



**CHALLENGES AND PROSPECTS FOR SMALL-SCALE MINING  
ENTREPRENEURS IN SOUTH AFRICA**

**By**

**ZANDISILE MKUBUKELI**  
210169273

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**Supervisor: Dr Robertson K. Tengeh**

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## DECLARATION

I, **ZANDISILE MKUBUKELI**, declare that the contents of this thesis represent my own unaided work, and that the thesis has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinions and not necessarily those of the Cape Peninsula University of Technology.

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**Date**

## ABSTRACT

Small-scale mining entrepreneurs are confronted with a variety of challenges during both the start-up and growth phase of their businesses not only in South Africa, but all over the world. Most small-scale mining entrepreneurs are not able to take advantage of the opportunities that are available to them. This retards the growth of their businesses. The aim of this study was to investigate the challenges and prospects for small-scale mining entrepreneurs in South Africa, the support structures available to them as well as the factors that could make them successful.

The research problem in this study is that the mining sector is biased towards more established companies and against small-scale mining entrepreneurial operations, which marginalises small-scale mining entrepreneurs. Despite being a significant source of revenue for South Africa, the mining sector does not directly benefit the historically disadvantaged people. Notwithstanding government interventions, small-scale mining entrepreneurs face numerous challenges during both the business start-up and growth phase of their businesses with very few prospects of succeeding.

This is a qualitative study that uses a series of face-to-face interviews with mining entrepreneurs in South Africa to generate data. Given that small-scale mining entrepreneurs are in most cases part of the informal sector and difficult to locate, a database of small-scale mining entrepreneurs was obtained from Mintek. Initially, 21 small-scale mining entrepreneurs were randomly selected to participate in this study. However, it soon became apparent that ten of them were no longer in business. This meant that the sample was reduced to eleven mining entrepreneurs, located in four provinces: Free State, KZN, Mpumalanga and Limpopo.

The findings of this research reveal that small-scale mining entrepreneurs are handicapped by a lack of financial and technical resources, and therefore cannot purchase capital items. It seems that there are good prospects for small-scale mining, particularly in open markets. However, they are unable to exploit these prospects because they lack the necessary finance. Although there are support structures to assist them, they find it difficult to meet the criteria for loans or overdraft facilities from financial institutions.

Although these mining entrepreneurs have benefited from the support they have received thus far, they need equipment and commitment to their businesses to remain successful. A series of recommendations are made to guide small-scale mining entrepreneurs already in business, prospective small-scale mining entrepreneurs and other stakeholder's interested in transforming the industry.

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## DEDICATION

This thesis is dedicated to my parents

**Mtutuzeli and Zanele Mkubukeli**

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## ACRONYMS/ABBREVIATIONS

| <b>Terms</b> | <b>Explanation</b>                         |
|--------------|--|
| ANC          | African National Congress                  |
| AKMF         | Anglo Khula Mining Fund                    |
| BRICS        | Brazil, Russia, India, China, South Africa |
| DMR          | Department of Mineral Resources            |
| DTI          | Department of Trade and Industry           |
| IDC          | Industrial Development Corporation         |
| KZN          | Kwa-Zulu Natal                             |
| NAMF         | New Africa Mining Fund                     |
| NEF          | National Empowerment Fund                  |
| NYDA         | National Youth Development Agency          |
| SSME         | Small-Scale Mining Entrepreneurs           |
| SEDA         | Small Enterprise Development Agency        |
| SA           | South Africa                               |
| USA          | United States of America                   |

## CLARIFICATION OF BASIC TERMS

### ➤ **Challenges**

According to the Oxford Dictionary (2010:230) a challenge is a difficult task that tests something's ability and skill. Therefore, in the context of this study challenges are considered to be factors of small-scale mining entrepreneurs in South Africa.

### ➤ **Prospects**

Prospects broadly means the possibility that something will happen (Oxford Dictionary, 2010:1178). In the context of this study prospects means the chances of small-scale mining entrepreneurs succeeding in running profitable businesses.

### ➤ **Small-scale mining**

Small-scale mining refers to mining operations that are conducted on a small scale, often using rudimentary tools, that are commonly located in rural areas (Taylor, Appelton, Lister, Smith, Chitamweba, Mkumbo, Machiwa, Tesha & Beinhoff, 2005:111), have an income of less than R7.5 million and employ fewer than 10 people (Mutemeri, Sellick, & Mtegha, 2010:12; Mutemeri & Petersen, 2002:287; Veiga, Maxson & Hylander, 2006:436).

### ➤ **Small-scale mining entrepreneurs**

Small-scale mining entrepreneurs are previously disadvantaged people operating a small scale mine in South Africa.

### ➤ **Business-start-up phase**

A business start-up phase is a process where the entrepreneur gathers the necessary resources on a day to day basis in order to achieve a business objective (Autio, 2007:8).

### ➤ **Bootstrapping**

Bootstrapping is the technique of raising capital through a person own endeavours.

## PREFACE

### SMALL-SCALE MINING

*There are major challenges ahead for small-scale mining in South Africa. With the advent of the new Minerals and Petroleum Resources Development Act in 2002, many previously disadvantaged South Africans have begun to see small-scale mining as a way to a new life. The government has, through the former Department of Minerals and Energy now DMR, established the Directorate of Small-Scale Mining to develop and address the challenges faced by the small-scale mining sector.*

*It is essential that small-scale miners in South Africa become integrated into the greater South African mining community and that the sector becomes streamlined into the mainstream economy. As a result, the South African government has taken active measures to promote the development of this sector.*

*The small-scale mining sector includes:*

- *Artisanal or subsistence mining operations (new entrants);*
  - *Sub-optimal formal mining operations; and*
  - *Entrepreneurs with upfront capital.*

*The department is working to legalise the small-scale mining operations that currently exist, and find ways to help make them economically viable in a way that is relevant, understandable and affordable to small-scale miners.*

*The Directorate of Small-Scale Mining **assists aspiring small-scale miners** in the following ways:*

- *Establishment of a legal entity;*
- *Guidance towards the identification of mineral deposits;*
  - *Environmental impact assessment (EIA);*
- *Legal and contractual arrangements, mineral rights etcetera;*
  - *Reserve estimation of the selected deposits;*
    - *Mining feasibility study;*
    - *Market study; and*
  - *Development of the mining equipment.*

*A **Small-Scale Mining Board** has been set up as a point of delivery for the services required by the small-scale mining sector. It co-ordinates a substantial amount of expert capacity and experience and specialises in planning and developing a viable mining project through the pre-feasibility stages. The contribution of each board member is essential for professional development of a successful mining project*

**(South Africa. Department of Minerals Resources, 2015)**

## CHAPTER ONE: INTRODUCTION AND BACKGROUND

### 1.1 INTRODUCTION AND BACKGROUND

The abolition of apartheid opened up a number of opportunities for previously disadvantaged South Africans, but many obstacles to equity remain. For instance, mining is the cornerstone of the South African economy, yet it has been used by the white minority of South Africa (SA) to perpetuate inherent obstacles by precluding previously disadvantaged people from participating meaningfully in the mineral resources landscape of SA (South Africa. Department of Mineral Resources, 2009:2). By attempting to eradicate these injustices, the democratic regime envisioned that it could create a new SA in which far more of its citizens would benefit from the mineral resources of the country. This is what lay behind the introduction of the mining charter. The charter's objectives include, but are not limited to, promoting equitable access to mineral resources; expanding opportunities for previously disadvantaged people; empowering previously disadvantaged people and enabling more people to benefit from SA's mineral resources (South Africa. Department of Minerals Resources, 2009:2). Notwithstanding government interventions, only a few industries have transformed significantly. At the same time the owners of some industries are being marginalised. Small-scale mining entrepreneurs are a case in point.

Small-scale mining entrepreneurs lack effective participation in the mainstream economy because of the wide-ranging challenges they face (Mutemeri & Petersen, 2002:286; Siegel & Veiga, 2009:5). On a different note, Mutemeri, Sellick and Mtegha (2010:5) contend that small-scale mining entrepreneurs are growing in numbers and young men and women entrepreneurs are being drawn into small-scale mining all over the world. Despite this seeming contradiction, small-scale mining entrepreneurs like other entrepreneurs in SA are confronted by daunting challenges during both the start-up phase and next phases of their businesses. Given the impediments they face, small-scale mining entrepreneurs are compelled to use rudimentary methods and often conduct small-scale mining operations individually and illegally (Heemskerk & van der Kooye, 2003:666; Avila, 2003:15; Department of Water Affairs & Forestry, 2006:5; Phiri, 2011:1). As a direct result of the impediments to small-scale mining entrepreneurs, their use of rudimentary methods of extracting gold or other mineral resources are deleterious to the environment and human health (Van Straaten 2000:45; Drasch, O'Reilly, Beinhoff, Roider and Maydly (2001:151). According to Drasch *et al.*, (2001:151), small-scale mining entrepreneurs extract gold from the ore using mercury (a highly toxic chemical), thus creating a gold-amalgamation. Additionally, in order to separate the gold from the amalgamation, the gold-amalgamation is heated in the open, thus contributing to air pollution. Small-scale mining represents an environmental threat.

According to Van Straaten (2000:45) and Drasch *et al.*, (2001:151), small-scale mining entrepreneurs are confronted with similar challenges globally. Common challenges small-scale mining entrepreneurs experience during both the business start-up phase and the phases arise from a lack of financial assistance, the rudimentary methods of extracting the minerals that are used, and inadequate knowledge of how to run a business or to market goods (Van Straaten, 2000; Drasch *et al.*, 2001). However, in the midst of all these challenges, small-scale mining entrepreneurs continue to generate income for the majority of previously disadvantaged people in rural communities. There seems to be a good case for countries both here and in other parts of the world to create the necessary support structures for small-scale mining entrepreneurs to be able to sustain their enterprises. The deleterious effect small-scale mining has on the environment because of the rudimentary methods they employ to extract the minerals strengthens the case for these entrepreneurs to be encouraged and supported by the government and other interested stakeholders.

Many would agree that small-scale mining initiatives are the cornerstone of the rural economy in terms of job creation and the eradication of poverty. However, small-scale mining is still poverty-driven rather than entrepreneurially driven. Childs (2014:1), citing the International Labour Organization (1999), makes the point that more than 12 million people are either directly or indirectly employed by small-scale mining in Southern Africa alone. A similar view is presented by Hilson (2012:1663-1674). Small-scale mining entrepreneurs in Southern Africa employ whoever is available in the local community, thereby making it the leading employer in Southern African rural communities (Hilson, 2012:1663-1674). Yakovleva (2007:30) notes, however, that small-scale mining entrepreneurs predominately create jobs for uneducated women. This helps to eradicate poverty, rather than to grow their businesses. It seems that Yakovleva (2007:30) and Hilson (2012:1663-1674) are right when they argue that although small-scale mining is the leading employment provider in rural communities throughout multiple countries, it is not an entrepreneurially driven business. As in other countries, South African small-scale entrepreneurs cannot establish sustainable enterprises in the parts of the country in which they work and thus cannot exploit the prospects the mining sector offers.

