corporation of Zimbabwe (MMCZ), crucial for marketing and selling of minerals. In conjunction with the MMCZ, the Zimbabwe Artisanal and Small-Scale Miners Council Act was established to support the ASM sector with training, empowerment, and formalisation of the sector.

Despite these regulations, Zimbabwe still faces challenges in regulating ASM, which remains largely unregulated, lacks safety and health management, and technical skills (Ncube, 2023). Additionally, current regulations are similar to those for the large-scale mining industry and are not directly applicable in dealing with the challenges faced with the ASM sector.

Nigeria

The legislation governing artisanal mining in Nigeria is the Minerals and Mining Act of 2007 and is supported by the Minerals and Mining Regulation of 2011. Atoyebi (2022) suggested that through these regulations, the government aimed to address the specific challenges faced by the sector, namely environmental protection, health and safety, sustainable mining practices, training of miners and the communities, as well as private sector engagement. Goldman, et al., (2014) noted that these regulations included processes to regulate the use of mercury and matters associated with child labour. Jaiyeola (2020) further notes the status of ASM formalisation in the country is positively progressing with efforts to recognise and regulate the ASM operations.

African Union

A study by the African Minerals Development Centre (AMDC) highlighted inconsistencies, confusions and general lack of applicability of mining regulations to the ASM sector throughout Africa (AMDC, 2013). In response, the African Union (AU), through the AMDC, created a policy guidance document aligned with the aspirations of the African Mining Vision (AMDC, 2023). This document is written in recognition of the importance of ASM in Africa as well as all the challenges.

The guideline document contains recommendations (and descriptions of good practice) in support of African countries in regulating ASM by stressing the value of collaborative efforts and sustainable practices which includes encouraging formalisation of the sector. Other suggested areas of improvement of ASM activities reported by the AU (2009) involves intensifying protection of the environment, safeguarding health, and safety, reinforcing ASM socio-economic development and promoting responsible mining practices. in addition, the AU recommends promoting access to finance, supporting ASM operators with services and equipment, encouraging responsible environmental standards and stimulating training within the sector. These recommendations are intended to guide African countries in creating strong regulatory frameworks which supports formalisation, growth and sustainability within the sector.

The AU document acknowledges that for any ASM country policy to be effective, it needs to be broken down into specific elements to be implemented effectively. These elements then need to be monitored and evaluated continually for effectiveness. Each of these elements would need to be tailored for the specific country policy and the resultant policy would need periodic reviews.

2.1.3 Global ASM policies

Fritz et al., (2018) assert that ASM is not only important in the local economies of Africa, but it also plays a vital role in other regions of the world. Similar challenges are also experienced in these areas. The sections below look at two such areas where ASM activities are abundant (Latin America and the Philippines) to identify

how these countries have implemented legislation that have had a measure of positive benefits.

The Philippines

Legislation dating back to 1899 laid the groundwork to create legal frameworks that supports ASM activities to create more employment opportunities, alleviate poverty and living conditions in the surrounding communities The Presidential Decree of 1984 (Presidential Decree (The Philippines), 1984) states that further objective was to develop small mineral deposits that would contribute towards foreign exchange earnings and ensure sustainable mineral resource management.

- Plaza (2019) asserts that the Republic Act 7076, known as the People's Small- Scale Mining Act of 1991, was intended to develop programs that develop, promote, protect and rationalise feasible ASM operations in order to create employment opportunities. The Act defined small-scale mining, small-scale contractor, small-scale miners and other related terms to establish the framework for regulating ASM operations.
- The Philippine Mining Act of 1995 (Senate and House of Representatives of the Phillipines, 1995) was aimed at modernising and empowering ASM activities to ensure sustainable development and environmental protection. The Act asserted the state's responsibility to promote public-private partnerships (as cited in Hruschka, 2015). Other important aspects of this legislation were to give recognition to the rights of indigenous cultural communities in the extracting and exploiting natural resources within their ancestral domains.

Fritz et al., (2018) assert that despite the efforts of the government to formalise the ASM sector, challenges persist caused by the failure in addressing the specific needs and concerns of the ASM sector. Nevertheless, the Philippines ASM organisational structure has evolved remarkably, with growing distinctions between ASM entrepreneurs and large workforce, generating multi-level isolation of labour and great risk-benefit arrangements.

Latin America

Fritz et al., (2018) highlight that in Latin America, the largest number of ASM operators can be found in Brazil, Colombia, and Peru. In 1991 a total of 641,875 ASM operators was estimated across 17 countries, and in 2014, ASM operators spread over 19 countries. Similar to Africa and the Philippines, the Latin America ASM sector is faced with a network of challenges which includes environmental impacts, economic drivers, regulatory issues and the social challenges, health risks and security concerns.

Studies by Fritz et al., (2018) and Arguedas, et al, (2015) suggested that the successful Latin American ASM initiatives to address ASM issues include the "*Fairmined*" and "*Fairtrade*" Gold Standards which have been implemented in Colombia, Bolivia and Peru. These initiatives work with mining cooperatives to meet certification requirements to improve mining practices and improve access to markets by being transparent with traceable supply chains.

Furthermore, Fritz et al., (2018) noted another successful initiative, "*solidaridad*", an organisation working with mining cooperatives in Argentina, Bolivia, Colombia, and Peru (Low, 2015) that assist in meeting certification requirements for Fairmined and Fairtrade Gold standards. The efforts of these organisations have contributed to revamping mining practices and promoting responsible sourcing of minerals.

However, Hruschka (2015) and Fritz et al., (2018) argue that not all policies have resulted in benefits to the ASM sector. Challenges such as marginalisation and criminalisation persist, according to Malone, et al., (2023). These problems continue as a result of aging legal and insensitive interdiction procedures, with more ASM operations becoming illegal because of outgrowing their classification under outdated laws.

The review of ASM policies across Africa and globally offer valuable lessons for South Africa, both showing successes and challenges that can guide South Africa's approach. First, it is important to establish clear distinctions between "artisanal "and small-scale "mining to prevent regulatory confusion, as seen in Ghana and

Zimbabwe. The challenges faced by Ghana and Zimbabwe in formalizing ASM suggest that simplifying licensing processes or offering specialised permits, such as creating specific ASM zones or offering specialised permits could assist improve compliance in South Africa, rather than relying on large-scale mining regulations. Countries such as Ghana and Zimbabwe highlight the challenges of complicated permit processes and steep fees that discourage formalization, a problem also experienced in South Africa.

Environmental protection is a major global challenge, as can be seen by countries such as the Philippines and Latin America facing damage from unregulated mining practices. South Africa is also faced with risks from pollution and habitat degradation associated with ASM, and programs like the Fairmined and Fairtrade Gold Standards could assist in improving environmental practices. Furthermore, tackling environmental and social issues, such as pollution and unsafe working conditions, by means of protections designed for ASM is crucial, as shown by countries like Zimbabwe and Nigeria.

The AU's recommendations emphasise the importance of cooperation among governments, miners, and communities, which could support South Africa in addressing issues such as hazardous working conditions and financial difficulties. Through effective partnerships, stakeholders collaborate to establish sustainable practices and guarantee a fair distribution of benefits derived from mining activities. This united approach can also contribute to developing solutions that promote safer conditions and uplift the livelihoods for ASM’s. Additionally, these efforts can support formalisation of ASM practices, facilitating their inclusion into the wider economy.

Overall, the global lessons stress the necessity for adaptable, ASM-focused policies that encourage both economic growth and sustainable practices, which will be crucial for upcoming developments in South Africa’s ASM sector. This framework contains general experiences that South Africa might consider in navigating the complex ASM landscape.

2.1.4 ASM in South Africa

According to Mhangara, et al., (2020), ASM is a fundamental part of South Africa's long-standing mineral extraction landscape. Dating back to the 19th century, traditional artisanal mining activities, especially in the gold and diamond sectors, have been evident. However, over time, there have been substantial changes in the South African government's approach to regulating ASM, with little attention paid to social or environmental concerns. During the colonial era, exploitative practices were frequently emphasized. However, after attaining independence, South Africa started creating its own rules to formalise and incorporate ASM operations into the mining industry.

Historical legislation

The historical record of legislation of permits for small-scale miners goes back to the discovery of diamond deposits in the late 1886. In a legal treatise, Higgs (2017) describes how legislation over the years has impacted the small-scale miner:

- Soon after the discovery of diamonds along the Vaal River in the late 1800s, a system of claims (roughly 10m x 10m each) was instituted by the various governments of the Cape Colony, the Griqualand West territory, the Natal Colony and the two Boer Republics, being the Republic of the Orange Free State and the *Zuid-Afrikaansche Republiek.* Such claims were set aside in known diamondiferous locations (on Crown Lands or Private Lands or on "debris", which was the historical term for kimberlite tailings dumps) for the exclusive use of artisanal and small-scale operators, who in these early years were owned primarily by Europeans with Black labourers. These claim areas were known as "proclaimed" diggings.
- Similar legal constructs for small-scale diamond diggers were upheld through various amendment acts in 1903, 1910, 1919 and 1927. The 1919 Act also made provision for small-scale gold and coal operators in Natal.
- The 1927 Precious Stones Act was notable in that vast tracts of land were proclaimed around Lichtenburg, Barkly West, Kimberley, Bloemhof and along the Namaqualand West Coast for the exclusive use of small-scale miners. While these were initially confined to white males (known locally as poor whites, Clynick (1984) notes that soon after the depression of the 1930s, black diggers emerged in many of these areas.

- These provisions continued in the 1964 Precious Stones Act and by the late 1970's most of the claimholders in the alluvial diamond fields were black artisanal operators (Marshall, pers. Comm). While living and working conditions were far from favourable, the provisions did prevent the small-scale operators from being taken over by larger mining companies and/or being harassed by local landowners.
- The 1991 Minerals Act repealed all the previous provisions and within two years had de-proclaimed all claims set aside for small-scale and artisanal miners. TRAC Newsletter (1992) demonstrates that the deproclamation had a devastating effect on many local black communities, resulting in forced removals from land they had lived on for generations and the loss of means of employment.

Following the end of apartheid in the 1994, South Africa focused on developing a mining sector that is more diverse. While this was done primarily through the MPRDA of 2002 and the Mining Charter of 2004, various other developments took place that affected the ASM industry, as shown in Figure 2.

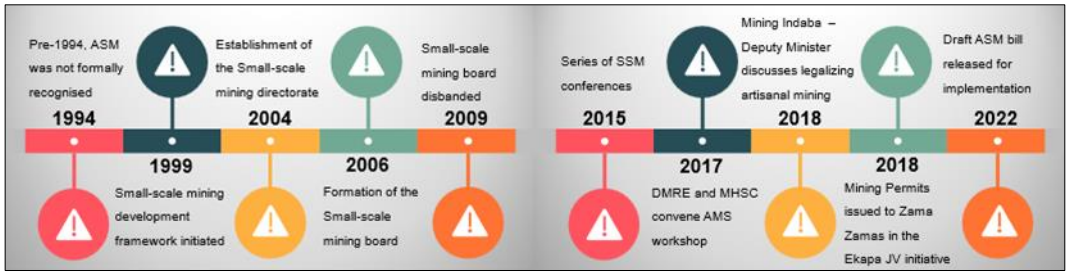

Figure 2 Developments within the South African ASM sector since 1994 *(Redrawn from: The University of British Columbia and Canadian International Resources and Development Institute 2019).*

The Mineral and Petroleum Resources Development Act

The Mineral and Petroleum Resources Development Act (MPRDA), Act 28 was established in 2002 to manage the exploitation of mineral and petroleum resources of the country. The intention of the MPRDA was to reconstruct the mining industry by ensuring broad-based access to the mineral resources to promote sustainable

development and enhance equitable participation. The MPRDA established that the state was the custodian of the nation's minerals and petroleum reserves and appoints all resources as the common inheritance of the people of South Africa. The Act aims to control the exploitation of the resources, enhance environmental management, and empower the government to grant, refuse, govern, and manage mining and petroleum rights.

The establishment of the Mining Charter in 2004, under Section 100 of the MPRDA, aimed to encourage change that would increase opportunities for historically disadvantaged South Africans (HDSAs) to get involved in, and effectively participate in, mining activities. Ndlazi (2022), as well as the DMRE in 2010 and in 2023 all state that the MPRDA was implemented in relation to the Mining Charter to achieve socio-economic change in the mining sector. The regulatory framework, together with the Mining Charter, was created to address issues of ownership, empowerment, and change within the industry, certifying that the benefits of resources are divided fairly among all citizens of South Africa (DMRE, 2023).

As asserted by the DMRE (2023), the MPRDA primarily concentrated on enhancing equitable access, empowering historically disadvantaged individuals (HDIs), and promoting environmental management within the mining industry. Additionally, the Act profiles regulations for exploration, mining rights, prospecting rights, mining permits, environmental management, and closure certificates. The intention is to hold the rights holders accountable for environmental liabilities until such time that proper closure as per the procedure is completed.

Bester (2023) highlighted several initiatives that were launched to support the ASM industry shortly after the MPRDA was passed in 2002. Most notable among these includes provisions for mining permits (as opposed to mining rights) to facilitate small scale mining operations, despite ASM not being officially recognised as a part of the mining sector. Ledwaba & Mutemeri (2018) argued that these permits, nonetheless, require compliance with environmental laws, proof of financial capability for rehabilitation, demonstration of technical proficiency, and engagement with interested and affected parties.

To accommodate artisanal and small-scale miners, the MPRDA established a "special permission." This provision, alongside the standard mining permit, addresses particular needs or situations that do not fit the typical criteria for obtaining a mining permit. Initially, mining permits were granted under the stipulation that a mineral deposit could be fully utilised within two years (with a total extension of five years after renewal) for an area spanning 1.5 hectares. Five hectares were added to the size extent during the 2008 MPRDA Amendments, and subsequent revisions under the 2010 Amendment Bill extended the renewal period to up to seven years.