However, Heemskerk & van der Kooye (2003:666) are convinced that given the increased number of prospects for small-scale mining entrepreneurs, small-scale mining entrepreneurs can exploit more of these prospects. In their view this would involve direct ownership of mines, contracting mining services, outsourcing new services and more effective marketing and trading. At present both national and international governments are considering formalising small-scale mining so that the sector can continue to contribute to the



development of the rural economy (Dondeyne & Ndunguru, 2014:1). Some governments have recognised what small-scale mining could offer and are establishing bilateral arrangements. For instance, Mothomogolo (2012:953) acknowledges that Brazil, Russia, India, China and SA (BRICS) have opened up participation in their economies to South African entrepreneurs by means of bilateral agreements.

Despite the good prospects that small-scale mining entrepreneurs seem to have, they do not succeed. One is tempted to ask a number of interrelated questions. Firstly, what makes small-scale mining entrepreneurs successful? Secondly, are there business support structures available for small-scale mining entrepreneurs in SA? The first question may be answered by drawing on the work of Nieman and Nieuwenhuizen (2009) and Tengeh, (2012). Tengeh (2012:40) contends that there are a number of dimensions that need to be considered when determining business success. Indicators of success include, but are not limited to, the numbers years of operation and the profit level. On a different note, Nieman and Nieuwenhuizen (2009:14) maintain that success factors for entrepreneurs include entrepreneurial and managerial success factors. Using the insights provided by this research (Nieman and Nieuwenhuizen, 2009:14; Tengeh, 2012:40), it seems that small-scale mining entrepreneurs are far from running successful businesses, and that they need pedagogical and business support. In answering the second question, one has to consider the kind of support mining entrepreneurs need. It seems that what they need most is the financial backing and entrepreneurial training which were funded by government entities in previous years (Cant & Wiid, 2013:707).

Support structures for small-scale mining entrepreneurs are outlined in a report by the South African Department of Mineral Resources (2006:1-43). There are ten institutions providing finance to previously disadvantaged entrepreneurs. These institutions include the Industrial Development Corporation (IDC), The New Africa Mining Fund (NAMF), Anglo Khula Mining Fund (AKMF) and the National Empowerment Fund (NEF). Hentschel *et al.*, (2003:22), however, contend that mining entrepreneurs throughout the world are without any real support structures. Without appropriate support structures, especially pedagogical and business support to mining entrepreneurs, they are unable to overcome the impediments they face during both the start-up phase of their businesses and afterwards.

Notwithstanding the significance of small-scale mining, in terms of job creation and poverty eradication, small-scale mining poses environmental challenges to the communities where they work. However, while the environmental damage caused by small-scale mining cannot be overlooked, it has to be conceded that small-scale mining is far more beneficial to the communities where they operate than the harm they cause by polluting the atmosphere.

Therefore, appropriate support structures and success drivers for small-scale mining should be given urgent attention so they can accelerate rural and economic development. Although extensive studies have been conducted on small-scale mining from different angles, for instance the environmental impact of small-scale mining (Hilson & McQuilken, 2014:104-118; de Lacedra, 2002:308-314; Yakovleva, 2007:29-41), there is a dearth of literature on the environmental challenges of small-scale mining entrepreneurs in SA.

Given the context of this research, the purpose of this study was to

- investigate challenges and prospects for small-scale mining entrepreneurs in SA;
- determine success factors of small-scale mining entrepreneurs in SA; and
- identify available support structures for small-scale mining entrepreneurs in SA.

## **1.2 STATEMENT OF THE RESEARCH PROBLEM**

Notwithstanding the substantial contribution small-scale mining makes to rural economic development across the world, it is undoubtedly true that the vast majority of small-scale mining entrepreneurs have limited access to geological information, financial assistance and business knowledge (Mutemeri, & Petersen, 2002:286; Hilson, 2003:57; Siegel & Veiga, 2009:51; Mutemeri *et al.* 2010:19). Mutemeri and Petersen (2002:286) assert that small-scale mining operations are continually hampered by a lack of financial resources and the rudimentary business methods they use. In Phiri's (2011:33) view, the lack of financial assistance and adequate business knowledge perpetuates the marginalisation of small-scale mining entrepreneurs. This makes it enormously difficult for them to successfully establish mining businesses in SA.

Mutemeri *et al.*, (2010:19) argue that small-scale mining is characterised by informal and illegal operations in SA. Hence, financial institutions are reluctant to grant loans to small-scale mining entrepreneurs. Without the necessary financial resources, they are unable to successfully establish or expand their mining businesses. In other parts of the world, small-scale mining entrepreneurs have managed to expand their operations in terms of the number of jobs created, yet success remains elusive (Appiah, 1998:310; Shen & Gunson, 2006:427; Sousa, *et al.*, 2011:742; Hilson, 2012:1663; Childs, 2014:1). The work of Appiah (1998:310), Shen and Gunson (2006:427), Sousa *et al.* (2011:742), Hilson (2012:1663) and Childs (2014:1) all show that small-scale mining operations are marginalised because they are unable to comply with statutory requirements unlike their large-scale mining counterparts. This means that small-scale mining entrepreneurs are vulnerable, despite the economic

contribution they make to the country in which they operate. Another hindrance to business growth is that these entrepreneurs employ children and women with little if any formal education (Kitula, 2006:405; Hilson, 2014:105).

There is insufficient support for small-scale mining entrepreneurs. Hilson and McQuilken (2014:104-118), who examined support for small-scale mining entrepreneurs, found that despite small-scale mining operations being the cornerstone of rural economic growth and development, policy maker's perception regarding the sector remains unchanged. Nevertheless, entrepreneurs are successful in some countries. In the study done on the organisation of small-scale mining activities in Ghana, Appiah (1998:307-310) found that there are financial gains to be made from operating a small-scale mining business in that country.

Dondeyne and Ndunguru (2014:1-8) investigated small-scale mining from a rural developmental perspective, and found that small-scale mining entrepreneurs fall short of meeting their objectives and therefore cannot play a sustainable role in the eradication of poverty. The main obstacle they face is a lack of support structures. However, Childs (2014:1-9), who explored new ways of governing small-scale mining, felt that the main obstacle to growth and development was the lack of distribution channels. He recommended that these should be created for the minerals and other products produced by small-scale mining operations.

Even though numerous studies have been documented from different perspectives on small-scale mining throughout world, there is not much literature on the challenges to and prospects for small-scale mining entrepreneurs in SA. It thus seemed important to do research in this area. ***The research problem that was identified is the strong bias in the mining sector towards more established companies, and against small-scale mining entrepreneurs. Despite being a significant source of revenue for South Africa, the mining sector does not directly benefit previously disadvantaged people. Despite government interventions, small-scale mining entrepreneurs face numerous challenges during both the start-up and growth phases of their business.***

### 1.3 MAIN OBJECTIVE

The overall objective of this research was to investigate the challenges and prospects for small-scale mining entrepreneurs in SA.

### **1.3.1 Sub objectives**

- To investigate the challenges small-scale mining entrepreneurs in SA face;
- To determine the prospects for small-scale mining entrepreneurs in SA;
- To determine the factors that make small-scale mining entrepreneurs in SA successful;
- To determine the availability of support structures for small-scale mining entrepreneurs in SA.

## **1.4 MAIN RESEARCH QUESTION**

What are the challenges and prospects for small-scale mining entrepreneurs in SA?

### **1.4.1 Sub research questions**

- What are the challenges small-scale mining entrepreneurs in SA face?
- What are the prospects for small-scale mining entrepreneurs in SA?
- What are the factors that make small-scale mining entrepreneurs in South Africa successful?
- Are there support structures available for small-scale mining entrepreneurs in SA?

## **1.5 SIGNIFICANCE OF THE RESEARCH**

Small-scale mining entrepreneurs make a substantial contribution to the alleviation of poverty through job creation in rural communities (Kitula, 2006:405; Hilson & McQuilken, 2014:104-118). Therefore, the importance of operating a small-scale mining business in SA cannot be underestimated. It is believed that by highlighting the challenges to and prospects for small-scale mining entrepreneurs in SA, this study will make a significant contribution. Furthermore, it hopes to determine the factors that make mining entrepreneurs successful and the nature of support structures that are available for them. A thorough literature search was unable to locate a study that has taken this angle, which indicated the need for this research. This means that this study contributes to the body of knowledge on the subject matter. Furthermore, it should be noted that this study was done in partial fulfilment of the requirements of the Master of Technology: Business Administration degree, and thus added to the research output of the Cape Peninsula University of Technology.

## **1.6 SCOPE OF THE RESEARCH**

This section describes the delineation and delimitations of this research.

### **1.6.1 Delineation**

Delineation in research confines the scope and boundaries of the research. This research focused on challenges to and prospects for small-scale mining entrepreneurs. In addition, this research also focused on success factors of small-scale mining entrepreneurs and the nature of support structures available to mining entrepreneurs in SA. To be more precise, the study was conducted in four provinces: the Free State, KZN, Limpopo and Mpumalanga. This study was conducted with small-scale-mining entrepreneurs who were affiliated to Mintek, an organisation regarded a global leader in mineral and metallurgical innovation, and also registered on their database. Small-scale mining entrepreneurs that were not registered on the database were not considered in this research. Furthermore, the research involved only small-scale mining entrepreneurs who had mining permits.

### **1.6.2 Delimitation**

Owing to limited funds and time, this research was conducted on small-scale mining entrepreneurs in four provinces, Free State; KZN; Mpumalanga and Limpopo, who were registered entrepreneurs on the database of Mintek and did not function as small-scale mining entrepreneurs outside those boundaries. This research did not focus on other categories of mining activities, such as junior and large scale mining.

## **1.7 RESEARCH PLAN AND DESIGN**

Tengeh (2012:19) is of the opinion that a research plan and its design are influenced by the type of questions that the research seeks to address. This study set out to describe the challenges to and prospects for small-scale mining entrepreneurs; the success factors in small-scale mining; and the nature of support structures that are available for small-scale mining entrepreneurs. The objective of this section is to provide an outline of the research design, the population of the research, the sampling design, research procedure, the research instruments and the data analysis technique that were used.

### **1.7.1 Research design**

In general terms, a research study can use qualitative, quantitative or mixed methods, a means of triangulation. The distinction between a qualitative and a quantitative design is that a quantitative research paradigm is statistically orientated. For instance, a researcher may assign numbers to observations (Brynard & Hanekom 2006:36; Dun, 2010:42; Gravetter & Forzano, 2009:147). On the other hand, the qualitative research design paradigm seeks to

gain rich data about personal experiences, for instance through in-depth interviews (Brynard & Hanekom 2006:36; Dun, 2010:42; Gravetter & Forzano, 2009:147). Therefore, this study used qualitative research to answer the main research question. In doing so, semi-structured interviews were conducted with the representatives of the organisation governing small-scale mining entrepreneurs, In order to pilot the study, on the 8 October 2014. The focus was on the challenges that face small-scale mining entrepreneurs in SA and their prospects.

### **1.7.2 Research population**

Population in research refers to a specific group of potential individuals who are to participate in a study (Brynard & Hanekom, 2006:10; Gravetter & Forzano 2009:128). The population of this research consisted of small-scale mining entrepreneurs in six provinces who were registered on the Mintek database.

### **1.7.3 The sampling design**

Many would agree that an entire population in research cannot participate in a single study because of the cost and time constraints. Apart from these constraints, there is also the size factor. The relevant population is often very large, so researchers tend to select a representative sample.

Sampling is the systematic process in which potential participants are selected to take part in a scientific investigation. The assumption is that they are in a position to provide meaningful insight into the problem being investigated (Oppong, 2013:202). Prior to making a selection, a sampling frame is often mapped. According to Blumberg *et al.*, (2011:177), a sampling frame provides a way of listing the potential population who meet certain criteria. Shortlists can then be made from which participants are chosen for the study. Mutemeri *et al.* (2010:7) asserts that small-scale mining entrepreneurs are operating informally and are hard to find because they constantly change their locations and fail to update their contact details with the relevant authority. This obstacle was overcome with the aid of Mintek. The sampling frame for this study thus consisted of small-scale mining entrepreneurs who were registered with Mintek and had mining permits. Their contact details were provided by Mintek. Using the list of small-scale mining entrepreneurs with their contact details on the database, this study employed random sampling. This meant that every person on the list had as much chance as any other to be selected (Polonsky & Waller, 2011:140). The provinces from which the participants were to be drawn were selected randomly.

A sample can be established using a probability or non-probability sampling technique (Dun 2010:205). Probability sampling entails selecting a portion of the research population based on certain probabilistic chances (Polonsky & Waller, 2011:140). Non-probability sampling maintains that a sample may be drawn from the population randomly or based on the researcher's personal judgement (Blumberg *et al.*, 2011:194; Polonsky & Waller, 2011:140).

There were 31 small scale mining entrepreneurs in six different provinces on the MINTEK data base. From those six provinces, 21 small-scale mining entrepreneurs scattered in four randomly chosen provinces were mapped as the sampling frame. Therefore, an initial sample of 21 entrepreneurs was selected. During the process of setting up appointments, it was found that only eleven mining entrepreneurs were still operating their businesses. The other ten were no longer in business. Therefore, the total sample size was reduced to eleven mining entrepreneurs located in four different provinces in South Africa.

#### **1.7.4 Research procedure**

According to popular literature, qualitative research methods are used when the researcher seeks in-depth knowledge which is characterised by people's experiences or personal views. Quantitative methods, on the other hand, are best used when the focus is on large group statistics. In this case, in-depth knowledge was what the researcher desired. Qualitative research using face to face interviews that allowed probing questions to be asked was seen as the most appropriate choice. The interviews were audio recorded on a smartphone while in progress.

#### **1.7.5 Reliability and validity**

Reliability and validity are both concerned with measuring whether the data generating instrument meets certain criteria. For instance, if the instrument is used again would it yield the same findings?

Reliability is a measure of the consistency with which a data generating instrument would elicit comparable data (Brynard & Hanekom, 2006:48; Gray, 2009:158). Reliability is measured using the following criteria: stability, equivalence, internal consistency, inter-judge reliability and intra-judge reliability (Gray, 2009:159). In ensuring reliability in this research, the research instrument was tested on two different occasions with employees at Mintek, which is an organisation governing small-scale mining entrepreneurs, to make sure that small-scale mining entrepreneurs would be able to understand what they were being asked.

The researcher also has to ensure that the results obtained from the research instrument are consistent. Validity is only achieved once the data collection instrument achieves the aims and objectives of the research (Gray, 2009:155). Validity criteria include the following elements: content validity, criterion-related validity, construct validity, face validity and external validity (Brynard & Hanekom, 2006:48). In the case of this study, in order to ensure that the research instrument would produce valid results, the research items (questions) were reviewed several times by the researcher and the study leader, to ensure that there was a correlation between the research items and the research objectives.

## 1.8 ETHICAL CONSIDERATION

Ethics in research pertains to conducting research ethically in accordance to certain principals and moral values (Blumberg *et al.*, 2001:114; Gray, 2009:69). According to Blumberg *et al.* (2011:115-118), ethics in research is a set of morals established to guide researchers:

- **Benefits:** the benefits of the study such as research objectives should be explicitly explained to the potential participants before the research begins. Therefore, the research aim and objective as well the expected outcome were clearly set out on paper and presented to small-scale mining entrepreneurs before asking them to consent to participating in the study.
- **Informed consent:** this requires researchers to submit letters of consent to participants to test their willingness for approval prior being granted ethical clearance, before asking them to sign these. A consent letter was duly obtained from Mintek for the purpose of conducting interviews with small-scale mining entrepreneurs.
- **Right to privacy:** participants were notified that they had the right to terminate the interview at any stage. Their personal details were treated with utmost confidentiality. They were assigned numbers and referred to only by these numbers. No personal details are revealed anywhere in this thesis.

Once a consent letter had been obtained from Mintek (see Appendix A), the relevant small-scale mining entrepreneurs were telephoned to ask them to consent to participate in the study and each of them did so.

## 1.9 EXPECTED OUTCOME

The expected outcome of the study is a set of recommendations to help guide small-scale miners (and would-be miners) in dealing with the challenges identified in this study and to improve their prospects. It is hoped that this thesis will also provide useful pointers to ways in which for the government and other stakeholders interested can transform the mining sector.

## 1.10 CONCLUDING REMARKS

One of the negative legacies of the apartheid regime is a mining sector that disadvantages small-scale entrepreneurial mining operations. Despite being a significant source of revenue for South Africa, the current state of the mining sector is one that does not directly benefit the previously disadvantaged. Despite government achievements, small-scale mining entrepreneurs face numerous challenges during both the start-up and growth phases of their



business. This study investigated the challenges facing small-scale miners in starting mining businesses, the limited prospects entrepreneurs have, the success factors and the support structures available to mining entrepreneurs in SA.

To achieve the research objectives an empirical study was conducted. A qualitative research design was employed to collect and analyse the data. Data were generated by means of face-to-face interviews. Given the informal nature of small-scale mining operations, mining entrepreneurs are difficult to locate. I therefore obtained a database of small-scale mining entrepreneurs from MINTEK.

The outcome of this study is a set of recommendations to guide small-scale miners (and would-be miners) to deal with the challenges and prospects identified in this study. It is hoped that the government and other stakeholders interested in transforming the mining sector will find useful pointers in it.

The following chapter reviews the current work on small-scale mining operations and provides an overview of the mining industry as a whole from both a global and a South African perspective.

## CHAPTER TWO: LITERATURE REVIEW

### 2.1 INTRODUCTION

The preceding chapter presented the rationale for this study. To reiterate, the objectives of this study were to investigate the challenges small-scale mining entrepreneurs in SA face; to determine the prospects for small-scale mining entrepreneurs in SA; to determine the success factors of small-scale mining entrepreneurs in SA; and to determine the support structures that are available for small-scale mining entrepreneurs in SA. In this chapter the literature is reviewed. It is structured into the following sub-themes: overview of mining; push and pull factors of small-scale miners to entrepreneurship; challenges of small-scale mining entrepreneurs; conceptual model of challenges; prospects for small-scale mining entrepreneurs; success factors of small-scale mining; and support structures available for small-scale mining enterprises.

According to Polonsky and Waller (2005:91), in most studies, published literature is used to argue for or against the merits of any anticipated research. A literature review encompasses multiple source of oral information, electronic materials including books and journals that position the research project into a particular field (Kaniki, 2006:19). For the purposes of this study, a wide variety of information was obtained from multiple sources. These included books, journal articles, research reports and websites. These presented a number of insights from previous research. For instance, studies have found that small-scale mining entrepreneurs predominately employ children and females with very little or no education (Hilson, 2014:105). In their study, Hilson and McQuilken (2014:104-118) investigated the availability of support for small-scale mining entrepreneurs and found that despite the critical contribution small-scale mining operations make to rural and economic development, policy maker's perception regarding the sector remains unchanged. Other findings confirm that there are financial gains to be made from operating a small-scale mine (Appiah, 1998:307-310).

However, what the survey revealed is that the literature on small-scale mining entrepreneurs is limited, especially in South Africa. The existing literature emphasises the environmental impact of small scale-mining and its significance to rural communities in Southern Africa. (Hentschel *et al.*, 2002:1-67; Kitula, 2006:405; Peg, 2006:376-387; Shen & Gunson; Mutemeri, 2010:1-24). The literature on the challenges to and prospects for small-scale mining entrepreneurs is limited.

## **2.2 OVERVIEW OF MINING**

In this section, mining is defined given that the term might have different connotations in different disciplines. Mining is also looked at from three different perspectives: mining globally, mining in Southern Africa, and the historical development of mining in SA. However, prior to that, small-scale mining and small-scale mining entrepreneurs in SA are explained.

### **2.2.1 Mining defined**

The term 'mining' has a different connotation in different schools of thoughts. For instance, Wark, Woldendorp, Spitz and Trudinger (2010:190) see mining as referring to a set of activities preponderantly occurring in hot areas, where resources are available. The South African Institute of Mining and Metallurgy (1994:1) and Craddock (1995:30) hold different views from those held by Wark *et al.* (2010:190). According to the South African Institute of Mining and Metallurgy (1994:1), mining is a process of extracting minerals underneath the surface using mechanical methods such as rock blasting. To understand the term 'rock blasting' the work of Langefors and Kihlstrom (1963:18) is used. They explain that rock blasting is the process of using explosives underground to create holes in rocks containing ore. Ore is the accumulation of minerals concentrated underground which are suitable for economic exploitation (Wills, 1997:4; Moon, Whateley & Evans, 2006:3).