In 2014, an important amendment known as the "*One Environmental System*" went into effect. This system contains strict regulations and a cumbersome application process and combines aspects of environmental requirements with mining applications. Both the Department of Environmental Affairs (DEA) and the DMRE are involved in the decision-making process for issuing mining permits. Hentschel et al., (2003) highlight that the Act mandated anyone seeking a mining permit from the Minister to also apply for environmental authorisation. This requirement indicated that the Environmental Impact Assessment (EIA) application (under NEMA) and the mining permit application (under the MPRDA) had to be submitted concurrently. It also implied that a mining license could only be issued after a NEMA Environmental Authorization had been granted under the MPRDA.

Boaduo (2022) reported that the South African Mineral Resources Administrative System (SAMRAD) was implemented in 2011 as an online portal for the applications for all mining permits/licences. However, ASMs found it difficult to navigate this system, despite attempts by DMRE personnel to help with the applications. SAMRAD is not user-friendly and frequently becomes non-responsive. The system has been widely identified as being almost unworkable in processing mining license applications effectively.

Boaduo (2022) noted that due to legislative and legal shortcomings, the licensing and regulatory framework had not fully accommodated the wide array of participants engaged in ASM activities. Despite the shortage of definite provisions in the MPRDA for the sector, the Act laid a foundation for the governance of mineral, emphasizing equitable access, empowerment of HDIs, and sustainable

environmental management. Nevertheless, as lamented by Ledwaba & Nhlengetwa (2015), ASM-related problems such as limited access to funding, difficulties in obtaining licences, and conflicting legislation have persisted, resulting in the persistence of informal ASM operations despite governmental initiatives.

After significant research and many complaints from various communities, the government eventually realised the need to investigate reshaping the requirements stipulated under section 27 of the MPRDA. This eventually led to the development of the ASM Policy in 2022.

The Artisanal and Small-Scale Mining (ASM) Policy

According to Adonisi et al., (2022), the ASM policy that was implemented in March 2022 resulted in the artisanal mining industry taking its first step toward legalisation. The ASM Policy purposed to close gaps in the existing legal framework by proposing mechanisms to formalise ASM; gaps such as the definition of ASM, and the length of the duration of mining permits. For the first time, the ASM Policy distinguished between small-scale mining and artisanal mining, establishing regulations that consider the specific characteristics of each type of operation.

The 2022 ASM policy (DMRE, 2022) defines artisanal mining as, "*the traditional and customary mining operations using traditional or customary ways and means*" This involves mining activities done by individuals or groups of people making use of rudimentary and manual mechanisms to access minerals which are mainly on surface, with a thresholds investment amount of 1 million Rands for ASM. By contrast, small scale mining was defined as "*a prospecting or mining operation which does not employ specialised prospecting, mechanised mining technologies, chemicals including mercury and cyanide or explosives; or the proposed prospecting or mining operations, do not involve an investment or expenditure which exceed such amount as may be prescribed*", with a threshold's investment amount of 10 million Rands (p.6).

Adonisi et al., (2022) further noted that the ASM Policy differentiates between illegal miners, subject to prosecution under the Criminal Procedure Act of 1977 and

other laws, and ASM Permit holders who operate legally. Additionally, they highlighted that the ASM Policy incorporates a "graduation provision," which facilitates the transition of artisanal miners to small-scale mining based on output and investment thresholds and enables small-scale miners to progress to medium, junior, or emerging mining categories. However, the 2022 ASM Policy does not detail the operation of the graduation provision or its functionality.

The objective of the ASM policy is to simplify issues for the ASM community. The provisions cover a wide range of applications. These are discussed briefly below.

The Licensing Regime and Administrations

The Licensing Regime and Administrations under the ASM policy 2022 advocates a separate mining permit for artisanal and small-scale miners. These licensing requirements, procedures, and systems should be clear and sufficiently simple for all applicants to understand and use.

Nhlengetwa (2022) outlines that the DMRE proposes a first come, first serve procedure for licensing, with the department having the right to invite applications. Permits must be reserved for South African citizens over 18 years of age and for South African companies. Permit dimensions vary according to mineral type, environment, financial framework. All permit holders must comply with the environmental and mine health and safety standards and adhere to tax law.

As a result, the government policy advocated specific actions to align the industry's licensing system and administration with global best practices, and to serve the interests of the South African people. Table 1 illustrates the challenges faced by the ASM sector and outlines proposed interventions for its sustainable development in Licensing and Administration, as detailed in the Government Gazette (DMRE, 2022).

Table 1 Key Licensing Regime and Administration Challenges

Challenges	Interventions
Types of permits	Under the dedicated policy and regulatory framework, there are two types of permits: one for artisanal mining and another for small-scale mining.
Licensing method	In addition to the present first-come, first-served application process being kept in place as the default licensing method, the Policy recommended a dual licensing approach. However, the Government will have the authority to issue invitations for artisanal mining or small-scale mining in selected regions.
Licensing Criteria	According to the ASM Policy (2022), license decisions for ASM operations must be made in a fair, equitable, and transparent manner while taking into account the requirement to achieve the Policy's goals – the necessity of facilitating HDSA's entry and meaningful engagement in the mining industry, to contribute to job creation, to contribute to socioeconomic development, to promote co-operatives, to give women and disadvantaged groups' interests in the ASM industry first priority, to give permit holders training and skill development in mining operations top priority, to formalise the sector, which includes the requirement for participation in ASM entities, and enables the transition to medium- and large-scale mining activities.

Legal nature of the permit	The 2022 ASM Policy states that it is important to understand the legal differences between small-scale and artisanal mining permits. As with mining rights provided in accordance with the MPRDA, these licenses should be restricted real rights that are granted and registered by the Department and are capitalisable, transferable, and mortgageable. A permit holder must be able to hold third parties accountable for violating the permit's conditions.
Duration of an ASM operation in years	The security of ownership for permit holders should be guaranteed when determining the length of ASM permits. Principles of sustainability and efficient resource use should be incorporated into this, and benefits should start to flow to permit holders as soon as practicable.

The ASM Policy of South Africa, as outlined by the DMRE (2022) empowers the Minister to designate specific areas as ASM areas based on geological data and the prevalence of ASM activities. These demarcations are intended to improve resource utilisation, split risks and benefits among stakeholders, and ensure smooth sustainable development. The Policy limits ASM operations to surface and open-cast mining, thus reducing risks associated with underground mining. It gives priority to cooperatives in issuing permits for a broader economic effect and risk-sharing. Additionally, the Policy highlights transferability and encumbrance of permits, enhancing effective mineral resource utilisation and preventing stagnant mining. It also highlights the co-existence of ASM with large-scale operations, mining tailings and mine dumps, and ensures access to land for ASM operators, aligned with the fundamentals of sustainability and accountable mining practices.

Institutional and Support Mechanisms

The DMREs department of Small-Scale Mining Directorate is the designated organisational structure responsible for serving the ASM sector. However, this has not proved to be up to the task of fully supporting the ASM sector. This is primarily due to poor coordination and cooperation with other, associated departments (such

as forestry) which also have a direct interest in the development of the ASM industry and can contribute to its growth.

The ASM Policy in South Africa incorporates provisions for the initiation of central or regional mining offices to give institutional support for ASM operations and calls for the participation of an association of artisanal miners in guiding ASM operations. The regional offices are intended to smoothen the licensing process, disseminate information and provide extensive services to ASM operators, which does not always happen as envisioned.

According to DMRE (2022), the Policy also highlights the formation of cooperatives and concessions, encouraging risk-sharing and increasing the impact of ASM projects. Moreover, the Policy addresses the financial challenges faced by ASM operators by recommending a tightening of their business cases to access funding from various institutions. Additionally, it emphasises the significance of training, skills development, and innovation within the ASM sector, giving attention to technical skills, business management, environmental management, and health and safety to ensure sustainable and adherence in mining practices.

Taxation

DMRE (2022) highlights that the 2022 ASM Policy of South Africa addresses taxation by taking into consideration the formation and introduction of incentives like lower tax rates, tax rebates, and exemptions for the ASM industry to formalise and adhere with the law. The intention is to generate a regulatory framework that encourages compliance with tax obligations within the ASM sector, in consultation with the National Treasury. It also recommends untangling the tax collection system for ASM sector, by giving training and educational programs, and dealing decisively with illegal mining operations to encourage formalisation. Additionally, the Policy emphasises the need to simplify the role of development finance institutions and promotes the value of distinguishing between artisanal and small-scale miners with respect to taxation and regulatory requirements.

Management of Environmental Health & Safety and Water Use Considerations

Adonisi et al., (2022) emphasise that the ASM Policy underscores the importance of adhering with requirements set for environmental management, health and safety, and water use considerations for ASM activities. The Policy calls for ASM entities to comply with the current environmental and mine health and safety rules. Additionally, the government, in association with industry stakeholders, will supply training, empowerment, and education to ASM operators on these complaisance aspects. The Policy also highlights the need for stricter reporting procedures to oversee the progress of the ASM sector.

However, the majority of ASM operations fail to meet the environment, health and safety, and water usage standards. Neither do their operations adhere to the rules for mine closures or rehabilitation. As a result, the ASM sector has not experienced the intended benefits of implementing the One Environmental Management system, aimed at simplifying licensing procedures relating to environmental management, water use and mining activities. Instead, the system has increased operating costs for ASM. For many people who desire to work in the mining business, the license requirements, which include those for financial cost, environmental management, and water by environmental assessment practitioners, offer a barrier.

Government Policy Stance on Illegal Mining

The Policy stresses the government's policy stance on illegal mining by highlighting the critical challenge that illegal mining present to mining and minerals industry of the country (DMRE, 2022; Minerals Council of South Africa, 2019). The Policy appreciates that a notable number of individuals are associated with illegal mining activities, which guides to major revenue losses and negatively influence various sectors particularly gold, coal, chrome, and diamonds. The government disapproves illegal mining operations and is taking steps to fight these practices (Panchia, 2023). To address illegal mining activities, the Policy profiles the duty of the National Coordinating and Strategic Management Team and the generation of Illegal Mining and Precious Metals Theft Unit. The intention of these initiatives is to prevent illegal mining and promote compliance within South African laws. Additionally, the Policy emphasises the need associated with the amendments to

legislate, to reinforce efforts contrary to illegal mining and safeguard communities from the unfavourable effects of these activities (Sibiya, 2014).

Reporting and Accountability

The Policy emphasises stricter reporting requirements and accountability measures to promote transparency and governance within the industry (DMRE, 2002). It motivates for the implementation of monthly, quarterly, and annual reporting by the ASM sector on employment statistics, payment of charges, production, royalties and taxes. This focus on reporting is intended to supply the government with reliable and precise data to evaluate the sector's development and effects on the economy. Additionally, the Policy encourages regular industry-wide evaluations, training programs for miners on recording and reporting, tailored reporting structure for ASM and the development of simple reporting methods to smooth data collection and analysis. By enhancing strong reporting procedures and accountability practices, the ASM Policy seeks to foster responsible mining practices, better data accuracy, and promote informed decision-making within the ASM industry.

2.2 Key Debates and Controversies

While the objectives of the MPRDA and the ASM Policy are laudable, they have not been universally successful either in legislation or in implementation. Some of the more obvious issues and challenges are described briefly below.

Inappropriate benchmarking

Benchmarking regulatory frameworks elsewhere in Africa may not be the best comparison to South Africa because of different ore deposit styles. Those countries have greater numbers of smaller ore deposits, whereas the key deposit types in South Africa are large tabular orebodies. A small-scale mine or even an artisanal project in South Africa could easily be a much larger operation than (for example) a pegmatite mine in a West African country (pers. Comm., GSSA 2021).

South African mining operations' scale and complexity, as highlighted by Debrah, et al., (2014), are driven by the existence of major orebodies which require special regulatory frameworks. Therefore, referencing South African ASM policies against countries with smaller ore deposits may not give a true reflection of the regulatory requirements and operational realities faced by ASM activities, emphasising the significance of context-specific policy development and implementation.

Inappropriate definitions

Several issues also arise with respect to the prevailing definitions within the ASM Policy. The Policy currently defines differences between artisanal and small-scale mining in terms of the number of employees; the amount and type of mechanisation involved in the mining and process and the annual turnover of the operation however, there are operations that employ large numbers of people, but who work according to the proposed artisanal definition. There are also artisanal miners who utilise heavy machinery. These overlaps in the entities will be exploited as loopholes.

Creating transparent boundaries between ASM and SSM presents a significant challenge, as the different nature of mining activities and the equipment used confuse the classification process. Addressing these ambiguous definitions will be key to ensure the effectiveness implementation of the South African ASM policies, as highlighted by Fritz et al., (2018).

Fronting

According to Warikandwa & Osode (2017) and Matotoka & Odeku (2022), an unintended consequence of the ASM Policy involves potential problems with fronting (and ensuing corruption). The ASM Policy reserves ASM permits for South African citizens. However, it must be appreciated that many local South Africans may lack the finance and mining knowledge that some foreigners may have. This has often resulted in the creation of joint ventures between foreigners and locals, with the locals having their name on the permit, while the actual ownership of the operation may vest in the foreigner.

Licencing regime and associated costs

The requirement for ASM operators to register with national and local ASM associations is another concerning factor. This directive may be impractical due to uncertainties encompassing the nature and management of these organisations. The absence of clarity around the identity and administration of these associations raises concerns about possible corruption within the registration process. Without transparency of definitions and control mechanisms for these organisations, there is high likelihood of exploitation and abuse of power, undermining the proposed formalisation and regulation of ASM sector. Maconachie & Conteh (2021), claims that this ambiguity focusses a crucial area where the ASM Policy may require further polishing to ensure transparency, accountability, and successful implementation. Convincing legitimate artisanal and small miners to accept increased regulatory processes and administrative burden will be challenging.

A further issue lies in the licencing regime and administration costs (including issues of application system and SAMRAD). The difficulties encompassing licensing procedures, integrated with high administrative costs, generates hurdles for ASM operators to acquire the required permits and work within the legal framework (EiTi, 2022). Boaduo, (2022) stated that the SAMRAD system used to lodge the online applications have been identified as being weak, with questionable transparency.