There are three categories of mining: small-scale mining, junior mining and large scale mining. Junior mining refers to mining operations extracting insignificant mineral resources as opposed to large scale mining (McGill, 2005:9). According to Adu-Gyamfi (2014:524), large scale mining is broadly the opposite of small to junior mining. Conversely, small-scale mining refers to mining operations undertaken on a small-scale: using basic equipment such as picks, shovels, axes and buckets during the mineral extraction process, having the prospect of recording an annual turnover of R7.5 million and employing five to ten people (Mutemeri *et al.*, 2002:287; Taylor *et al.*, 2005:111; Veiga *et al.*, 2006:436; Mutemeri *et al.*, 2010:12).

### **2.2.2 Small-scale mining**

Small-scale mining operations vary from country to country. Researching this field presents a daunting challenge to researchers throughout the world (Dreschler, 2001:5; Hentschel, Hruschka & Priester 2003:5; South Africa. Department of Water Affairs, 2006:1; Phiri, 2011:14). It seems that there is not yet consensus on the definition of small-scale mining. Phiri (2014:14), for instance, attempts to define small-scale mining by using benchmarking. The determinants he uses are size of the mine, legality (law abiding or not) of operations, and mining paradigm. Another notable attempt was made by Hentschel *et al.* (2003:5). They

argue that small-scale mining refers to mining operations with limited mechanisation, conducted by poor individuals or families and young children throughout the world.

Drawing on the views of Mutemeri *et al.* (2002:287), Taylor *et al.* (2005:111), Veiga *et al.* (2006:436), Mutemeri *et al.* (2010:12), Mothomogolo (2010:953) and Adu-Gyamfi (2014:524), one can describe small-scale mining operations as less complex and expensive to operate than those of large-scale mining. It can also be said that small-scale mining is defined as a process of mining involving both extracting and commercialising of minerals. This study uses the above definition and confines itself to the challenges to and prospects for small-scale mining entrepreneurs; it does not include junior to large scale mining. The following section explores the difference between small-scale miners and mining entrepreneurs. It poses the question: Are we dealing with small-scale miners or mining entrepreneurs?

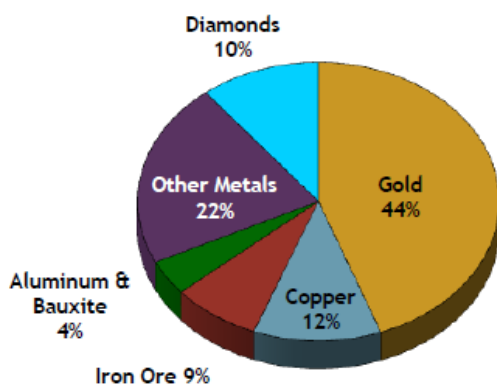
### **2.2.3 Small-scale mining entrepreneurs**

The evolution of diamond mining in SA saw mine workers making use of shovels and picks as their means of extracting minerals (Meredith, 2007:13). According to Pegg (2006:376), small-scale mining entrepreneurs are people driven by poverty to conduct informal and often illegal mining operations. Werthmann (2009:18) contends that small-scale miners are indigenous people in pursuit of financial benefits and social independence. This statement is supported by the views of (Hilson, 2012:1663-1674). Small-scale mining entrepreneurs in Southern Africa employ whoever is available in the host community, thus making it the leading employer in Southern African rural communities (Hilson, 2012:1663-1674). As a rule, those who start a business are seen as entrepreneurs, regardless of their reasons for starting or running the business. However, in the event of small-scale mining, most small-scale miners are not entrepreneurially orientated, but are poverty driven. There is a clear distinction between a small-scale mining entrepreneurs and entrepreneurs in general. This can be illustrated using the work of Nieman and Nieuwenhuizen (2009:30-31). Classification as an entrepreneur is usually based on entrepreneurial sophistication. For that reason, small-scale miners throughout the world are regarded as survival entrepreneurs. They operate in isolation and are not well-educated and are not eligible for funding (Nieman & Nieuwenhuizen, 2009:30-31). Many would agree that, a variety of survival entrepreneurs lack the necessary business knowledge. It is not surprising that they experience business challenges.

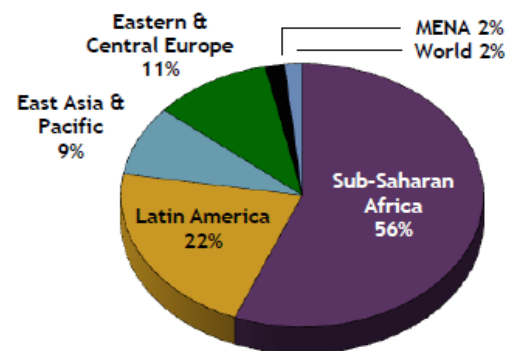
### **2.2.4 Global mining**

Mining is the cornerstone of many nations (Gregory, 1980:165). Take for instance, the case of the Australian mining sector which has been consistent in increasing production of coal and oil to meet the growing demand for minerals (Connolly & Orsmond, 2011:112). Despite

uncertain economic conditions in areas such as the Madre de Dios region of Peruvia, profits from gold mining have increased significantly as a result of the 400% rise in mineral prices during the period of 1999 to 2012 (Asner, Llactayo, Tupayachi & Luna 2013:18454). According to the International Finance Corporation (n.d:2-6), more than \$500 million (R6.4 billion) has been invested globally in the mining industry to stimulate institutional, legal and regulatory reforms, to develop the private sector and to reduce the risk posed to investment by political factors. Furthermore, the \$500 million (approximately R6.4 billion) was invested by mineral and region across 37 mining projects in 25 countries. Figures 2.1 and 2.2 graphically illustrate the roll out of the investments.



**Figure 2.1: Investment by commodity**



**Figure 2.2: Investment by region**

(Adapted from International Finance Corporation (n.d:5))

Figure 2.1 shows the allocation of the \$500 million (R6.4 billion) invested according to mineral and region. Forty four per cent (44%) was allocated to gold mining projects in Latin America, while 22% was invested in other metals. A further 12% was allocated to copper mining projects. In addition to this, 10% was spent on diamonds mining projects while 9% was invested in iron ore and 4% in aluminium and bauxite.

On the other hand, figure 2.2 reveals the regions in the world where the investments described in figure 1 occurred. Fifty six per cent (56%) of the investment occurred in Sub-Saharan Africa, 22% Latin America; 11% Eastern and Central Europe and 9% was for East Asia and the Pacific Regions. A further 2% was invested in Mena and another 2% in the rest of the world.

The above investments are made to stimulate: institutional, legal and regulatory reform; private sector development and to reduce the risk posed by political factors to investment by large-scale mining companies. The investments graphically illustrated by figure 1 and 2

depict a markedly biased mining sector that favours more established companies and discriminates against small-scale mining operations throughout the world and most importantly in SA.

### **2.2.5 Mining in Southern Africa**

Southern Africa has a rich endowment of mineral resources: gold, platinum and diamonds. Local economies rely on mineral resources to play a role in the world economy. For instance, the Democratic Republic of Congo (DRC) contributes substantially to the global production of diamonds, tin, cobalt and tantalum (Yager, 2010:1). Additionally, the DRC accounted for over 50% of the global production of cobalt in 2009. As a result, the mining industry accounted for over 13% of the Gross Domestic Product (GDP) of the DRC (Yager, 2010:1). Angola is another example. It has oil reserves that enable the country to produce over two million barrels per day, second only to Nigeria (African economic outlook, 2012:2). According to the African Economic Outlook (2012:2) Nigeria's growth averaged 7.4 % over the past decade, mainly as a result of its oil production and was projected at 6.9 % in the year 2012. However, in 2014 Nigeria's growth of 6.3% came mainly from non-oil sectors showing that the economy is diversifying in order to sustain their economic growth. (African economic outlook, 2015:1). Another example is Botswana where the economic output is rooted in the mining of diamonds. According to the country note compiled by the African Economic Outlook Organisation (2012:2), Botswana is a diamond rich nation that has managed its mineral resources in ways that have enabled it to achieve its economic goals and build the infrastructure for national development.

Ali and Miclea (2013:79) contend that despite its mineral resources of coal, gold and tantalum, previously disadvantaged citizens have not been able to establish mining businesses because of severe financial constraints, among other challenges. Despite mining being the cornerstone of resource-rich nations, one may argue that a majority of previously disadvantaged people in these countries do not benefit directly from the opportunities the minerals their country offer. The result is that there are few successful mining business start-ups or development. Take the case of SA, for instance. The country is richly endowed with mineral resources yet the majority of the population are unable to benefit from the business opportunities these represent (Fauconnier & Mathur-Helm, 2008: 2; Ntim & Soobaroyen, 2013: 121; Tangri & Southall, 2008:699).

### **2.2.6 Historical development of mining in SA**

Many would agree that mining in SA plays a crucial role in fuelling the economy. However, the controversy surrounding mining in SA dates as far back as the late nineteenth century when gold was discovered on the Witwatersrand in Johannesburg, which became the goldfields of SA (von Kelehotd, 2007:3). Smalberger (1975:19) argues that the discovery of

copper by Sir John Herschel near the Orange River (in what is now the Free State) and the establishment of the West Coast Trading and Mining Company in 1846 gave rise to the South African mining sector.

Despite these lucrative mining developments opportunities in SA, in reality SA citizens do not directly benefit from them (Jones, 1999). The platinum industry is dominated by Anglo American Platinum Cooperation Ltd (Amplats), Impala Platinum and Lonmin Platinum (foreign companies) (Jones, 1999:525). Since Amplats is the leading platinum producer in the world, this makes SA an investment destination. The major role players in coal mining are: BHP Hilton, Exxaro, Sasol, Xstrata and Anglo American (South African Mining Report Q1, 2011:26). Analysing the views held by (Smalberger, 1975:1; Macnab, 1987:1; Jones, 1996:525) and those of the South African Mining report (2011:26), it seems that ever since the establishment of the mining industry in the nineteenth century, the sector has been in the hands of established foreign-owned companies and members of the white minority of South Africa and only benefiting a few black people in terms of ownership. Therefore, a majority of previously disadvantaged citizens do not directly benefit from the investment opportunities mineral resources in SA offer.

In addressing the need for industry reforms, the newly elected democratic government introduced an empowerment strategy for all races (Ribane, 2011:1). The empowerment strategy was the Black Economic Empowerment (BEE) policy which was regulated by The Broad-Based Black Empowerment Act 53 of 2003 (Venter, Levy, Holtzhausen, Conradie, Bendemen, & Venter, 2011:242). This strategy aimed at increasing black participation in white dominated industries by diluting the ownership and management structure of white owned companies. The central thrust of the BEE strategy was thus to ensure that white owned companies sold part of their equity to previously disadvantaged citizens. For example, Sanlam sold a 10% stake in Metropolitan to a company led by the former African National Congress (ANC) Youth League, Mr Nthato Motlana, the late Dr Nelson Mandela and Archbishop Desmond Tutu (Acemoglu, Gelb, & Robinson, 2007:6). In subsequent years, mining assets were sold to BEE mining entrepreneurs such as Mr Patrice Mostepe and Mr Tokyo Sexwale (Ribane, 2011:6). Only a very small number of previously disadvantaged citizens have benefitted from these opportunities to become entrepreneurs.

### **2.3 THEORETICAL FRAMEWORK UNDERPINNING THIS STUDY**

Push and pull factors of entrepreneurship or why people become entrepreneurs (see Nieman & Nieuwenhuizen, 2009) is the theory used to determine the reasons that people become entrepreneurs. The theory reveals that many people are forced into entrepreneurship by their circumstance, while others are enticed into entrepreneurship because of their skills or expertise. Therefore, in the context of this study, the theory is used to determine whether

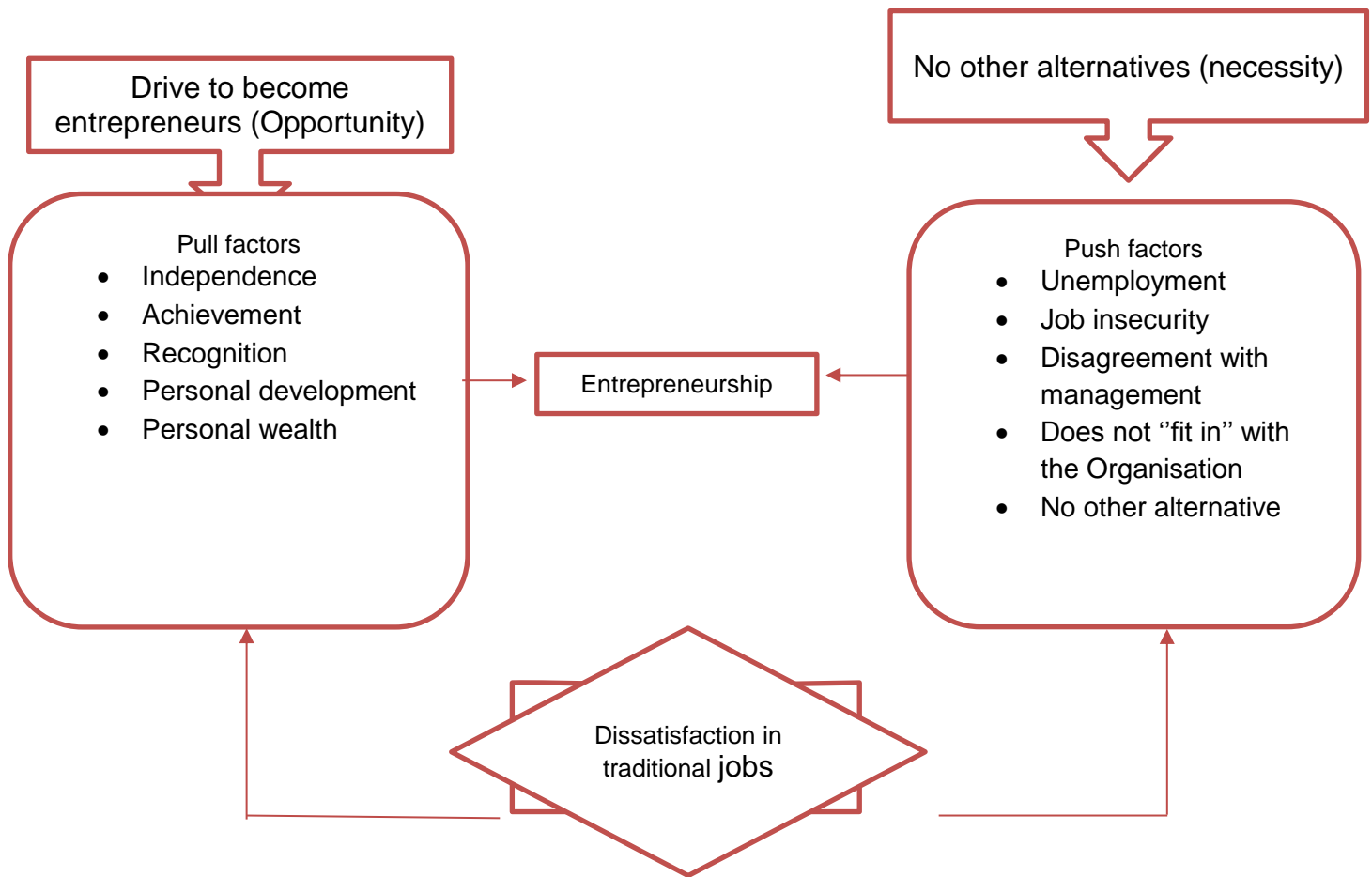
small-scale mining entrepreneurs are pushed or pulled into entrepreneurship, given that small-scale mining is not a conventional entrepreneurial initiative, as was previously stated (see 2.2.3).

### **2.3.1 Push and pull factors of small-scale mining entrepreneurs**

The South African mining industry is one that favours more established (mining) companies and marginalises small-scale mining enterprises. People are pushed into entrepreneurship because of their circumstance while some are pulled into entrepreneurship by opportunities (Nieman & Nieuwenhuizen, 2009:34). At present there are a number of theories on what makes people decide to become entrepreneurs, but few attempts have been made to gain an insight into the factors that entices people to become small-scale mining entrepreneurs. According to Nieman and Nieuwenhuizen (2009:34), push and pull factors theory highlights the factors that entice people to become entrepreneurs as well as factors that push people to become entrepreneurs. It seems that people are often pulled into entrepreneurship by the need for independence or for financial rewards (Evan & Dean, 2002:1). Shane, Kolvereid and Westhead (1991:432) argue that the vast majority of people are pulled into entrepreneurship by their passion to be entrepreneurs and a need for independence. In similar vein to Shane *et al.*, (1991:432), Barring and Ireland (2010:31) contend that the factors enticing people into entrepreneurship are the need for independence and pursuit of financial rewards.

Shane *et al.*, (1991:432) suggest that whereas the desire for independence and recognition is a major pull factor to entrepreneurship, job dissatisfaction is the major push factor to entrepreneurship. However, more research on the push factors to entrepreneurship is needed. In the case of small-scale mining, many consider that small-scale mining entrepreneurs are pushed into entrepreneurship rather than enticed into it, given that small scale miners are people who are pushed into entrepreneurship through poverty, as stated earlier in the argument. The latter view is supported by (Kirkwood, 2002:346), who contends that most people are pulled into entrepreneurship by their difficult circumstances. This strengthens the call that further exploration is necessary to determine whether small-scale mining entrepreneurs are pushed into entrepreneurship and not pulled into it. Figure 2.3 illustrates push and pull factors of entrepreneurship in the context of small-scale mining entrepreneurs.





**Figure 2.3: The push and pull factors of entrepreneurship**

(Adapted from Nieman & Nieuwenhuizen (2009:34))

### 2.3.2 Push factors to entrepreneurship

The following are factors that push people to become entrepreneurs. The factors include unemployment, job insecurity, disagreement with management, an inability to fit in with the organisation, or no alternative. As noted in 2.3.1, Shane *et al.* (1991:432) consider that job dissatisfaction is a push factor. As has already been said, it seems that, in many instances, people are pushed into entrepreneurship by their negative circumstances (Kirkwood, 2002:346).

Women seem to have yet another reason for becoming entrepreneurs. They are often lured into entrepreneurship because of their lack progress in their working environment (Kirkwood, 2009:347). Orhan and Scott (2001:233) argue that the key factors that push women into entrepreneurship are lower salaries; insufficient family income and an inability to find other

work. In what follows more detailed attention is given to some of the factors that push people into entrepreneurship.

#### **2.3.2.1.1 Unemployment**

Generally, individuals find entrepreneurship as an alternative to being unemployed. With regard to small-scale mining entrepreneurs, as previously stated by (van Straaten, 2000:46; Hentschel *et al.*, 2002:3; Veiga *et al.*, 2006:436; Werthmann, 2009:19; Hilson, 2009:1; Sousa *et al.*, 2011:19; Hilson, 2012:1663), a significant proportion of people in Southern Africa, in fact globally are pushed into small-scale mining by poverty and unemployment.

#### **2.3.2.2 Job insecurity**

In most instances, employees who are employed on a contract basis face uncertainty, wondering whether their contracts are going to be renewed or not. On a different note, employees often become dissatisfied with the job they are doing (Shane, *et al.*, 1991:432). Co, Groenewald, Mitchell, Nayager, Visser, Train and Emanuel (2006:50) state that job insecurities, lack of fulfilment in their jobs or retrenchment are valid reasons that make people become entrepreneurs. However, small-scale mining entrepreneurs do not seem to have started up their enterprises because they were affected by job insecurity. The reasons are more likely to be retrenchment, unemployment and employment that is seasonal only, as well as previous experience as a mine workers.

#### **2.3.2.3 Disagreement with management**

In the event that the views of employees conflict with those of management, the resultant disagreements may sometimes lead employees to start their own business ventures. However, a lack of recognition from employers may also cause tension (Orhan & Scott, 2015:232). For that reason, many employees choose to make self-employment a permanent solution (*ibid.*). At present, there is very little literature on small-scale mining and small-scale mining entrepreneurs and hardly any on their experience of entrepreneurship. However, it does seem that small-scale mining entrepreneurs in Southern Africa employ whoever is available in the local community. This makes them the leading employer in Southern African rural communities (Hilson, 2012:1663-1674). Given that a vast majority of entrepreneurs were unemployed prior to engaging in small-scale mining, it is a fair assumption that few of those in small-scale mining were pushed into entrepreneurial enterprises because of a disagreement with management.

#### **2.3.2.4 Does not “fit in” with the organisations**

Understandably, people’s views may often conflict with that of the organisation that employs them. It is also possible that some employees may feel at home with the general ethos of the organisation. Co *et al.*, (2006:49) state that people are pulled into entrepreneurship because of their frustration with lack of promotion or job dissatisfaction. In such cases, they can use the experience they have gained to establish their own business. However, with regard to this study, it seems that small-scale mining entrepreneurs did not leave an organisation to start their own business. They started a small-scale mine to put food on the table for their family.