ASM battle to meet the set requirements of the MPRDA permits, which inhibits their ability to work within the legal framework and obtain the essential permits to manage mining operations. According to Mbere & Pinto (2022) the ASM issue of meeting permit requirements is still a struggle. The ASM Policy does not clearly address the ASM, it is not that different from section 27 of the MPRDA, in terms of the requirements for obtaining permits (EiTi, 2022).

Environmental regulatory constraints

Strict environmental and water use requirements for ASM in South Africa creates significant challenges for the industry. The informal state of ASM operations, combined with restricted capacity, knowledge, and financial resources, makes it almost impossible for ASM operators to adhere with these strict regulations. The

initiation of the *one environmental management system*, focused on streamlining licensing requirements for water use, mining activities and environmental management has increased the costs of getting into business for ASM operators. The financial costs linked with environmental assessment practitioners and the application fees for environmental authorisations function as blockages for individuals wanting to enter the mining industry legitimately. Additionally, non-compliance with requirements for land rehabilitation and regulations for mine closure promotes complexity in adhering to the environmental requirements by ASM.

However, the costs to the ASM operations needs to be traded off against the real need for environmental protection. The incapability of ASM operators to meet sustainable mining and rehabilitation requirements can result in further worsening environmental degradation and water pollution (DMRE, 2022; Van Koppen, et al., 2023). Consequently, there is a need to balance environmental protection with the economic realities of local communities to ensure responsible and sustainable mining methods while encouraging the livelihoods of ASM operators.

Funding and institutional support mechanisms

It has also been mentioned previously that a lack of funding remains one of the primary challenges confronting the ASM sector. This remains true despite the presence of numerous organisations that offer funds for development. DMRE (2022) reports that previous government efforts to enhance institutional capacity have not yet achieved the expected outcomes. Furthermore, the ASM industry remains highly fragmented due to the lack of recognised alliances or organized mechanisms to address its challenges. Table 2 outlines the proposed interventions aimed at addressing these challenges as presented in the ASM Policy (DMRE, 2022).

Table 2 Key Challenges and Interventions on Institutional Support Mechanisms

Challenges	Interventions
Formation of Co-operatives	The DMRE (2022) reported that the establishment of cooperatives and concessions should be encouraged by the Policy and legal framework. Due to their ability to maximise and distribute the project's effects while also participating in the risks, these co-operatives and concessions will be given preference when applications are processed.
Financial Assistance	The majority of ASM's challenges are financial, which is why there are so many illegal businesses. In addition, the DMRE (2022) stated that even though the government may not be able to finance ASM, they should provide help in improving their business case so that the ASM may seek other funding sources for money and investing into their operations through expanding services.
Training, Skills Development, and Innovation	Another major issue for ASM, according to the DMRE (2022), is the absence of training in a variety of fields, including business management and technical capabilities for effective mineral resource extraction. Therefore, the ASM Policy recommended cooperation with organisations that offer training courses to help small-scale miners. These interventions must focus on teaching business management, health and safety, and environmental management skills. This will be essential for the industry's general framework to ensure that ASM is sustainable and capable of meeting the requisite standards.

Lack of technology

Ledwaba (2017) highlights that ASM operators usually lack the financial resources to invest in modern technology, essential equipment and machinery to mine and

process minerals productively and ensure safe operational practices. This technological gap leads to lower yields, inefficiencies, unsafe working conditions, which leads to accidents, injuries, and even fatalities in the sector.

Schwartz et al., (2020) assert that the lack of appropriate technology in ASM operations contributes to difficulties in adhering with the set environmental regulations and health and safety procedures. They highlight that the dependency on rudimentary tools and manual methods not only inhibits the rate of operations but also presents risks to the health of the operators and the environment. The authors emphasise that absence of innovative technology continues to aggravate the challenges faced with the sector's in analysing markets, securing financing, and adherence with legal requirements, hampering its overall development and sustainability.

Mine health and safety and on-mine security

Singo et al., (2022) outline various challenges faced by South African ASM related to Mine Health and Safety (MHS) and on-mine security, including unsafe working conditions, lack of training and awareness, inadequate infrastructure, use of hazardous substances, limited access to healthcare, illegal activities and criminality, gender-based violence and lack of regulation and enforcement. They highlight that ASM operators often experience risks to their physical and mental health caused by the demanding and dangerous nature of their work. Additionally, Mining Review Africa (2023) underscores that the absence of the right health and safety measures in ASM operations presents risks of accidents, injuries, and health issues, affecting miners, their families, and the surrounding communities involved in the ASM operations.

The Minerals Council of South Africa (2019) identifies on-mine security as a crucial concern for ASM operators in South Africa. They assert that the generally unregulated and informal nature of ASM operations exposes miners to various security threats such as theft, violence, and conflicts over mining sites. The Council further emphasises that the existence of armed illegal miners, explosives, security personnel, and rival groups of illegal miners exacerbates the situation. Additionally, they highlight that female ASM are especially vulnerable to gender-based violence,

such as sexual harassment and assault, both on and off mining sites. Moreover, illegal mining also has negative social and financial impacts on communities, the mining sector, and the country, influencing revenue, taxes, employment opportunities, and the industry's sustainability (Minerals Council of South Africa, 2019).

Concerns of mining companies/landowners

Mining companies and landowners have also raised various concerns regarding some aspects of the ASM Policy:

- Pelon & Walser (2009) raise concerns about the allocation of portions of projects to ASM on large mine properties. They highlighted that companies have emphasised the potential for such permits to be awarded in the middle of existing operations, particularly if the awards are under the control of government and not the mining company. This arises from concerns about safety implications and operational disruptions. The authors assert that allowing ASM operations within large mine properties without proper management by the mining company can lead to safety risks, one of the more serious being the undermining of crown pillars in underground operations. They further suggest that this predicament could result in accidents, operational disruptions and structural instability within the mine area.
- Furthermore, Pelon & Walser (2009) argue that the potential granting of ASM permits inside existing mining operations will create challenges regarding coordination, safety protocols, and the overall integrity of the mining area. They suggest that without proper oversight and control by the mining company, the integration of ASM activities within large mine properties may contribute to conflicts, logistical and, safety hazards challenges that could influence the safety and rate of mining operations.
- Ledwaba (2017) underscores that illegal mining in ASM sites escalates serious concerns relating to environmental regulations, security concerns, and rehabilitation. Additionally, the AMDC (2024) emphasises that the absence of proper regulations and oversight in ASM sites contributes to mining activities on privately owned land that do not adhere to environmental standards and safety practices.

Illegal miners

The South African ASM industry is faced with a substantial problem of illegal mining. According to Ndlazi (2022), these activities may occur in abandoned mines, informal settlements, and/or on privately owned land. The figure relating to the number of people engaged in the sector remains unknown, with an estimation in the tens of thousands. Nel (2018) adds that these operators may operate solo or even in groups, generally (but not always) using rudimentary tools and manual techniques.

Illegal miners have huge impacts on communities. These repercussions include health risks as well as environmental degradation including soil erosion, deforestation, habitat destruction, and water pollution. Malebana (2021) highlights that these practices can have permanent ecological consequences, affecting biodiversity, water resources, and soil quality.

Pedersen et al., (2021) assert that the existence of illegal miners contributes to fights over territory, theft, violence, substance abuse, and even gang violence between rival Zama Zama groups, usually followed by fatalities among miners. Moreover, the illegal activities around mining areas contribute to prostitution, social disruption, and an increased crime rate.

Landrigan et al., (2022) highlight that illegal miners mostly use crude and environmentally harmful methods, which include incorrect methods of open-pit mining and the usage of mercury and other harmful chemicals with no proper restrictions or disposal. They assert that this contributes to deforestation, habitat destruction, water pollution, and soil erosion, damaging local ecosystems and lessening the availability of natural resources essential for livelihoods of communities. Additionally, Pedersen et al., (2021) emphasise that the participation of illegal operations exacerbates these risks, influencing both the operators and the communities surrounding the ASM sites.

Illegal mining leads to serious revenue losses relating to the economy. According to Ngozo (2020), exact figures on the economic influence are difficult to determine due to the secretive nature of these activities. However, estimates show that illegal mining may cost billions of rand yearly in lost tax revenue, royalties, and legitimate mining revenue.

Moreover, illegal miners often work in unsafe working conditions with no adequate personal protective equipment and no adherence to regulations, which contributes to numerous health and safety hazards. According to Ajith et al., (2020), accidents, collapses, exposure to toxic substances, and conflicts with gang groups are common risks involved with illegal mining practices.

Ledwaba & Mutemeri (2018) contend that implementing regulations and controlling illegal mining presents difficulties for law enforcement agencies. They assert that such difficulties are increased by the extensive and often remote and inaccessible areas where these practices take place. Additionally, they highlight that the participation of organised crime syndicates in many such illegal mining operations further complicates matters. The authors argue that limited resources, corruption, and insufficient coordination between government agencies continue to complicate efforts to address the problem successfully.

Field (2022) suggests that illegal mining in South Africa is motivated by a range of factors, including the difficult socio-economic climate, lack of enforcement, high demand for minerals, accessibility of resources, social factors, inadequate regulation, and the profit motive. Field further emphasises that South Africa's challenging economic conditions drive individuals towards illegal mining as a means of survival caused by elevated levels of poverty and unemployment.

Moreover, Field (2022) asserts that the illegal mining industry offers the opportunity to access valuable resources like chrome, coal, diamond, and gold, which can be a profitable venture for those prepared to take risks. They argue that the absence of job opportunities and the desperation for income have guided many individuals to engage in illegal mining practices, despite the related dangers and legal consequences.

Schwartz et al., (2020) criticise that illegal mining is not particularly well addressed anywhere in the ASM Policy document. They argue that the Policy's expectation for illegal miners to "come forward to voluntarily subject themselves to the process of formalization" is naïve and is deemed unrealistic, given that a significant portion of the "Zama Zama" community is foreign. The authors contend that it can hardly be expected that people will come forward to register when the requirement for licensing is South African citizenship or permanent residence. They further argue that the requirement for licensing attached to South African citizenship or permanent residence creates a barrier to the registration of these miners. This matter, according to the authors, underscores a gap in the Policy's technique in addressing illegal mining and signifies the need for more nuanced strategies to solve this complex issue and integrate informal miners into the formal sector successfully.

2.3 Chapter Summary

This chapter has discussed the concepts of ASM, the value chain of ASM and its applicability to ASM. The chapter compared the different African countries in terms of the effectiveness of the legal framework employed. The comparison looked at Ghana, Zimbabwe and Nigeria. It further continued to compare the global trends and policies.

The chapter continued to describe ASM in the South African context, what it means for the economy and how the miners are affected. The chapter concluded with a discussion of the MPRDA and the ASM Policy and highlighted the key areas that these bits of legislation addressed and the challenges that remain.

3 RESEARCH APPROACH

This chapter describes the rationale for the research approach selected and presents the methods used to collect the research participant's views on the effectiveness of policies for formalising ASM in South Africa. It further explains how the data were collected, as well as how the participants were selected.

3.1 Research Design

The study was designed to collect views on the effectiveness of ASM formalisation policies. This was done through a survey comprising a structured questionnaires and interviews at selected ASM sites in Burgersfort, Kimberley, Koffiefontein and Barberton. These specific sites were selected because of ease of access to ASM sites through personal local contacts. This data was supplemented by personal field observations.

In research, combining structured questionnaires, interviews and focus groups creates a balanced strategy to data collection, with each method contributing different advantages for assessing complex topics like ASM formalisation policies. According to Kuphanga (2024) structured questionnaires are useful for collecting consistent, standardised data that allows for simple comparison and analysis through different locations, minimising bias. They are especially useful for collecting quantitative information. However, they may not grasp the detailed perspectives and personal experiences necessary for gaining a deeper understanding of the complications related to ASM formalisation.

In contrast, interviews allow an opportunity to deeply explore participants opinions and experiences, allowing deeper questioning and clarification. Whereas focus groups promote interactive group discussions, uncovering shared perspectives and encouraging participants to share thoughts they might not share in individual settings (Adams & Cox, 2008). By utilising all three methods, the researcher can collect both general patterns and detailed qualitative insights, providing a thorough understanding of the challenges surrounding ASM formalisation.

3.1.1 Sampling strategy

The sampling frame was selected based on the research objective, which aims to assess the influence of South Africa's mining legislation, particularly around the ASM sectors. As stated by Bekele & Ago, (2022), research questions typically assist in providing guidance on which groups of people should be targeted and included in the sample. In this case, the goal was to collect viewpoints from essential stake holders directly or indirectly involved with ASM activities. The sampling frame was designed to include ASM operators, government officials and representatives from large-scale mining companies(mine representatives). ASM operators from different regions such as, Kimberley (diamond), Koffiefontein (diamond), Barberton (gold) and Burgersfort (chrome), were selected to offer a broad representation of the sector, guaranteeing the study includes different commodities and geographical locations. Additionally, government officials and large-scale mining companies were included to gain perspectives on the policy landscape and the practical difficulties faced by both government and the formal mining industry.

As stated by Mocănașu,(2020), the purposive sampling approach in qualitative research provides researchers the freedom to select participants who align with the research questions. As stated by Creswell, (2009), in qualitative research, purposive sampling is utilised to choose individuals who have firsthand experience with the main phenomenon under investigation. This approach allowed the researcher to carefully choose participants who had direct involvement or experience with ASM operations, as well as those who were impacted by or participated in the policy-making process. The researcher included a variety of participants form different groups, such as ASM operators, government officials, and mine representatives, to ensure a comprehensive sample representation of various perspectives and challenges within the ASM sector. Furthermore, incorporating participants from different geographical regions and mining commodities provided a broader picture of the experiences of ASM operators across the four regions of South Africa. This comprehensive approach assisted mitigate biases linked with convenience sampling and guaranteed that critical issues pertaining to the research objectives were examined across various stakeholder groups.

According to Golzar, et al., (2022), convenience sampling involves the use of participants who are readily accessible and available to the researchers. Consequently, this sampling method allows for the collection of responses to interviews in an economical way, however, it is often criticized for selection as it may not fully align with the target population. The researcher employed a convenience sampling to select participants for the research, focussing on those who were easily accessible and willing to participate in the research. Although this method can introduce biases, it was suitable for this research given the practical difficulties of reaching participants in the ASM sector, due to the informal and sometimes illegal nature of the sector. The researcher utilised convenience sampling to connect with participants who were readily available and capable of offering important perspectives on the challenges related to ASM activities, policy execution and difficulties faced by large-scale mines and the surrounding communities.

3.1.2 Sample size

Given the nature of qualitative research and type of collected data, there are no statistical rules followed for the size of the sample that should be employed. Instead, the decision around the sample size on how many to employ, depend upon different factors, such as the research goals, data quality and the context of the research (Mocănașu, 2020).

Various researchers have recognised the difficulties in determining the appropriate sample size in qualitative research, with a general consensus suggesting a range of between 20-60 participants depending on the study's features (Bekele & Ago, 2022). However, some studies shows that smaller samples such as, 9-17 for interviews or 4-8 for focus group, are adequate to reach data saturation (Hennink & Kaiser, 2022).

The sample size for this qualitative research was established based on the principle of saturation, a standard practice in qualitative research, where data is gathered until no new information or additional themes arise from the interviews (Hennink & Kaiser, 2022). For this research, a total sample size of 60 participants was employed, aligning with the research objectives and its focus to capture

different viewpoints. This included approximately 30 ASMs from four major sites, 21 mine representatives, and nine government officials. The selected size fell within the parameters defined by the study indicating sufficiency of sample size and is regarded an appropriate number to facilitate a thorough analysis.

The survey collected and analysed the thoughts of three important groups within the ASM landscape. The first focus group comprised significant stakeholders from the DMRE, MQA and Mine Health and Safety Council (MHSC). The second group was composed of South African citizens from the ASM sector between the ages 18 and 55, who had a minimum of six months' experience working in the mining industry in the locations identified above.

The third group comprised individuals from local operating (large-scale) mines. A total of 60 individuals were interviewed, divided into three focus groups, with 50% of the respondents from the ASM sector and 50% from the policymakers and large-mine sectors. Figure 3 indicates the composition of the interview groups.

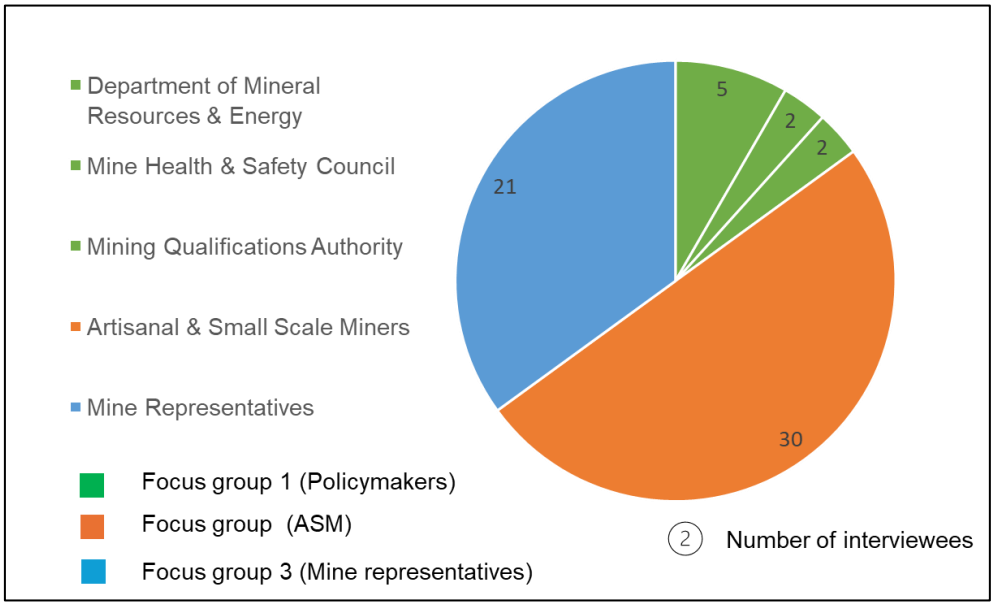

Figure 3 Composition of the interview groups

3.2 Data Collection Process

For this research, data collection was using structured questionnaires and interviews. Data collection began in September 2020. Individuals at the DMRE, MHSC and MQA were initially contacted via either phone or email with information about the research, interview and questionnaire, with a request for them to participate. The questionnaire used is appended in Appendix A of this report (Appendices B and C are the Letter of Request and Consent Forms respectively). This was then followed up by individual interviews at their offices, where participants were working. Additionally, the interviewer had the flexibility to explore further and ask more questions on responses that were considered noteworthy.

For the ASM operators who agreed to assist with the survey, the questionnaires were hand delivered and filled out immediately. Several of these participants indicated that they preferred to fill out the questionnaire and have the interviews at their homes, where they felt more comfortable and could discuss the research topic more openly and candidly. Other participants opted to have the interviews conducted at their own workplaces. Some participants agreed to simply fill out the questionnaire without participating in the follow up interview process.

3.2.1 Ethical considerations

In research, ethics refer to the guidelines and values that shape decisions about how data is gathered, interpreted and shared (Mirza, et al, 2023). When conducting research on assessing the policies for legalising ASM in South Africa, several ethical considerations were carefully addressed to ensure the integrity of the study and the protection of participants.

- Primarily, informed consent was given precedence, guaranteeing that all participants were fully informed of the research goals, their participation, and their right to withdraw whenever they feel to pull out. As highlighted by the University of the Witwatersrand ethical clearance requirements (2021) researchers must obtain voluntary informed consent from participants through a detailed consent letter explaining the study's objectives, ethical guidelines, anonymity, confidentiality, considerations, and the researcher-participant agreement prior to data collection. Simple and straightforward

consent forms were provided to participants, with verbal explanation, when necessary, particularly for those who might be unfamiliar with research procedures. The researcher supplied detailed information to all participants before they consented to participate in the study. Participants were allowed opportunities to ask questions and resolve any concerns they had prior to signing the consent form. The researcher ensured that consent was provided willingly, emphasising the participants' autonomy. This approach (Enago Academy, 2023).ensured that participants were not forced to participate and that they were fully informed of their rights, including the freedom to withdraw from the study at any point without any repercussions

- Ensuring confidentiality was another essential consideration, notably for ASM operators, who might be involved in unregulated or illegal operations. The researcher assured that all data would be kept anonymous, with personal details removed to safeguard any harm to participants' safety or legal status. All data, such as interview responses and survey responses, was securely stored, with access confined to only those directly engaged in the research, as provided for in the Protection of Person Information Act (Government Gazett, No. 37067, 2013).
- The importance of non-coercion (Enago Academy, 2023) was stressed to ensure that no participant felt obligated to take part, and that their choice would not affect their relationship with the authorities, with an emphasis that an individual should never experience any pressure to take part in a study, including any form of persuasion or misleading tactics used to gain their trust.

3.3 Data Validation Process

A key step in the data validation process is ensuring the accuracy, trustworthiness and honesty of findings. Data verification comprised reviewing the questionnaires and interviews with the participants, to ensure that their thoughts had been captured correctly.

The researcher adopted a systematic strategy to ensure the validity and reliability of the research, focussing on representative sampling, methodological accuracy,

and the application of triangulation (Whittemore, Chase, & Mandle, 2001). The research gathered data from the different focus groups as suggested by Creswell (2009), namely the policy makers, ASM operators, and representatives of formal mining operations, to collect a wide array of viewpoints on the ASM sector.

ASM operators were selected from four different locations, each representing different geographic and commodity characteristics, namely, Burgersfort (chrome), Barberton (gold), Kimberley (diamond), and Koffiefontein (diamond), allowing the researcher the opportunity to analyse the regional and commodity-related factors influencing ASM practices. Purposive sampling techniques were employed to ensure that the study addressed the difficulties of various mining environments and commodities, such as gold, chrome, and diamonds, providing a well-rounded and thorough dataset. The demographic profiling of participants, encompassing age and gender distributions, improved the samples' representativeness and highlighted imbalances, such as the underrepresentation of older females in ASM activities due to caregiving responsibilities.

To enhance reliability, the researcher employed a uniform thematic analysis across all focus groups, highlighting key common themes, such as motivations for participating in ASM, operational difficulties, and recommendations for policy improvements (Creswell, 2009). Triangulation was conducted by cross-referencing data from different sources, including interviews with policymakers, ASM operators, and formal mine representatives. Coleman, (2021) describes triangulation as the practice of analysing results from different data collection methods or sources to identify patterns that support or refine the interpretation of the results. This approach minimises the risk of bias and ensures that findings were verified across different viewpoints. The inclusion of direct quotations from participants (although anonymised) were incorporated to validate key findings, ensuring transparency by linking raw data to the study's conclusions. Further, the researcher demonstrated an awareness of limitations, such as the difficulties associated with manual labour in ASM and challenges regarding legal compliance, thus acknowledging factors that could affect the study's accuracy. These strategies collectively guaranteed that the research methods and data were both reliable and reproducible.

3.4 Data Analysis Approach

Data analysis is the systematic approach to examining, organising and interpreting data to uncover trends, patterns, meaningful insights and answer research questions. It translates raw data into significant findings that align and address the research objectives (Hennink & Kaiser, 2022; Creswell, 2009; Gomez , 2022). In this research, the analysis focused on responses from three different focus groups: policymakers, ASM operators, and formal mining representatives. The goal was to explore the challenges, motivations, and potential solutions related to regulation developments. Through the use of systematic data analysis methods, the research carefully examined the different perspectives of these focus groups, ensuring that the results were credible and practical.

The study utilised thematic analysis as its primary method, a commonly used approach in qualitative research. This approach included categorising the data to pinpoint common themes, such as motivations for joining ASM, challenges faced, and recommendations for policy improvements (Creswell, 2009). Thematic analysis was well-suited for this research as it allowed the researcher to identify both similarities and differences in the responses, offering deeper understanding of the complexities within ASM sector. The categorising process was repetitive, enabling important themes to naturally emerge from the data while remaining consistent with the research's objectives (Creswell, 2009). Additionally, descriptive analysis of demographic data, including age and gender distributions, offered valuable insights into the sample's representativeness and uncovered imbalances, such as the underrepresentation of older women in ASM due to their caregiving responsibilities. To enhance the validity of the findings, triangulation was employed by comparing data from the three focus groups (Coleman, 2021). This approach helped gather detailed perspectives while mitigating potential biases.

3.5 Chapter Summary

This chapter describes the research approach adopted to assess ASM formalisation policies in South Africa, using a mix of questionnaires, interviews, and on-site observations across four major ASM sites. The study applied purposive

and convenience sampling, with 60 participants selected to ensure data saturation. Ethical considerations, such as informed consent and confidentiality, were carefully followed. To validate the data, triangulation and thematic analysis were applied to identify significant themes related to ASM formalisation. A discussion of the data follows in Chapter 4.

4 DATA FOR THE STUDY

The objective of this chapter is to provide an overview of the diverse views and complex issues encompassing ASM sector policy effectiveness in South Africa, as seen through the lens of the people who live the experience. The information obtained from individuals who participated in this study was used to assess the challenges and opportunities within the ASM sector, highlighting key areas for policy improvement. Through capturing the lived experiences of stakeholders, this research aims to contribute meaningful insights into the practical effects of existing policies, while suggesting recommendations for more effective approaches that address both the socio-economic and regulatory challenges faced by ASM operators.

4.1 Location of the Study

Data was collected from four mining sites across South Africa identified in Figure 4. The number of participants and their relevance to the study is discussed below.

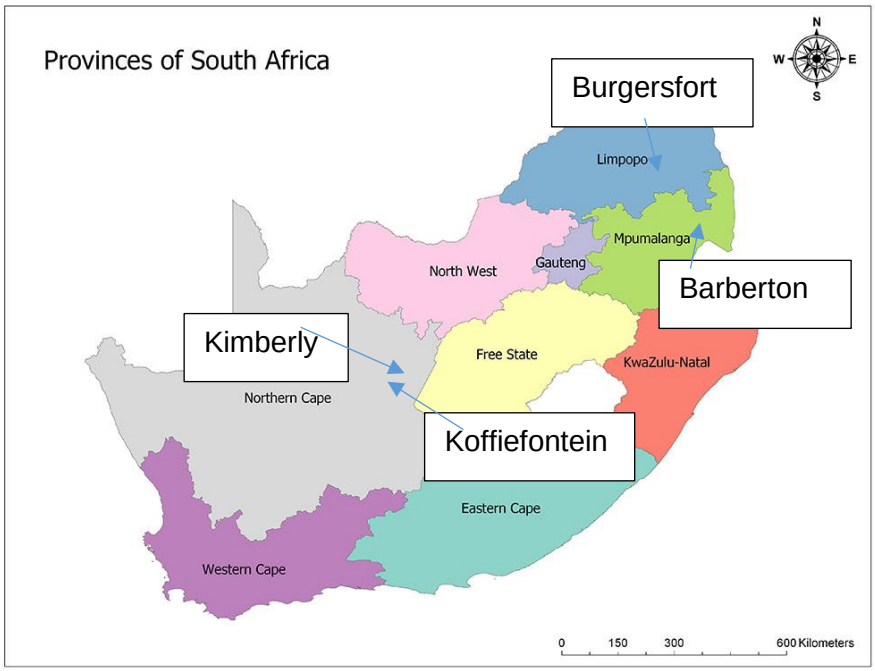

Figure 4 Location of the study areas

4.2 Feedback from the Questionnaires

The feedback from the questionnaires was examined in terms of three focus groups. The three focus groups are policymakers, individuals operating at ASM, and representatives from large mines operating in the local area.