#### **2.3.2.5 No other alternatives**

All over the world small-scale mining employs a significant number of indigenous people in rural communities (Hentschel *et al.*, 2002:3), thus playing a critical role in addressing unemployment and poverty in rural areas. In 2002 it was estimated that more than twelve million people globally were directly employed or involved in small-scale mining operations (Hentschel *et al.*, 2002:3). Hilson (2009:1) contends that in sub-Saharan Africa, more than two million people are directly involved in small-scale mining operations. Based on the foregoing premises, it seems that small-scale miners are left with only one option, which is to engage in small-scale mining albeit illegally or informally with regard to rules and regulations. As previously stated, small-scale mining entrepreneurs have no other alternative, given the scarcity of job in rural communities. Therefore, small-scale mining entrepreneurs may be said to be pushed into entrepreneurship because they have no other choice.

#### **2.3.3 Pull factors to entrepreneurship**

There are several factors that entice people to become entrepreneurs. A few of these are discussed below: independence, achievement, recognition, personal development and personal wealth. According to Ducheneaut (1997 in Orhan & Scott, 2001:233), the pull factors of entrepreneurship include but are not limited to: independence, self-fulfilment, entrepreneurial drive and desire for personal wealth.

##### **2.3.3.1 Independence**

Co *et al.* (2006:51) postulate that entrepreneurs find the prospect of independence enticing. Shane *et al.* (1991:435) states that independence was ranked first as a pull factor into entrepreneurship across three different countries. Barringer and Ireland (2010:33) confirms that independence and the pursuit of financial rewards are the main reasons why people become entrepreneurs. On a different note, a study conducted by Solesvik (2012:258) demonstrates that, individuals are primarily influenced to become entrepreneurs because of

their desire to be in control. It seems then that people are attracted to entrepreneurship by the prospect of being their own boss and the concomitant financial rewards, as well the prospect of gaining their independence. However, this is rarely true of small-scale miners, whose main purpose is to obtain mineral resources and sell them in order to buy food for their families. Therefore, small-scale mining entrepreneurs cannot be said to be pulled into entrepreneurship. Hentschel *et al.*, (2002:3) present a telling argument. They point out that unlike their large scale mining counterparts, small scale mining entrepreneurs are poverty-alleviation orientated rather than commercially orientated. Hence, it is fair to say that small scale mining entrepreneurs are not pulled into entrepreneurship.

#### **2.3.3.2 Achievement**

Many aspiring entrepreneurs are driven by the need for achievement (Reynolds, *et al.*, 2002) in Carsrud & Brannback, 2011:13). Managing one's own business is one way of gaining recognition in society. However, this is not the case for small-scale miners. Their main achievement is to put food on the table for their families rather than an interest in the fulcrum that establishing an entrepreneurial small-scale mining businesses could offer. A study by Lee (1996:18) assumes that the need for achievement is part of our needs and that women in particular are pulled into entrepreneurship by this need. Another pull factor towards entrepreneurship is a society which values personal achievements (Pruet, Shinnar, Toney, Llopis & Fox, 2008:573).

#### **2.3.3.3 Recognition**

Recognition refers to the social status derived from operating one's own business. Carsrud and Brannback (2011:11) argue that push and pull factors of entrepreneurship are nothing more than motivation. Furthermore, motivation is usefully described by two theories: driven theory and incentive theory. On the one hand, drive theory suggests that people are driven by internal stimuli such fear or hunger. On the other hand, incentive theory describes people as being driven by the goal of recognition or achievement. Given that there is no evidence that small-scale mining entrepreneurs are driven by a desire for recognition or achievement, many would agree that small-scale mining entrepreneurs are driven into entrepreneurship.

#### **2.3.3.4 Personal development**

Small-scale miners are not attracted into this kind of business because they are interested in personal development, as majority of them are not educated and do not plan to improve their personal competence. They are more likely to exercise their freedom and ability to pursue their own business ideas for financial gain. However, it is possible for culture to be one of the factors pulling people into entrepreneurship. For instance, some cultures encourage risk-taking and independent thinking (Hayton *et al.*, 2002:33 cited in Pruet *et al.*, 2008:573).

### **2.3.3.5 Personal wealth**

Starting and managing a business can result in financial gains. However, small-scale miners are confined to making very low profit margins. Evidently, small scale mining entrepreneurs do not start a small scale mining enterprise due to pursuit of wealth but rather start business to be able to provide food for their families. Therefore, small scale mining entrepreneurs are not attracted into entrepreneurship because their desire for personal wealth.

The push and pull factor theory deals with the factors that entice people to become entrepreneurs and factors that force people into entrepreneurship. It seems that small scale mining entrepreneurs that are pushed into entrepreneurship are bound to experience more complex challenges than people who are pulled into entrepreneurship given the level of education and training of entrepreneurs that are pulled into entrepreneurship.

## **2.4 CHALLENGES OF SMALL-SCALE MINING ENTREPRENEURS IN SA**

Small-scale mining entrepreneurs are confronted with a variety of challenges (Appiah, 1998:307; South Africa. Department of Water Affairs, 2006:5). According to the Department of Water Affairs (2006:5), small scale mining entrepreneurs represent a low degree of ownership in the mining industry and lack financial and human capital. Challenges of small-scale mining entrepreneurs revolve around: marketing, geological, human capital, organisational and financial issues (Hentschel *et al.*, 2002:5-6; Mutemeri & Petersen, 2002:286; Hentschel *et al.*, 2003:7; Mutemeri, *et al.*, 2010:16; Buxton, 2013:7). Mutemeri *et al.* (2010:16) shares the views expressed by Appiah (1998:307) and the Department of Water Affairs (2006:5), which contend that small-scale mining entrepreneurs are confronted with the following issues: licensing and formalisation, and access to technology and finance. An international study by Hentschel *et al.* (2002:6) vividly illustrates the challenges faced by small-scale mining entrepreneurs (see table 2.1).

**Table 2.1: Challenges of small-scale mining entrepreneurs SA**

|   |   |
|---|---|
| <p><b>Geological challenges:</b></p> <ul style="list-style-type: none"> <li>• Lack of appropriate ore bodies</li> <li>• Lack of geological information</li> </ul>   | <p><b>Human capital challenges:</b></p> <ul style="list-style-type: none"> <li>• Unskilled labour force</li> <li>• Lack of knowledge</li> <li>• Lack of cultural understanding</li> </ul> |
| <p><b>Legal challenges:</b></p> <ul style="list-style-type: none"> <li>• Lack of political stability</li> <li>• Inappropriate investment climate</li> <li>• Lack of formalisation of the sector</li> </ul>  | <p><b>Technological challenges:</b></p> <ul style="list-style-type: none"> <li>• High use of labour intensive technology</li> <li>• High losses of values and time</li> </ul>             |
| <p><b>Marketing challenges:</b></p> <ul style="list-style-type: none"> <li>• Access to market only via <b>INTERMEDIARIES</b></li> <li>• Market barriers</li> <li>• Market regulations</li> </ul>  | <p><b>Organizational challenges :</b></p> <ul style="list-style-type: none"> <li>• Lack of umbrella organisation</li> <li>• Lack of coordination and cooperation</li> </ul>               |
| <p><b>Financial challenges:</b></p> <ul style="list-style-type: none"> <li>• Inappropriate feasibility studies</li> <li>• Uneconomic investment decisions</li> <li>• Lack of accurate bookkeeping and cost analysis</li> <li>• Lack of capital</li> <li>• Limited access to investors and equity capital</li> </ul> |   |

(Sources; Hentschel *et al.* (2003:7)).

The challenges listed in table 2.1 are discussed in detail below:

#### **2.4.1 Geological challenges**

Small-scale mining operations that use rudimentary tools to extract the minerals are commonly located in rural areas (Taylor *et al.*, 2005:111), have a revenue less than R7.5 million, and employ fewer than 10 people (Mutemeri *et al.*, 2010:12; Mutemeri & Petersen, 2002:287; Veiga *et al.*, 2006:436). Consequently, small-scale mining entrepreneurs produce only minimal output. However, the minerals being extracted are usually high in quality. Therefore, the vast majority of small-scale mining entrepreneur do not experience setbacks

related to geological aspects. However, it should be acknowledged that a major challenge to small-scale mining entrepreneurs is the high cost of a geological survey to identify where the minerals are situated in a particular area of land. Without a geological survey, small-scale mining entrepreneurs are unable to plan accurately prior to the start-up phase of the business. Fortunately, governments have joint ventures to provide commercially viable and sustainable facilities for small scale mining entrepreneurs (Dreschler, 2001:8).

#### **2.4.2 Financial challenges**

The financial challenges small-scale mining entrepreneurs face are not confined to the lack of start-up capital. Cassar (2004:261) contends that financial capital is of paramount importance to a business success at any stage, regardless of the non-financial resources the entrepreneurs have. According to Mutemeri *et al.* (2010:19), small-scale mining entrepreneurs need capital to grow or either start-up their mining operations. On the contrary, financial institutions are prejudiced against small-scale mining entrepreneurs because of their erratic performance and the inherent risks in small-scale mining operations. Small-scale mining entrepreneurs sometimes finance their own start-ups, either through family and friends or by means of bootstrapping. Ebben and Johnson (2006:851) suggest that the use of bootstrapping is pervasive among small firms wanting to finance the start-up of their business. Bootstrapping is using personal funds or selling personal equipment to fundraise for business start-ups or for expansion of the business. In short, bootstrapping is a common technique used by small businesses that are unable to obtain loans from financial institutions.

#### **2.4.3 Human capital challenges**

According to Venter, Urban and Rwigema (2008:40), human capital is a set of skills and knowledge acquired throughout past experience, including educational qualifications. Many small-scale mining entrepreneurs are without the necessary skills needed to operate a small-scale mining business. They do not have the experience of successfully starting and growing businesses to draw on, let alone educational qualifications. This lack of human capital is a major hindrance. However, this is not the only problem. Mutemeri, *et al.* (2010:17) argues that in some cases those with who do have a certain amount of knowledge are not successful because they lack the practical experience of conducting small-scale mining operations.

#### **2.4.4 Marketing challenges**

Hentschel *et al.* (2002:5-6), Mutemeri and Petersen (2002:286), Hentschel *et al.* (2003:7), Banister *et al.* (2006:1) and Mutemeri, *et al.* 2010:16) all argue that small-scale mining entrepreneurs are seriously hampered by not being able to meet the challenge of establishing markets for their products and services. In discussing these marketing

challenges, Hair, McDaniel, Boshoff and Terblanche (2008:125) contend effective marketing requires being able to collect and analyse marketing data and then use it to make decisions on the strategies they should use. Small-scale mining entrepreneurs also need to have an accurate picture of the needs and wants of a particular market. However, small-scale mining entrepreneurs lack financial and human capital means that small-scale miners do not have the necessary skills to collect and analyse marketing information nor the ability to use this kind of information to make sound business decisions. Therefore, small-scale mining entrepreneurs continue to make ill-informed decisions as far as marketing is concerned.