4.2.1 The Policymakers (Focus Group 1)

The researcher interviewed five individuals from the DMRE and two others from each of the MHSC and the MQA. These individuals were, typically located in their head office in Gauteng. During the interviews, several themes and subthemes developed with respect to their comments regarding the importance of ASM policy and the issues that arise in its implementation.

Institutional failure

The South African government officially committed to provide various forms of assistance to artisanal and small-scale miners through partner organisations, as stated in the White Paper on Minerals and Mining Policy for South Africa. In partnership with the DMRE, the government launched various initiatives aimed at fostering the growth of the ASM industry. The comments below, taken from the interviews with the policymakers reveal the extent to which these individuals recognise the importance of such programmes as well as the challenges that exist.

> **Interviewee 1**: *"It is important and necessary to take a more comprehensive and team-based approach to providing institutional support to the ASM sector, in order to prevent unethical and illegal mining in South Africa."*

> **Interviewee 2**: *"The mechanism for delivering such assistance will also receive more funds, commensurate with the task at hand. The DMRE recognises the need to enhance its capacity and access to the resources required to coordinate the delivery of institutional support to the sector."*

Notwithstanding the importance of the ASM sector, some of these programmes were discontinued due to inadequate results. Even though some of the relevant institutions continue to assist ASMs, the institutional support structure for ASM remains fragmented. These comments highlight the challenges in obtaining permits and meeting compliance requirements as well as identify funding and staffing constraints as barriers to providing adequate support to ASM sector.

Perhaps one of the biggest issues that the ASM sector faces is illegal mining. This sector includes all mining activities operating without a permit. Comments made by the policymakers make it clear that this issue has been discussed at national levels to address at least one of the issues within the illegal mining sector – that of unlawful immigrants.

> **Interviewee 4**: *"The policy makes it clear that permits must be reserved for South African nationals and suggests actions, including criminal ones, to address unlawful immigrants working in the industry. Minerals and Precious Metals Theft Unit is the proposed name for a proposed specialised unit within the South African Police Service."*

While this is a start, it does not address all the issues associated with illegal mining. Other issues that are more difficult to address include poverty, lack of education and lack of access to project finance. These are much bigger problems in South Africa that are not confined to the ASM sector.

A second issue is that ASMs are treated in the same manner as large mines. The ASM legislation does not take into consideration the different challenges faced by the ASM operators, especially their informal nature and their limitations. This lack is in direct contradiction of the precepts outlined in Section 27 of the MPRDA. Interviewee 3 indicated that, as part of the ASM legislation, the DMRE would create a new type of permit that would be specific to ASMs and which would be designed to attend to their needs.

> **Interviewee 3**: *"The DMRE would create a new system by introducing a new type of permission, which would require additional*

legislation to operate. Permits for ASM would be provided on a "first come, first served" basis as well as through an "invitation system." Under the latter arrangement, the government would be able to solicit applications for ASM permits in specific areas".

Developing a policy and legal framework for the ASM sector

The policymakers recognise the importance of ASM stakeholders in shaping the public policy and the regulatory framework. Gaining insight into the ASM phenomenon, including its similarities to and differences from other mining activities is crucial for the creating effective ASM regulation. Policies must also recognise and manage the variety of interests and potential conflicts among the different subsectors within the mining industry.

> **Interviewee 5:** *"The participation of relevant ASM stakeholders in the development of the legal framework does not only create adherence to the recognition of ASM as a legitimate economic mining activity, but also creates better political conditions for addressing the difficult issues surrounding the competitive market with the mining sector and other economic sectors".*

Ongoing monitoring and continuous improvement are essential for implementing an effective ASM regulatory framework. As a standard practice, every policy should be monitored with the aim of ensuring its enforcement. In the context of ASM, monitoring can be viewed as a crucial tool for enhancing the ASM framework, regardless of its other roles.

> **Interviewee 6:** *"Given that ASM is a sector with a lengthy history of various types of challenges and problems in terms of legality, it makes sense to utilise monitoring the implementation of a legal framework as a proactive evaluation tool. This monitoring function can offer regular and detailed insight on what needs improvement and what is performing well in the framework's implementation."*

It is crucial that ASMs have a legal status distinct from large-scale mining activities. In comparison to other mining industries, the technical and economic distinctiveness of ASM, as well as its internal diversity and social complexity, justifies a different treatment for this subsector.

> **Interviewee 8:** *"The DMRE is completely committed to assisting the legalisation of ASM where it can be carried out properly, in an environmentally responsible manner, and without compromising the health, safety, and security of others, particularly authorised mining companies' personnel. Thousands of competent ex-miners who lost their jobs as a result of the decrease of formal LSM in South Africa could benefit from such legalisation".*

> **Interviewee 7:** indicated that they believe that the ASM policy **"***Supports legalisation due to adherence to country's laws and regulations by highlighting that legalisation promotes employment and economic growth".*

> **Interviewee 9:** *"The ASM Policy defines and contextualises artisanal mining (the most primitive form of mining that requires only rudimentary tools and customary methods) and small-scale mining (operations on a low mechanised scale) as distinct mining forms, and notably creates a framework for their legislation in a manner that specifically caters to the complexities of the overall business processes."*

At the same time as noting that distinct legislation is required for ASMs, it was also noted that South Africa has several legislations and regulations already in place to deal with these issues. It was highlighted that the existing regulations needs to be reviewed and enforced before new legislation is introduced.

> **Interviewee 9:** *"Suggests caution in legalising ASM activities under current circumstances, emphasises the importance of compliance with existing legislation and regulations and supports*

review and improvement of current legislation rather than creation of new acts specifically for ASM".

4.2.2 ASM (Focus Group 2)

The researcher conducted interviews with ASM operators across four key sites: Burgersfort, Barberton, Kimberley, and Koffiefontein. The different locations also reflect different commodities (Kimberley and Koffiefontein – diamonds; Barberton – gold; and Burgersfort – chrome). This variety of locations and commodities was selected to identify whether similar issues and challenges were faced across the board. Figure 5 shows the distribution of respondents from these different locations.

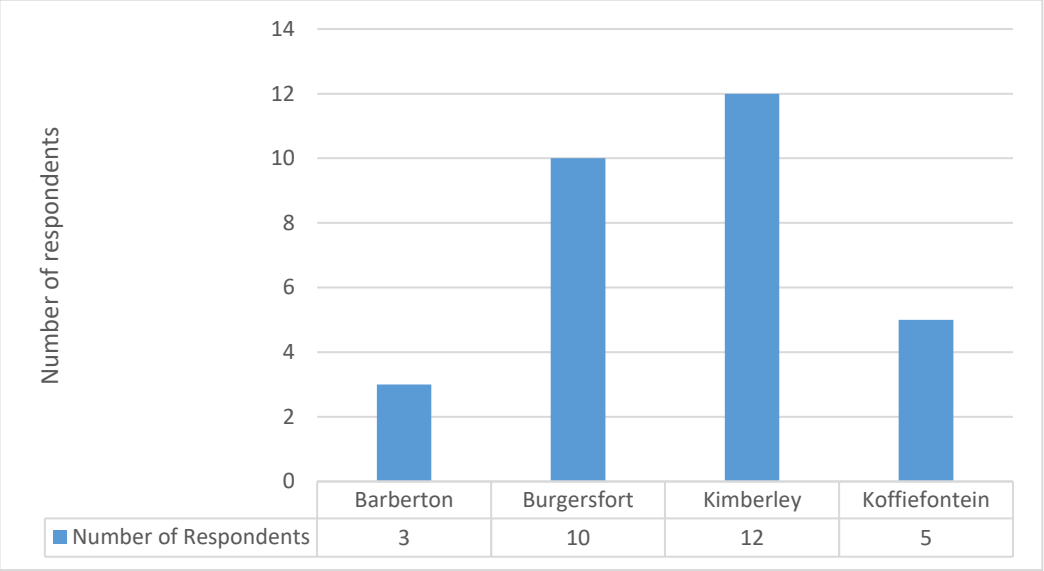

Figure 5 Locations of the individuals interviewed

The decision to interview three operators in Barberton and 12 in Kimberley was guided by several considerations related to the research objectives and logistical challenges. The smaller sample size in the Barberton region was affected by practical factors, such as the impact of illegal mining activities, which affected the operators' willingness to participate in the study. Additionally, the accessibility of ASM operators in Barberton was more constrained, further contributing to the lower number of participants. Conversely, Kimberley had a more extensive and

reachable ASM population, which allowed the recruitment of a broader sample of operators. The greater willingness of participants in Kimberley to take part in the research, along with easier access to operators, enabled for a more substantial sample in this area.

The 30 participants in the study comprised some 32% females and 68% male individuals. They were all in the age group of between 18 and 55 years of age. Figure 6 shows that the 36 to 45 age group was the largest contributor, with this group being the most economically active.

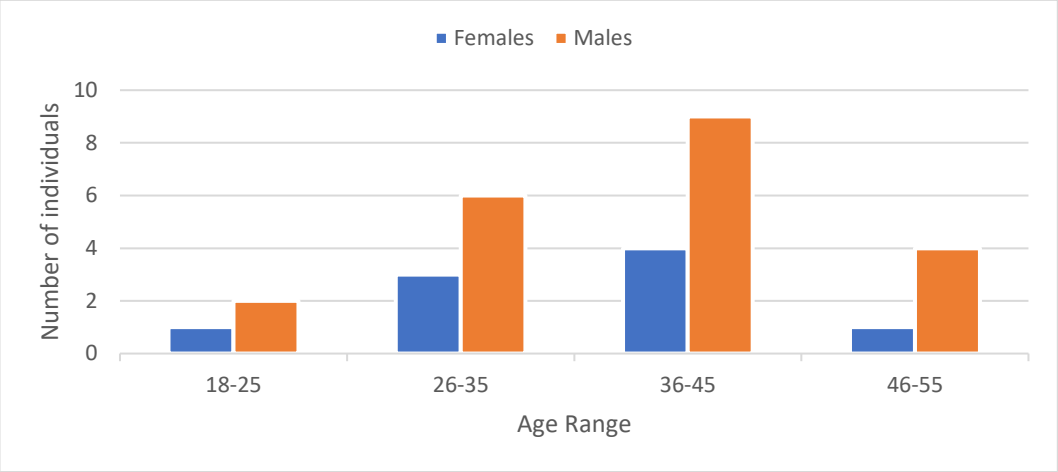

Figure 6 Age and Gender Distribution

While the number of males in each age group surpassed that of the females, the number of females in the +45-year category is severely underrepresented. This is suspected to be because women in this age category may often have to pause their careers to take care of grandchildren and/or aging parents.

Based on the interviews and questionnaires, there were four main themes that emerged, namely:

- Motivation for joining the ASM sector
- Challenges faced by the ASM sector
- How ASM affects the communities
- Recommendations for the development of sustainable policies and legal frameworks for the ASM sector.

Respondents quoted loss of employment and the prevalence of poverty as key motivators for participating in the ASM sector. ASM is perceived as a means of generating income and addressing financial challenges, particularly in the absence of job opportunities.

Respondent 1 mentioned the loss of employment and poverty as a motivating factor, while respondent 17 emphasised retrenchment and the need to search alternative livelihoods caused by the financial constraints. Respondents 1 and 28 voiced a desire for entrepreneurship and self-determination, seeing ASM as a way to build their own ventures. ASM gave the chance to work independently, away from the normal employment structures. Respondent 28 also saw establishing ASM activities as a way to try life and utilise their previous experience in the mining industry.

> **Respondent 1** "*Loss of employment, many people were without income (Poverty), during the time where no jobs were available, people had no source of income. The only possible solution was for you to go mining as an artisanal miner or being linked to artisanal miners*".
>
> **Respondent 5** "*Unemployment, where we come from there are no mines jobs are scarce*".
>
> **Respondent 17** "*Unemployment and the fact that where I come from there are no mines, it is a small rural village and just to try life and get something to take back home. For livelihood*".
>
> **Respondent 28** "*All the years I have been working for DeBeers mine so I have got the interest that when I leave the mine, I will start my own company*".
>
> **Respondent 14** "*Unemployment, poverty, inequality in the mining sector as it was only the white people who were allowed to mine; hence we call it DMR a white elephant*".

> **Respondent 17** "*Most of us are former mining employees. When we were retrenched, all we knew was mining which led to us engaging in ASM activities*".

Several respondents emphasised the opportunity to gain experience and acquire new skills through ASM activities. ASM is seen as a way to learn practical skills applicable to mining and other industries. Respondent 3 highlighted gaining experience in ASM for future employment opportunities. Respondent 5 mentioned acquiring skills such as operating different machines through ASM activities.

> **Respondent 3** "*Illegal mining has a lot of job opportunities. Artisanal mining is not scarce. Unemployment motivated me in joining*"

> **Respondent 5** "*Working as an artisanal miner gives me experience, as compared to other mining companies. We are mining (digging and backfilling). After working here if you can get hired where they are doing a similar mining method, already you would have experience*".

ASM is preferred by some respondents due to observed safety advantages when compared with underground mining. The absence of dangerous conditions such as high walls combined with minimal exposure to diseases was highlighted as a benefit of ASM. Respondent 4 highlight the safety of open-cast environments in ASM compared to the standard underground mining. Respondent 8 emphasised the safety of ASM operations and the absence of injuries since they started operating as artisanal miners.

> **Respondent 4** "*Where we are working is open it does not cause sicknesses like TB*".

> **Respondent 8** "*We work safe we do not have fatal or injuries since we started*."

Some respondents highlighted the positive impact of ASM on the surrounding communities, both in terms of economic development and social cohesion.

Agreements with communities for compensation and collaboration were seen as beneficial aspects of ASM operations. Respondent 3 described efforts to ensure community satisfaction and minimise disruptions from ASM activities.

> **Respondent 3** "*We communicate with our communities where we are working at, we compensate for noise and dust and they are happy with the arrangement. We would have an agreement with the community to pay and relocate them to somewhere so that we can mine freely*".

Respondent 28 highlighted the employment opportunities provided to individuals within their communities since the government provided them with mining permits. The permits were obtained with the assistance of Ekapa Mine.

> **Respondent 28** "*When the mines closed and we were retrenched we inherited these people as some of them are staying within our communities and they are now having families*".

These comments show the different motivations behind individuals' decisions to engage in the ASM sector, involving economic, social, and personal factors which shapes their decisions. The motivation for sustaining livelihoods and accomplishing financial security often converge with social dynamics, such as community relationships and the influence of cultural heritage play a role in shaping individuals' participation in ASM activities.

Several specific challenges were highlighted by the ASM community. Response 1 addressed some of the safety risks connected with ASM activities, such as injuries from falling rocks and machine accidents. Lack of safety procedures and machine operators coming to work intoxicated as there is no control, further compound safety challenges, leading to accidents and fatalities. Response 5 also highlighted the lack of medical assistance, long working hours, and risks associated with dangerous animals, dust, and noise pollution for both miners and the surrounding community.

Respondent 1 *“When you are injured, you are on your own” …… “if you get injured you are injured for life as you would have no medical assistance.”*

Respondent 5: *"People get injured as it goes deeper. As you go deeper onto the mountain it gets riskier. You start having falling rocks, high wall or hanging. You experience a lot of “fall of ground”, machines toppling or jack-knifing as they are operating on top of a mountain."……."When mining lapses there are no pension funds. It is risky you must save on your own. Getting paid after a while; it can take you about two months without payee. ….” You wait for ore to accumulate before selling as we are working under someone.” ……” You work forever for ore to accumulate faster, if you rest you won’t make enough production (not enough rest), labour intensive.” …….” Working for long hours. Not safe at all – need to keep all eyes for dangerous animals. Not safe for our children and animals.” …… “Machines cause dust and noise for the community."*

Response 14 further indicates that illegal mining practices pose ongoing challenges for ASMs. Such issues include vandalism and the influx of unlawful foreigners, intensifying the need for government to intervene and improve policies to support ASM operations.

Respondent 14 *"The illegal miners burned our shacks; the shacks were used by the marshals that control stealing in the camps”. ……. “The biggest problem is the foreigners coming into their work space and that problem the Home Affairs also knows about it”.*

Response 2 identified issues relating to economic hardships, including the inability to afford machinery, reliance on manual labour, and competition from foreigners (many locals equate foreigners with illegal operators and, therefore, unfair competition, which argument may or may not be valid). Also included in these comments were issues resulting from having to sell their minerals at lower prices.

This issue was specifically highlighted in the ASM diamond and chrome communities where they generally have limited access to mainstream markets.

> **Respondent 2:** *"The biggest challenge is not …. having money to hire out heavy machinery; we end up having to do manual labour and it is risky". ……"Foreigners are selling cheaper and they are taking our customers, having to work with foreigners they sell at the black market at a lower price as they need money which means now others market falls down."…."We might have the same batch but they will sell it cheaper than it supposed to be. That's the struggle we are faced with we end up not selling as they know that they will get it cheaper elsewhere."…… "We are using buckets to take out chrome to the stockpiles which impacts our health, it is heavy and having to do this job the whole day has a huge impact on your physical health. Not having proper mining tools is one of our biggest challenges".*

Response 15 highlights difficulties in obtaining required licences and permits.

> **Respondent 15:** *First of all, obtaining mining permits is hard. We are working on dumps they don't require Environmental but we still have to follow the process."*

Response 3 elaborates on this theme, specifying challenges with mining permits, lack of training, and lack of cooperation from the community.

> **Respondent 3:** *"Some of the communities are not cooperating; they are looking for shares."*

Response 18 addressed the lack of support from the DMRE, challenges with mining permits, and the need for financial assistance, PPE, and training.

> **Respondent 18***: "DMRE just gave us mining permits then they leave, they never come onboard... We have been having this permit for 3 years with no support from the DMRE. There is no*

funding and we need PPE." …… "When we were still Zama Zamas, the DMRE promised us that when you are legal there is money for funding of about R350 000, which every cooperative will have, we have done that and the money never came. When we go to SETA [Sector Education and Training Authority, under local government control] *they tell us that we are not SMMEs* [small, medium and micro enterprises that qualify for government funding]. *We are struggling with funding."*

Challenges within local communities were also identified as hinderances to successfully ASM operations. Response 2 discusses social issues such as increased prostitution resulting in unwanted pregnancies, as well as conflicts within the community. Exploitation by police officers and community groups demanding access fees further exacerbate social tensions within the ASM communities. Response 8 also mentions community fights and conflicts among separate groups, impacting the social fabric of artisanal mining communities.

Respondent 2: "*The girls in those villages have a way of living and thinking that they should get someone who will be able to provide for them which leads to prostitution." ……."Unwanted and unplanned teenage pregnancy caused by artisanal miners is a big pandemic." ……. "The other challenge is the police. We give them money to back-off so that we can work. If you don't give them money, they will leave you to mine, but the moment you put chrome on the pad they will come and take it. They do not arrest you; they take it and sell it. If they come and find no chrome they will take your equipment."…"The police will come here where we are mining and tell you that if you could pay a certain amount, we will drop charges or close the case, we have seen it happening a couple of times, you will find that you are exploited you will pay about R6 000 to drop those charges." …… "Having a problem with boys in the communities, they form groups, when we are selling chrome, they stop the trucks demanding fines or fees, they call them tollgates, every truck that comes out must pay about R250 per truck."*

4.2.3 Mine Representatives (Focus Group 3)

This group comprises 21 individuals from local operating (large-scale) mines. These individuals themselves are not ASM operators, however, the mines which they represent are often surrounded by ASM operations and/or illegal mining ventures. These individuals may also live in communities that engage in, or are affected by, ASMs.

These mine representatives all recognise that ASM and illegal miners are mostly motivated by reasons which include poverty and lack of job opportunities. Illegal operators like to access mine properties because of ease of access to underground pillars and tailings dumps, which are easy for them to mine with rudimentary tools. At the same time, they also highlight the dangers that such operations present to the larger, formal mines. Such challenges include

Theft and security concerns, particularly from illegal miners.

Illegal mining activities pose considerable security obstacles for formal mines, especially concerning theft and security issues. These activities commonly involve unauthorised access onto mine properties, leading to the theft of valuable resources such as minerals, equipment, and infrastructure. The presence of illegal miners increases the risk of theft-related incidents, compromising the safety and integrity of the mine location. Furthermore, the secretive nature of these activities makes it difficult for the formal mines to monitor and control access, worsening security vulnerabilities and posing potential risks and hazards to personnel and assets.

> " *The biggest problem faced by our company (Bathopele) is that the Zama Zamas are stealing from us. This is happening despite the fact that the police and mine security try to assist.*"

Issues with licences and access.

The challenges regarding mining licences, access to operations and allocation of tailings dumps to process are widespread. One of the issues that arises is that a lack of clarity regarding the rights and obligations that accompany a mining permit

can lead to misunderstandings and subsequent conflicts among stakeholders, such as local communities, ASM operators, government, and mining companies.

Compliance with health and safety regulations.

Complying with health and safety regulations presents a considerable challenge in ASM and illegal mining operations. Unlike formal mining operation that adhere strictly to safety standards, ASM and illegal miners frequently work in hazardous environments without adequate supervision. This lack of regulation increases the likelihood of accidents and injuries among miners. Additionally, the secretive nature of these activities complicates enforcement efforts by the authorities.

> "*And on the health and safety side, you can be regulated and operate safely. When it is legal, inspectors can ensure compliance. Legalisation will not only help economically but also ensure proper compliance with health and safety regulations*."

4.3 Comparison with ASM Issues Elsewhere

Sections 2.1.2 and 2.1.3 of this research identified some of the challenges and policies elsewhere in Africa and around the world. It is noteworthy that South Africa suffers all the same challenges around protection of the environment, health, and safety, ASM socio-economic development and irresponsible mining practices.

In addition, countries where assistance with access to finance, support for ASM operators with services and equipment, encouragement of responsible environmental standards and promotion of training within the sector has been prioritised have seen limited improvements in the lives of the ASMs. It has been further noted that where policies have been broken down into specific elements to be implemented effectively and then monitored and evaluated continually, they appear to have been more effective. Furthermore, the more successful country policies have also stressed the value of collaborative efforts and sustainable practices which includes encouraging formalisation of the sector.

4.4 Chapter Summary

The chapter begins with an introduction to the data collection process and identifies the four mining areas where the respondents were located. This was followed by a detailed examination of the data collected from the three focus groups, namely (1) policymakers, (2) ASM operators, and (3) local mine representatives.

Policymakers from the DMRE, MHSC, and MQA discussed the challenges of providing institutional support to the ASM sector and proposed solutions, including a separate legal framework, increased funding, and improved regulatory compliance. Representatives from some of the local operating (large) mines representatives then outlined various challenges faced by such mines due to the presence of ASM operations, specifically the illegal miners.

ASM operators expressed their motivations for joining the sector, which range from economic necessity to opportunities for entrepreneurship. They also highlighted safety hazards, economic challenges, and regulatory compliance issues as the most significant challenges that they face.

5 ANALYSIS AND FINDINGS

This chapter investigates the complex world of ASM in South Africa and shares insights from discussions with policymakers who help in shaping the rules and support systems for this sector, ASM operators who live the experience and representatives from the larger formal mines who are impacted by legal and illegal miners daily. By thoroughly examining their views, the chapter highlights important themes such as institutional failures, efforts to stop illegal mining, the need for specific laws and regulation, stakeholder participation, environmental responsibility, and approaches for adaptable policy development.

5.1 Key Themes

ASM activities play a leading role in many communities, especially in areas with scarce formal job opportunities. This section presents a brief overview of the results of the survey data. The data was gathered from participants from three different focus groups across different age groups and locations in South Africa, highlighting that similar issues are experienced in all regions and across all commodities. Key themes emerge, highlighting the complex dynamics of ASM.

5.1.1 Motivations for joining the ASM sector

The data indicates that unemployment and poverty are primary drivers motivating individuals to join the ASM sector. Many participants mention the lack of job opportunities in their communities, leading them to seek employment in ASM as a means of supporting themselves and their families. These motivations highlight the economic need that drives individuals to engage in ASM activities. Additionally, some participants express a desire for independence and flexibility, highlighting the attractiveness of ASM as a means of working for oneself and making autonomous decisions. Moreover, ASM provides the opportunity to gain practical skills and experience in mining, which could potentially open doors to future employment opportunities.

5.1.2 Challenges faced by the ASM sector

ASMs are faced with a multitude of diverse challenges ranging from regulatory obstacles to environmental risks and social conflicts. Participants identify difficulties in obtaining mining permits, lack of access to financial resources, lack of medical assistance, economic hardships and risks associated with unsafe working conditions such as injuries from falling rocks and machine accidents, pose significant risks to ASM operators as significant challenges. For instance, individuals cite issues such as "lack of money to hire out heavy machinery," "working without proper mining tools," and "risks of accidents and injuries" as major concerns. Moreover, economic challenges such as the inability to afford machinery and competition from foreigners contribute to the struggles faced by ASM operators. Additionally, there are reports of conflicts within communities, exploitation by authorities, and challenges related to theft and exclusion from job opportunities. These challenges highlight the uncertain nature of ASM livelihoods and emphasises on the need for supportive policies and interventions to successfully address them.

The data highlights both positive and negative impacts of ASM activities on communities. Positive impacts include job creation, skill development, and economic opportunities for local residents. However, negative impacts such as environmental degradation, health risks, and social conflicts are also evident. Participants describe challenges such as "health issues due to dust, noise levels and increased prevalence of diseases like HIV/AIDS," "conflicts over land ownership" and “social challenges such as teenage pregnancies, increased prostitution, and exploitation” as consequences of ASM operations. These findings highlight the importance of balancing between the economic advantages of ASM with implementing measures to alleviate its negative impacts on communities. Which include putting into place environmental protections, health measures, and community support initiatives.

The data, further, indicates the common occurrence of conflicts arising from unclear land/mining licences as ongoing challenges within the mining sector. Participants note that the absence of transparent processes for land allocation and permitting provides opportunities for illegal miners to operate without proper

authorisation. This was specifically highlighted by the case of the Bathopele company, where rights to the kimberlite dumps were allocated to the company without due recognition of the problems that would develop because of unlawful access by Zama Zama's within the community.

5.1.3 Institutional failure and policy regulation

The data shows a disconnect between the government's commitments to supporting the ASM sector and the difficulties faced in implementing effective programs. Despite official promises outlined in policy documents such as the White Paper on Minerals and Mining Policy for South Africa, interviews with policymakers reveal ongoing challenges in providing sufficient support to ASM operators. These challenges include disjointed institutional support systems, difficulties in obtaining permits, meeting compliance standards, and constraints in funding and staffing. Some programs have been stopped due to insufficient results. This highlights that there is an institutional failure to effectively support the ASM sector, even though it is important.

Policymakers recognise that illegal mining is a major issue in the ASM sector and are discussing ways of addressing it at national level. However, policymakers also understand that serious issues like poverty and lack of education contribute to the problem. While there are efforts to address illegal mining, the data indicates that there is a need for a broader approach to address the deeper socio-economic issues to successfully stop illegal mining.

5.1.4 Legislation and Regulation

The data shows the need for a separate legal and regulatory framework to address the specific challenges faced by ASM operators. Policymakers propose creating a new type of permit specifically for ASM operators and involving stakeholders in the policy formulation. Additionally, there is a call for caution in introducing new legislation, with an emphasis on rather reviewing and enforcing existing laws before implementing new laws.

It is apparent that the current legislation is insufficient to address all the issues identified above. In addition to the legislation being incomplete, another challenge is in the education of the ASMs as to the application of the correct processes. Although the DMRE has proposed educational and policy interventions, actual actionable evidence has yet to be produced.