#### **2.4.5 Technological challenges**

Mutemeri *et al.* (2010:18) contend that despite technological requirements being different from one operation to another, mining entrepreneurs across all regions experience a similar challenge, which is that they do not have the technology needed to operate effectively and efficiently. According to Phiri (2011:14) small-scale mining entrepreneurs make use of rudimentary tools because they do not have the capital to obtain technological equipment.

#### **2.4.6 Legal challenges**

Before small-scale mining entrepreneurs are allowed to initiate legal operations, compliance with environmental legislation is required (United Nations Environment Programme, 2012:14; United Nations Environment Programme, 2012:4; Zevallos & Chilmaza, 2012:12; Barreto, 2012:13; Hinton, 2012:18). It is the lack of compliance that hinders small-scale mining operations. If small-scale mining entrepreneurs do not hold the mineral rights to the site where they intend to operate and are without an environmental management plan, no authority can engage fruitfully with small-scale mining entrepreneurs, including financial institutions.

#### **2.4.7 Organisational challenges**

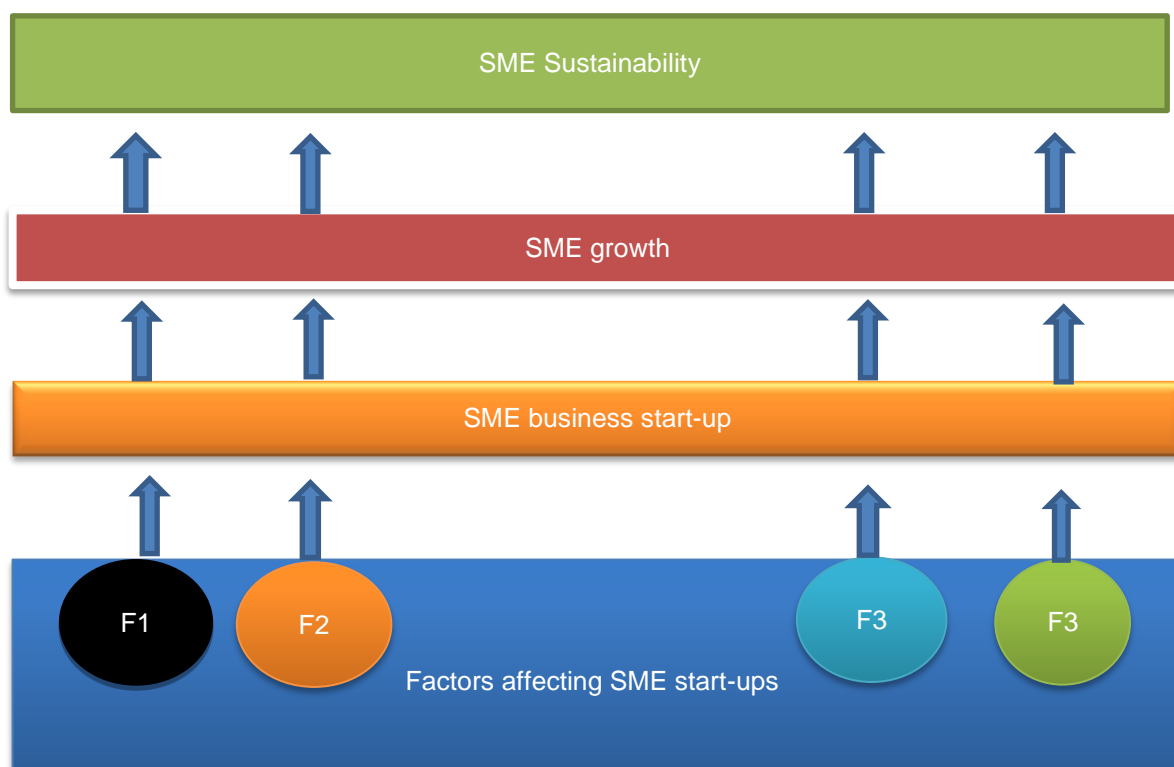
Organisational challenges include the lack of strategic intent and lack of human resources to govern small-scale mining operations. According to Aardt, Barros, Clearance, Van Rensburg, Radipere, Rankhumise, Venter and Visser, 2013:107), any business whether big or small should be able to design and oversee systems to improve efficiency. In the case of small-scale mining entrepreneurs, little is done to introduce systems to improve efficiency. According to Hentschel *et al.* (2002:5-6), Mutemeri and Petersen (2002:286), Hentschel *et al.*, (2003:7), Banister *et al.* (2006:1) and Mutemeri *et al.*, 2010:16, small-scale mining entrepreneurs do not belong to an umbrella organisation, meaning they do not have associate or subsidiaries, companies to assist them to introduce better systems or to plan for expansion. They also do not have a conceptual model of the challenges they face to help them have a better overall grasp of how to overcome them.



## **2.5 CONCEPTUALISING THE CHALLENGES OF SMALL-SCALE MINING ENTREPRENEURS IN SA.**

The problem underpinning this study can be best described using the conceptual model which is based on the literature as a lens to view challenges to and prospects for small-scale mining entrepreneurs in both starting and growing their businesses. Figure 2.4 is a proposed conceptual model. The model suggests that there are factors (challenges) hindering a small-scale mining business from being sustainable in terms of raising finance and utilising appropriate equipment for business success. The model is categorised into four stages. Colour was therefore, used to distinguish the different stages. The first stage is where small-scale mining entrepreneurs are faced with factors hindering small-scale mining entrepreneurs. The next (second) stage is the Small to Medium Enterprise (SME) business start-up. The third stage is SME growth stage. The fourth (last) stage is the SME sustainability phase. The relationship and meaning of these stages are explained underneath the figure.

The four circles marked with F1, F2, F3 and F4 in the first element of figure 2.4: are the challenges that prevent small-scale mining entrepreneurs from establishing successful businesses. These are a lack of geological information, access to markets, and lack of human and financial capital. The start-up, growth and sustainability diagrams indicate the resources available to small-scale mining entrepreneurs to build sustainable businesses. The relationship between challenges and start-up, growth and sustainability factors is that if these challenges are mitigated successfully a successful business start-up will emerge. Furthermore, if each of these phases is successfully achieved, the next phase will follow and the venture will be a successful mining business. However, if the entrepreneurs do not overcome the challenges, the mining business will fail. The trajectory is thus that when those challenges are met, a business start-up will successfully emerge, followed by growth and sustainability. If these challenges are poorly managed, sustainable growth will not be possible. In short, the mining business will not be successful. Therefore, small-scale mining entrepreneurs will have no prospect of building successful businesses.



**Figure 2.4: Conceptual model used a lens to view the research problem**

(Source: Compiled by the researcher)

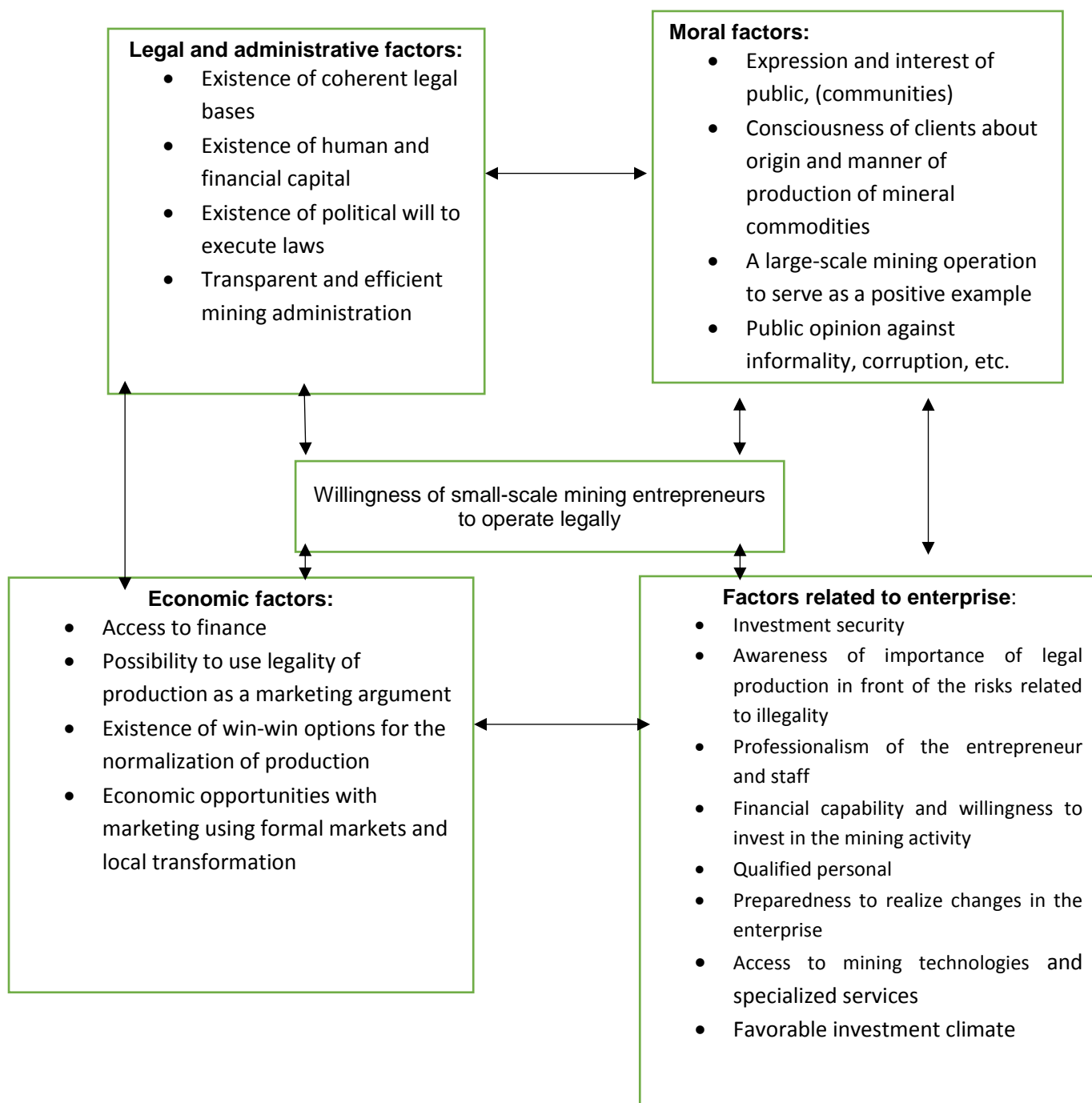
## 2.6 PROSPECTS FOR SMALL-SCALE MINING ENTREPRENEURS

### 2.6.1 Prospects

Both national and international governments are considering encouraging small-scale miners so that the sector can grow and foster rural economic growth and development (Dondeyne & Ndunguru, 2014:1). Hilson (2012:1663-1674) argues that small-scale miners in Southern Africa employ whoever is available in their community, making it the leading employer in Southern African rural communities. Some countries like Brazil, Russia, India and China (all members of BRICS), which have recognised that the small-scale mining sector could offer sustainable livelihoods to many rural people, have established bilateral agreements (Mothomogolo, 2012:953) that open up opportunities to South African entrepreneurs. Small-scale mining entrepreneurs can create joint ventures with international companies and share synergies in order to increase their business efficiency. Heemskerk and van der Kooye (2003:666) argue that these opportunities mean that small-scale mining entrepreneurs have the prospect of: **direct ownership of mines, contracting mining services, outsourcing new services and marketing and trading.**

Small-scale mining has been documented from different perspectives. For instance Hilson and McQuilken (2014:104-118) have examined support for small-scale mining entrepreneurs and found that despite small-scale mining being critical to rural economic growth, policy makers' perceptions of this sector have not changed. Nonetheless, Appiah's (1998:307-310) exploration of the organisation of small-scale mining activities in Ghana reveal that there are financial gains from operating a small-scale mine. Dondeyne and Ndunguru (2014:1-8), however, take a different view. Their analysis of small-scale mining from a rural developmental perspective found that without government support, small-scale mining entrepreneurs cannot start-up businesses.