Policymakers emphasise the importance of ASM stakeholders' involvement in making legal frameworks. They believe that involving stakeholder not only legitimises ASM as an economic activity but also improves political conditions for solving problems in the mining sector and other industries. The data highlights the value of inclusivity and teamwork in policymaking processes, recognising that stakeholders bring different skills and perspectives to the table.

The data shows a commitment to encouraging responsible ASM operations that focus on protecting the environment and adhering to laws. Policymakers emphasise the importance of legally allowing ASM activities being conducted responsibly, emphasising the value of following the existing laws and regulations to ensure environmentally friendly practices. This commitment to environmental responsibility shows an understanding of the need to balance economic development with environmental protection within the ASM sector.

Continuous monitoring and refinement of ASM policies emerge as fundamental aspects of effective policy development. Policymakers see monitoring as a proactive mechanism for identifying areas that need improvement and ensuring the successful implementation of regulatory frameworks. The data indicates a commitment to adaptive governance and policy development, acknowledging the changing nature of ASM activities and the need for flexible policy responses to address successfully tackle evolving challenges.

Formal mining operations face major security challenges arising from illegal mining activities, especially theft. The data highlights how unauthorised entry by illegal miners compromises the security and integrity of formal mining operations, resulting to the theft of essential resources, equipment, and infrastructure. The secretive nature of illegal mining operations worsens security vulnerabilities, as they often operate without being easily detected, making it difficult for formal mines

to monitor and control access to their own properties. Making all informal operations legal could help make sure everyone follows the safety rules. It would also mean inspectors could make regular monitoring to ensure compliance to health and safety.

ASM and illegal mining operations struggle to comply with health and safety regulations, exposing significant risks to miners. Unlike formal mines that must follow strict safety rules, informal mining activities often take place in dangerous places where there is limited supervision. All these issues result in lack of interest from prospective investors. Neither local or international investors want to be involved in projects that are associated with poor safety and security, with potential community flashpoints and with doubtful (or non-existent) licences and permits. Consequently, there is little or no investment available to ASM communities and they are not able to improve themselves, resulting in a cycle of depressed economies with limited opportunity to advance.

5.1.5 Recommendations for sustainable policies and legal frameworks

Participants from all three focus groups provided various recommendations aimed at improving the regulatory framework and advancing sustainable ASM practices from their own perspectives. Common suggestions include simplifying permit application processes, providing financial support for equipment purchase, and improving training and efforts to develop skills and abilities. For example, participants advocate for "workshops and funds for permit applications," "partnerships with large-scale miners," and "reducing requirements for mining permits" as potential solutions. Additionally, there is a call for greater recognition of ASMs and their contributions, as well as greater cooperation between stakeholders to tackle shared challenges and advance inclusive development.

To lessen some of the risks identified above, participants recommend the importance of cooperation between formal mines, enforcing strong policies, and investment in security systems to protect personnel and assets against theft and unauthorised entry. Other recommendations provided by the participants include:

1. Assign sufficient resources to support ASM compliance efforts, which includes funding for permits, training, and capacity building. By allocating sufficient

funding, governments can empower ASM operators to channel regulatory requirements effectively, employ sustainable practices, and donate or contribute positively towards local economies. Additionally, investing in training and capacity building programs can increase the skills and knowledge of ASM operators, encouraging a safer and more environmentally responsible mining practices. Overall, prioritising financial backing for ASM compliance is important for nurturing a more comprehensive and viable mining sector.

2. Increase staffing levels and capacity within the relevant government departments to reinforce support for the ASM sector. by investing in human capital, government authorities can promote more structured and effective permit processing, timely responses to inquiries, and successful enforcement of regulations.
3. Provide technical aid and guidance to ASM to assist them in better understanding compliance requirements and improve operational practices. Through customised training and continuous support, ASM operators will gain a deeper understanding of local regulations and best practices, empowering them to channel difficulties effectively and encourage responsible mining practices.

5.2 Findings/Observations of the Study

The research has highlighted various issues specified by the ASM community that the policymakers should be aware of. Some solutions suggested by the ASM are presented. Action on these issues and solutions may require adjustments to existing policies, socialisation of the already existing solutions or simply proper implementation of the policies. There may also need to be further discussion around how realistic some of the requests are. Often there is limited understanding of macroeconomics on the part of the ASM community, which results in the presentation of overly simplistic solutions to complex problems.

5.2.1 Inclusion of ASM stakeholders to create sustainable policies

Creating effective policies that addresses the needs of ASM requires that all stakeholders be involved. Policymakers often lack experience of the day-to-day

issues suffered by ASM. ASMs can assist policymakers recognise challenges such as safety hazards, access to finance, and deciphering complex regulations. They can share their understanding of local conditions, safety risks, and the realities of working in the informal sector.

The inclusion of stakeholders beyond large scale miners provides a more comprehensive picture. The social and environmental impacts of mining can be highlighted by the community leaders, whereas NGOs can provide expertise on sourcing responsibly and fair-trade markets practices. This collaborative process promotes a feeling of ownership and enhances the probability of policies being implemented effectively and followed by all parties involved. Through collaboration, policies can better address the social, economic, and environmental aspects of ASM, resulting to long-term benefits for all involved.

5.2.2 The cadastre system

One of the main concerns of the ASM is that they find it difficult to navigate the intricacies of the current permit application system. The introduction of an operational mining cadastre system has the potential to significantly benefit the ASM operations by simplifying license application processes and procedures.

One of the primary advantages of a simple, effective mining cadastre system is that it allows ASM operators to apply for their permits online, without the necessity of travelling to a regional centre (which many of them do now because they find it too complex to navigate the current system without assistance). This is important for the ASM sector, which often lacks the financial means to go through multifarious and expensive licensing processes. Offering simplified access to permit applications could assist in reducing the hurdle to entry for ASM operators, thereby allowing more individuals and small-scale enterprises to engage in the ASM sector in a lawful and responsible manner.

5.2.3 Monitoring the system to ensure compliance

While field visits by trained inspectors is already built into the MPRDA and MHS legislation, it does not appear to operate as planned. A functioning transparent

monitoring system would have the effect of ensuring that ASM operators adhere to the regulations. Complying with regulations is something that ASMs noted they would welcome as they believe that it would equip them with clear guidelines and understandable expectations for responsible mining practices. In addition, a transparent monitoring system is expected to reduce misunderstandings with authorities.

5.2.4 Access to education and training

Education and training are seen as powerful tools to fight poverty, resulting in access to loans, fair prices for minerals, and engagement in government support programs. Anticipated training programmes would include safety procedures or protocols which can prevent accidents and injuries, and business skills training to equip them to run their operations more efficiently and profitably. This is thought to translate to a stable income to a secure livelihood, a brighter future for miners and their families and leaving poverty behind.

Education and training are not limited to technical issues. ASMs also need to be educated in peripheral issues such as the mining pipeline, understanding and accessing the free market system, and understanding the role of taxation.

Probably one of the top concerns of the ASM is their lack of finance. While poverty is a broader socio-economic issue, its effect in the ASM context is reflected in the desire for the above education and training to be provided to them for free.

5.2.5 Cost of mining permits

In addition to free quality education and training, the issue of free mining permits was high on the wish-list of most of the ASMs. They felt that the State should allow them to apply for and obtain mining permits, environmental assessments and water use licences – all for free. There is also a belief that the State, land owners or large mining companies should take responsibility for any rehabilitation liability.

5.2.6 The issue of foreigners

The engagement of foreigners in ASM operations highlight the complexities surrounding international participation in local mining activities. Within the ASM context, the presence of foreign individuals often present both opportunities and challenges.

The perception of many communities regarding foreigners often borders on the xenophobic, with many equating all foreigners with illegal immigrants who operate as Zama-Zamas or who mine irresponsibly, negatively impacting communities as well as the environment. As a result, some South African ASMs believe that only South Africans should be allowed to obtain ASM permits, expecting that everything currently owned or operated by the foreigners will then come to them.

The issue of foreigners needs to be balanced with the realisation that investment and expertise from foreigners can contribute significantly towards the growth of ASM operations by providing capital, technology, and access to otherwise inaccessible markets. The presence of foreigners in the ASM space can potentially improve productivity, promote working conditions, and increase the overall competitiveness of local projects. Moreover, involvement of foreigners can enable knowledge transfer and grow skills, empowering local miners with new methods and industry best practices to enhance efficiency and sustainability in their operations.

5.2.7 Dealing with Illegal miners effectively

Illegal miners (Zama-Zamas) are as much an issue for legal ASMs as it is for large mines and communities. Addressing illegal mining activities effectively is essential for the sustainable growth of mining regions, offering numerous benefits. Primarily, it will create a favourable climate for responsible investment and economic growth. By maintaining the rule of law, the State can build trust among investors and communities, ensuring that mining activities are conducted in adherence with environmental regulations, labour laws, and community involvement standards. This is expected to translate to a transparent and stable mining sector which draws long-term investments, stimulates local growth and creates job opportunities.

Further, illegal mining practices commonly result in significant environmental deterioration, such as deforestation, water pollution, and soil erosion. Taking actions to restrict these activities, authorities can lessen the negative ecological impacts, protecting natural habitats and biodiversity.

5.2.8 Financial support

The ASMs are acutely aware that the implementation of their wish list requires significant amounts of money. When asked where the money must come from, many of the ASMs indicated that it is the responsibility of the government to provide funding for all these activities. They believe that if there was no wastage and/or corruption within various government institutions, then there would be more than sufficient money to fund all their requests and more besides.

Another solution suggested by the ASM recommends that funds recovered from reducing illegal mining activities, along with the resulting tax revenues, could be invested towards facilitating educational programs for local communities. This investment could assist in raising awareness about the dangers and impacts associated with illegal mining, promoting a culture of accountability and sustainability. Moreover, these educational programs could provide vocational training to individuals engaged in illegal mining, providing them with alternative means of income.

Many in the ASM communities also believe that the large mining companies should support them financially, both directly and indirectly. They are aware that such companies are obligated to compile a Social and Labour Plan (SLP) as part of their mining rights application. They believe that the SLP should proactively assist local ASM operations, rather than pay monies to the State, which doesn't always filter down to the communities it is meant to assist.

5.3 Significance of the findings

The research offers valuable insights into the challenges faced by the ASM communities. It also provides some practical suggestions to improve the current ASM policies. One of the easiest to implement involves strategies for simplifying

licensing procedures, such as introducing an operational cadastre system that enables the easy processing of mining permits. Other recommendations include reducing bureaucratic obstacles and corruption and promoting greater access to legal mining opportunities for ASM operators. Additionally, the research emphasises for the inclusion of ASM stakeholders in policy development to ensure that regulations are more effective, inclusive, and suited to the sector's needs.

The research further emphasises the importance of advancing gender equality and supporting marginalised groups in the ASM sector. It calls for policies that guarantee equal opportunities for women in mining and fair dealing for all community members. These initiatives are intended to improve social equality and inclusiveness within the sector.

Through suggestions regarding State support of education and training, resolution of the illegal mining problems and effective resource management, the livelihoods of local communities would be expected to be improved. Communities would be empowered by being provided with the necessary knowledge and tools needed to participate in sustainable and profitable mining practices. This focus on community progression is intended to improve economic stability and enhancing social well-being in mining areas.

By encouraging collaboration and knowledge sharing between local and foreign ASMs, the research supports the adoption of best practices and innovative approaches in ASM governance. It promotes the sharing of successful experiences and strategies among countries, making it easier to implement effective and tailored solutions.

In conclusion, the research contributes to the promotion of a more sustainable, fair, and well-governed ASM sector. By promoting inclusion, equitable access and involving ASM stakeholders in policy discussions, the research ensures that regulations better address to the needs and realities of those directly engaged in the sector. These efforts contribute positively to environmental protection, community development, and industry growth.

5.4 Chapter Summary

Observations from the policymakers highlight the complexities surrounding ASM regulation in South Africa and highlights the importance of thorough, inclusive, and forward-thinking approaches to policy progression, implementation, and monitoring. Addressing institutional shortcomings, stopping illegal mining, improving legislation and regulation, encouraging stakeholder participation, promoting environmental responsibility, and ensuring flexible policy development are all fundamental aspects in supporting sustainable ASM practices and maximising the sector's impact to socio-economic development.

Comments from the ASM community reveals a multifaceted picture of the motivations, challenges, recommendations, and impacts associated with ASM activities within the communities. Effectively addressing the identified challenges and encouraging sustainable ASM practices will require coordinated efforts from governments, regulatory entities, industry stakeholders, and local communities to ensure the well-being of ASM operators and the sustainability of their livelihoods.

Remarks from the representatives from the surrounding larger formal mines highlights the composite challenges that are inherent in ASM and illegal mining activities. Themes such as security concerns, conflicts over land rights, and challenges with regulatory compliance, highlights the need for comprehensive strategies involving cooperation between stakeholders to encourage mining practices that are responsible and sustainable.

Finally, several recommendations were made by the three focus groups which they believe could improve the legislation and policies regulating ASM:

- Introduce an operational cadastre system that will simplify licence application procedures, resulting in the issuing of free mining permits.
- ASMs need to be included in the development of the policies that affect them.
- Introduce a system of monitoring to ensure compliance with regulations.
- Make education and training opportunities freely available.
- Deal with illegal miners effectively.

In summary, the data reveals a complex picture of the motivations, challenges, recommendations, and impacts associated with ASM activities within the communities. Effectively addressing the identified challenges and encouraging sustainable ASM practices will require coordinated efforts from governments, regulatory entities, industry stakeholders, and local communities to ensure the well-being of ASM operators and the sustainability of their livelihoods.

6 CONCLUSIONS AND RECOMMENDATIONS

South Africa's mining industry has played an essential role in the country's socio-economic development for more than 150 years, encompassing both large-scale mining and ASM. While ASM has the ability to alleviate poverty and enhance rural development, it faces major challenges due to a regulatory system that is largely designed for large-scale mining. Despite initiatives such as the RDP in 1994, the 1995 MPSC, and the 1998 White Paper on Minerals and Mining Policy, ASM's continue to face challenges with limited access to mineral rights, funding, and technical assistance.

Subsequent initiatives, including the NSC (2000) and the SSMB (2004), aimed to address these issues but were unsuccessful due to inadequate funding, lack of inclusivity, and organisational inefficiencies. The 2022 ASM Policy aimed to provide specific interventions, yet persistent shortcomings in implementation, leaving ASM's frustrated and many turning to illegal activities. This has raised concerns about whether the fundamental issue lies in the policies themselves or in how they are implemented.

The study has assessed South Africa's mining legislation, particularly the 2022 ASM Policy, to determine its effectiveness in addressing the challenges encountered by ASM's. The research has examined the legislative and policy frameworks, identified challenges in implementation, and proposed practical recommendations to promote a sustainable ASM sector. By closing the gap between policy intent and actual implementation, the study enhances ASM's socio-economic impact and its contributions to poverty alleviation, rural growth, and community empowerment.

6.1 Summary of Chapters

This report has presented six chapters that cover the following:

- Chapter one discusses the importance of the mining industry in South Africa and the historical context of ASM. It outlines the evolution of policies

and frameworks, such as the RDP and the MPRDA, which have aimed to address the challenges and opportunities within the ASM sector. The chapter also highlights the emergence of the 2022 ASM Policy and identifies the problem statement, justification for research, research objectives, methods, sources of data, validation, and the structure of the research report.

- Chapter two presents the concepts of ASM, analysing its value chain and relevance within the sector. It compared the legal frameworks of different African countries and reviewed global trends and policies related to ASM. The discussion then focused on the South African context, outlining the economic significance of ASM and its impact on miners. The chapter concluded with an analysis of the MPRDA and the ASM Policy, outlining their key components and highlighting the ongoing challenges within the regulatory landscape.
- Chapter three provides an overview of the research approach employed to gather insights on the effectiveness of ASM formalisation policies in South Africa. It outlines the research design, which involved surveys and interviews conducted at selected ASM sites and among key stakeholders in the mining sector. The chapter details the data collection process, including contacting participants, administering questionnaires, and conducting interviews, as well as the validation and analysis of the gathered data
- Chapter four presents data collected from different stakeholders involved in ASM in South Africa. Policymakers discuss challenges in providing institutional support and addressing issues such as illegal mining. ASM operators share reasons for entering the sector, challenges faced such as safety risks and financial struggles, and positive impacts on communities. Mine representatives highlight security concerns, licensing challenges, and compliance with health and safety regulations in ASM and illegal mining operations.
- Chapter five presents the results of the research, discussing insights from policymakers, ASM operators, and formal mining representatives. It highlights motivations, challenges, and impacts associated with ASM activities, stressing the need for customised laws, stakeholder involvement,

and environmental responsibility to support sustainable practices. Cooperative team efforts are the importance to address institutional failures, combat illegal mining, and ensure the well-being of ASM operators while advancing socio-economic development.

- Chapter six covers conclusions and recommendations highlighting the innovative strategies and areas needing further investigation in ASM regulation in South Africa. It suggests the introduction of a cadastre system and stakeholder involvement in policymaking. Key recommendations include adopting digital technologies for monitoring, encouraging gender equality, improving community-based conflict resolution, and promoting international collaboration. The research also stresses the need for policies that support sustainable practices, environmental protection, and social equality. The chapter concludes with a brief discussion on the limitations of the research as well as recommendations for further work.

6.2 Research Conclusions

One of the primary observations is that it is not necessarily the existing policies that are at the root of the problems, but rather the disconnect between what the policymakers think that the policies accomplish and the actual reality on the ground. The policymakers need to understand that it is not enough to simply create a policy, the policy also needs to address the issues that are faced by the ASMs, rather than simply fulfil a legal obligation.

Once an effective policy has been created, it needs to be implemented evenly and policed effectively. Further, policymakers need to ensure that the ASMs completely understand the policy and can apply it practically. This requires an extensive education programme on multiple levels, not only instructing ASMs on how the policy works, but also teaching applicants such basic things as how to fill out the forms and to help with accessing funds.

In addition, there needs to be a realisation of the challenges that results from the raising of unrealistic expectations. The failure to produce on expectations leaves communities unfulfilled, frustrated and more willing to enter illegal activities than

they might be otherwise. Such expectations might arise from a lack of understanding of the legal, financial or administration details of the policies, inappropriate actions (corruption) and/or misleading statements by policymakers (both purposeful and accidental), misconceptions around the rights conveyed by mining licences and/or land allocation, and the mistrust of foreigners.

6.3 Recommendations for Practice

The research has culminated in several recommendations that could be included in policies to enhance legislation regulating ASM operations. These recommendations include some of the overlooked aspects of ASM regulation that are expected to open new opportunities for improving the sector's sustainability and inclusion.

- Develop a comprehensive strategy for providing institutional support to the ASM sector. This would be expected to focus on capacity building within government agencies and fostering partnership with external organizations.
- Enhance collaboration and information exchange among government agencies, academia, industry stakeholders and NGOs to improve coordination and alignment in ASM policy development and implementation.
- Encourage research and innovation around technologies and techniques to enhance efficiency, productivity, and ecological balance in ASM operations.
- Promote international collaboration and knowledge exchange on ASM governance, drawing lessons from best practices and experiences from other countries (elsewhere in Africa and further afield) to best guide policy reforms.
- Adopt a licensing strategy that distinguishes between artisanal and small-scale mining permits, supported by clear definitions and criteria. It would also be useful if the permits were transferable and mortgageable.
- Foster the development of cooperatives within the ASM sector to maximize the distribution of benefits and share risks.

- Help ASMs improve their business plans to access funding and investment from diverse financial institutions.
- Encourage gender equality in the ASM sector by ensuring that policies and regulations are inclusive and do not discriminate against women. This might involve specific initiatives to support women in mining, such as improving access to finance facilities and training opportunities.
- Engage youth in the ASM sector through education and training programs. This could create economic opportunities for youth and contribute to the sector's long-term sustainability.
- Improve community-based conflict resolution systems to resolve disputes relating to mining permits, access to resources, and distribution of benefits among all ASM stakeholders.
- Because government representatives are not easily able to visit every ASM site on a regular basis, it is recommended that the DMRE use digital technologies for monitoring and regulation of ASM activities. This could involve the use of satellite imagery for monitoring environmental impacts, or for tracking the mining and rehabilitation process.
- Prioritise health, safety, and skills development initiatives for ASMs to improve operational efficiency and ensure their well-being.

6.4 Research Limitations and Recommendations for Further Research

The study encountered several limitations that influenced the scope and depth of the findings. First, it was not possible to interview the Zama Zamas, as safety concerns prevented access to this group; the Zama Zamas were also not willing to be interviewed due to concerns that they would be reported to the authorities. This prevented the researcher from being able to capture their perspectives and experiences which may be different from those of the legal ASMs.

Second, coordinating a joint meeting with policymakers, ASMs, and mine representatives proved challenging, which hindered a comprehensive and collaborative discussion of the key issues. A third limitation revolved around the narrowness of the survey and interviews, since only four mining areas were

investigated. In addition, only South African ASMs were interviewed – the perspectives and experiences of foreigners were not investigated in this study.

These limitations may have impacted the thoroughness of the insights and recommendations presented in the study. Nevertheless, despite these limitations, it is believed that the results of the research represent the material aspects of the lived experience of the ASM communities.

This research has identified several issues that might be included in future research into this topic. One such topic would be to highlight the importance of demonstrating to policymakers that effective policy implementation demands continuous effort beyond initial documentation – i.e. the importance of follow up to ensure that the ASMs actually understand the policy and how it should be implemented and also that it is being implemented successfully. Such research should focus on developing strategies for conducting successful follow-up to monitor progress, methods for collecting and analysing feedback to assess policy effectiveness, and approaches for engaging all relevant stakeholders. By focussing on these aspects, research can provide crucial insights into creating more effective, inclusive, and sustainable policies.

Furthermore, it is recommended to expand the study to additional ASM areas looking at commodity specific issues to gain a more comprehensive understanding of ASM challenges and practices in South Africa. This research only considered four areas and three commodities and only South African ASMs. The results identified the major issues which are common to the areas and commodities; however, it is thought that there might be other issues specific to particular areas that could be identified by an expanded study.

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List of Appendices

Appendix A Questionnaire

Appendix B Research Introduction Letter

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Appendix A. Questionnaire

PLEASE ANSWER THE FOLLOWING QUESTIONS BY CROSSING (X) ON THE RELEVANT BLOCK OR WRITING DOWN YOUR ANSWER IN THE SPACE PROVIDED

EXAMPLE of how to complete this questionnaire:

Your gender?

If you are female:

Male	1
Female	2

SECTION A: BIOGRAPHICAL DETAILS

This section of the questionnaire refers to the respondent's background or biographical information. Although we are aware of the sensitivity of the questions in this section, the information will allow us to compare groups of respondents. Once again, we assure you that your response will remain anonymous.

Please tick the appropriate box and supply the necessary information.

1. Gender:

Male	1
Female	2

2. In which age group are you?

20-25	1
26-35	2
36-45	3
46-55	4
56-65	5
65+	6

3. Years of Work Experience in mining

0 – 5	1
6 – 10	2
15 – 20	3
20 – 25	4
More than 25 years	5

Phase 1: Focus Groups

1. What are the key factors that motivated you to join the ASM sector?

2. What challenges have you encountered as an ASM operator?

3. What recommendations do you have for the development of the sustainable policies and legal frameworks for the ASM sector?

Phase 2: Interviews

1. What forms of institutional support does the government currently provide for the ASM sector?

2. What are key areas of intervention and possible solutions have you identified to mitigate the challenges faced by the ASM sector?

3. Has the support framework for the ASM sector been developed?

Yes	No

4. If yes, please state the development procedure.

Thank you for your participation!

QUESTIONNAIRE

For the miners

- Where do you work?
- Which country are you from?
- What motivated you to become an artisanal or small scale-miner?
- What challenges do you face as artisanal or small-scale miner?
- What are your recommendations towards the development of legal framework for ASM sector?

For the DMRE

- What constitute the ASM sector in South Africa?
- What is the current legal status of the ASM sector?
- What are the requirements and provisions for the ASM sector in the current legal framework?

- Which of these requirements is the ASM sector failing to meet and comply with?

- What are the challenges faced by the department in terms of ensuring compliances in the ASM sector?

- What is the department's view on challenges faced by the artisanal or small-scale miners in terms of meeting the compliance requirements?

- What does the proposed ASM policy meant to address, and does it help in the development of the sector?

For the state-owned enterprises (Geo-science, MINTEK, MQA)

- Should the ASM activities be legalised?

- What is your view on the development of separate legal framework for the ASM sector?

- What impacts does the legalisation of ASM sector have on the general population?

- What is the status of institutional support and what mechanisms needs to be put in place to support legislative compliance and the development of the sector?

Appendix B. Research Introduction Letter

UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

LETTER OF INVITATION FOR RESEARCH SURVEY

The School of Mining Engineering is currently undertaking research entitled: Assessing the Policies for Legalising Artisanal and Small-Scale Mining in South Africa

Therefore, we kindly request that you complete the following short questionnaire survey.

To protect your anonymity, please do not enter your name or contact details on the questionnaire. Your participation is voluntary, and you can withdraw at any time without penalty. Your privacy will be protected throughout the survey and your participation will remain confidential.

Responses will be analysed individually and will only be reported in aggregated form to protect and guarantee your anonymity.

- There will be no mention of your name or institution.

- Raw data will be stored in the personal computer of the researcher for the duration of the study, and thereafter deleted.

- Storage location is password protected.

- As part of the policies and framework response research, raw data will be aggregated in a manner that ensures no linkage to individual research participants.

- The aggregated data will be used for academic purposes only.

If you agree to participate, please complete the survey that follows this cover letter. By completing the survey, you indicate that you voluntarily participate in this research. The survey should take 15 minutes of your time. If you have any concerns, please contact us with the details provided below. By continuing with the survey, you indicate that:

- You have read and understood the information provided above.

You give your consent to participate in the study on a voluntary basis

Yours sincerely

Ledile Komape

University of Witwatersrand

School of Mining Engineering

Mobile: +27 60 947 2626

Email: ledilekomape@gmail.com

Appendix C. Consent Form

UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG

Consent Form

Title of Project: Policy and legal framework for the artisanal and small-scale mining sector in South Africa

Name of Researcher: Ledile Jane Komape

I, ……., agree to participate in this research project. The research has been explained to me and I understand what my participation will involve. I agree to the following:

(Please circle the relevant options below).

I agree that the researcher may use anonymous quotes in his / her research report	YES	NO
I agree that my participation will remain anonymous	YES	NO
I agree that the interview may be audio recorded	YES	NO
I agree that the information I provide may be used in an anonymized format after this project has ended, for academic purposes by other researchers, subject to their own ethics clearance being obtained.	YES	NO

Name of participant: ……

Signature of participant: ……

Date: ……

Name of Researcher: ……

Signature of Researcher: ……

Date: ……

Appendix D. Ethics clearance certificate

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

SCHOOL OF MINING ETHICS COMMITTEE
CONSTITUTED UNDER THE UNIVERSITY HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER: EMINN/2021/18**
PROJECT TITLE	Policy and legal framework for the artisanal and small-scale mining sector in South Africa
INVESTIGATOR	Ledile Komape
SCHOOL/DEPARTMENT OF INVESTIGATOR	School of Mining
DATE CONSIDERED	17 August 2021
DECISION OF THE COMMITTEE	Approved unconditionally
RISK LEVEL	LOW RISK
EXPIRY DATE	16 August 2024

ISSUE DATE OF CERTIFICATE 06 September 2021

CHAIRPERSON _____
(Mr H Thomas)

cc: Supervisor: Mrs P Twala

DECLARATION OF INVESTIGATOR

To be completed in duplicate and **ONE COPY** returned to the Chairperson of the School/Department ethics committee.

I fully understand the conditions under which I am are authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.

_____
Signature

Date **29 / 09/ 2021**