As was illustrated in 2.5, entrepreneurs need to overcome a complex set of start-up challenges. One of these is that they have to obtain a mining permit. For, Hilson and Murck (2000:227), however, the fundamental ingredients in operating small-scale mining operations are sound planning and implementation. Would be small-scale mining entrepreneurs would have no prospect of success without these. The following figure (Figure 2.5) displays some of the prospects for small-scale mining. It suggests that the prospects available to small-scale mining entrepreneurs are interrelated. It also illustrates that the prospect of successful small-scale mining depends on a willingness to operate in a legal environment. Once small-scale mining operations are managed successfully, small-scale mining entrepreneurs have a strong chance of venturing into junior mining if they are able to sustain strategic relationships. The following sub-sections explain figure 2.5 more fully.



**Figure 2.5: Factors influencing the willingness of small-scale mining entrepreneurs to operate legally**

(Source: Adapted from: Hentschel *et al.* (2003:10))

### 2.6.1.1 Legal and administrative prospects

Figure 2.5 presents a set of prospects for small-scale mining entrepreneurs who are willing to operate legally. These prospects depend on compliance with legal statutory requirements so that small-scale mining entrepreneurs can obtain mining permits.

### **2.6.1.2 Economic prospects**

Small-scale mining entrepreneurs will have real economic prospects only when they own legal entities. Economic prospects depend on access to finance, investment security and the opportunity to establish formal markets which will enable small-scale mining entrepreneurs to access mining technology and develop a set of business ethics.

### **2.6.1.3 Moral prospects**

Small-scale mining entrepreneurs have the prospect of being ethical businessmen who are guided by moral principles in their relationships with clients and in the way they run their operations.

### **2.6.1.4 Entrepreneurial prospects**

Small-scale mining entrepreneurs have the prospect of establishing formal entities and gaining access to support from private consultants if they can afford prices charged by private consultants. Furthermore, small-scale mining entrepreneurs could have access to financial security and qualified personnel, which will drive business success.

## **2.7 SUPPORT STRUCTURES FOR SMALL-SCALE MINING ENTREPRENEURS**

The objective of this section is to explore whether small-scale mining entrepreneurs should be supported or not.

### **2.7.1 Reasons to support small-scale mining entrepreneurs**

Veiga, Maxson and Hylander (2006:436) contend that small-scale mining is essentially a lucrative activity for many people in developing nations. Currently the main reason to support small-scale mining entrepreneurs is that local communities and the economy benefit immensely from small-scale mining operations. For instance, a significant proportion of the population in Burkina Faso works in the informal sector, including small-scale mining (Werthmann, 2009:19). Hentschel *et al.*, (2002:3) asserts that across all regions small-scale mining employs a large number of local people in communities, as a result the sector plays a very critical role in addressing unemployment and poverty in rural areas.

In 2002 it was estimated that more than twelve million people globally were directly employed or involved in small-scale mining operations (Hentschel *et al.*, 2002:3). According to Hilson (2009:1), more than two million people in sub-Saharan Africa, are directly involved in small-scale mining operations. According to van Straaten (2000:46), twenty five thousand people were directly working in small-scale mining camps in the Bukombe and Shinyanga District of northern Tanzania. In some countries the figure is much higher. In Brazil, for instance, small-scale mining operations employ an estimated two hundred thousand or more people (Sousa,

Veiga, Van Zyl, Telmer, Spiegel & Selder, 2011:19). Hilson (2012:1663), citing the International Labour Organisation (ILO), reveals that in sub-Saharan Africa, more than ten million people are directly employed in small-scale mining.

Drawing on the work of (van Straaten, 2000:46; Hentschel *et al.*, 2002:3; Veiga *et al.*, 2006:436; Werthmann, 2009:19; Hilson, 2009:1; Sousa *et al.*, 2011:19; Hilson, 2012:1663) it seems that there are widespread benefits to be gained from small-scale mining operations. Widespread in the sense that it benefits the owners of small-scale mines, communities and the concerned government immensely. First and foremost, small-scale miners enable people living in extreme poverty to be their own source of income. This means that the number of people engaging in small-scale mining can increase the amount of mineral deposit being mined. Moreover, more people engaging in small-scale mining means there is more money circulating within the economy thus increasing the GDP (Veiga, n.d:1). Small-scale mining across the globe provides a source of income to more than 30 million people and accounts for an estimated 20% of the gold global production (*ibid.*).

Despite these strong arguments for it, small-scale mining has attracted a great deal of controversy. Even though it provides direct employment to a substantial number of poor people in rural communities, some critics believe that small-scale miners growing their workforce as a means of decreasing the cost of establishing their businesses. Moreover, small-scale mining entrepreneurs do not have the strategic acumen that would enable them to grow their operations into multinational companies, as do large scale mining operators. Hence, small-scale mining entrepreneurs cannot acquire the necessary resources and technology needed to decrease emission of pollutants into the atmosphere or other impacts on the environment.

### **2.7.2 Reasons to oppose mining entrepreneurs**

Small-scale mining has numerous disadvantages. Werthmann (2009:19), for instance, argues that in areas where small-scale mining is in operation, prostitution and drug abuse is rife. However, the main reasons to oppose small-scale mining are rooted in the inappropriateness of legislation that governs small-scale mining operations (Hilson: 2012: 3). For instance, mining permits in SA last approximately five years. This raises an obvious question: How feasible is it for small-scale mining entrepreneurs to acquire the capital to acquire long term assets and be able to repay loans within a period of less than five years? It seems there are many obstacles to successful small-scale mining operations.

Shen and Gunson (2006:427) contend that reasons to oppose small-scale mining are reflected in the global coverage of this sector. Banchirigah (2008:29 citing Davidson, 1993; UN, 1996; Kitula, 2006; Fisher, 2007) see the reasons to oppose small-scale mining as rooted in the environmental impact of small-scale mining operations. Tylor, Appleton, Lister,

Smith, Chitamweba, Mkumbo, Machiwa, Tesha and Beinhoff (2005:112) explain that small-scale mining operations use mercury to extract minerals thus causing water and air pollution in developing countries.

### **2.7.3 Support structures for mining entrepreneurs**

The need for support to be provided to South African entrepreneurs is not a new phenomenon. Support for small-scale mining entrepreneurs is outlined in a report by South Africa. Department of Mineral Resources (2006:1-43) indicating (10) institutions that provide finance to previously disadvantaged entrepreneurs. These institutions include: IDC, NAMF, AKMF and the NEF. On the other hand, Hentschel *et al.* (2003:22) state that small-scale mining entrepreneurs in their host countries are without support. This has led researchers to present several recommendations to both national and intentional government to encourage fair-trade initiatives, where small-scale mining entrepreneurs are provided with suitable market conditions to sell their products to emerging economies through the formation of cooperatives. Notwithstanding the presence of support agencies of small-scale mining, a study by Shen and Gunson (2006:427) confirms that despite the public utterances by both national and intentional government, small-scale mining entrepreneurs are without support. It seems governments have yet to make sufficient effort to regulate and encourage the sector. As Shen and Gunson (2006:427) point out, although some state organs provide support structures for small-scale mining entrepreneurs in SA, it seems that they are inadequate. .

Mutemeri and Petersen (2002:292) argue that if small-scale mining entrepreneurs were to receive a high level of support and extensive regulation, they would be in a position to make an immense contribution to rural economic development, creating jobs and wealth for small-scale mining entrepreneurs and host communities.

## **2.8 SUCCESS FACTORS FOR A SMALL-SCALE MINING BUSINESS**

The objective of this section is to highlight factors that can drive business success in the small-scale mining sector.

### **2.8.1 Success factors**

According to Venter *et al.* (2008:226), entrepreneurs contribute immensely to economic growth in many nations. Tengeh (2012:40) is of the opinion that when determining business success, a variety of dimensions can be used to indicate business success. Furthermore, indicators of success include but are not limited to: the numbers of years in operation and profit. Nieman and Nieuwenhuizen (2009:14) maintain that success factors for entrepreneurs can be into entrepreneurial success factors and managerial success factors which are tabulated on the next page:

**Table 2.2: Success factors**

| <b>Entrepreneurial success factors</b> | <b>Managerial success factors</b>                 |
|--|---|
| Creativity and innovation              | Planning  |
| Risk orientation                       | Knowledge of competitors                          |
| Leadership                             | Mainly market orientated                          |
| Good human relations                   | Client services                                   |
| Positive attitude                      | High-quality work enjoys priority                 |
| Perseverance                           | Financial insight and management                  |
| Commitment                             | Knowledge and skills with regards to the business |
|  | The use of experts                                |

(Source: Adapted from Nieman & Nieuwenhuizen (2009:14))

Table 2.2 distinguishes between two sets of business success drivers one being entrepreneurial while the other is managerial. Entrepreneurial drivers for success are that the entrepreneur operating a small-scale mine, or any business for that matter, should be creative and innovative in running a business. Additionally, the entrepreneur should be brave enough take calculated risks. Most importantly, entrepreneurial success drivers require entrepreneurs to be committed and persevere regardless of the challenges small-scale mining operations, or any business for that matter, present.

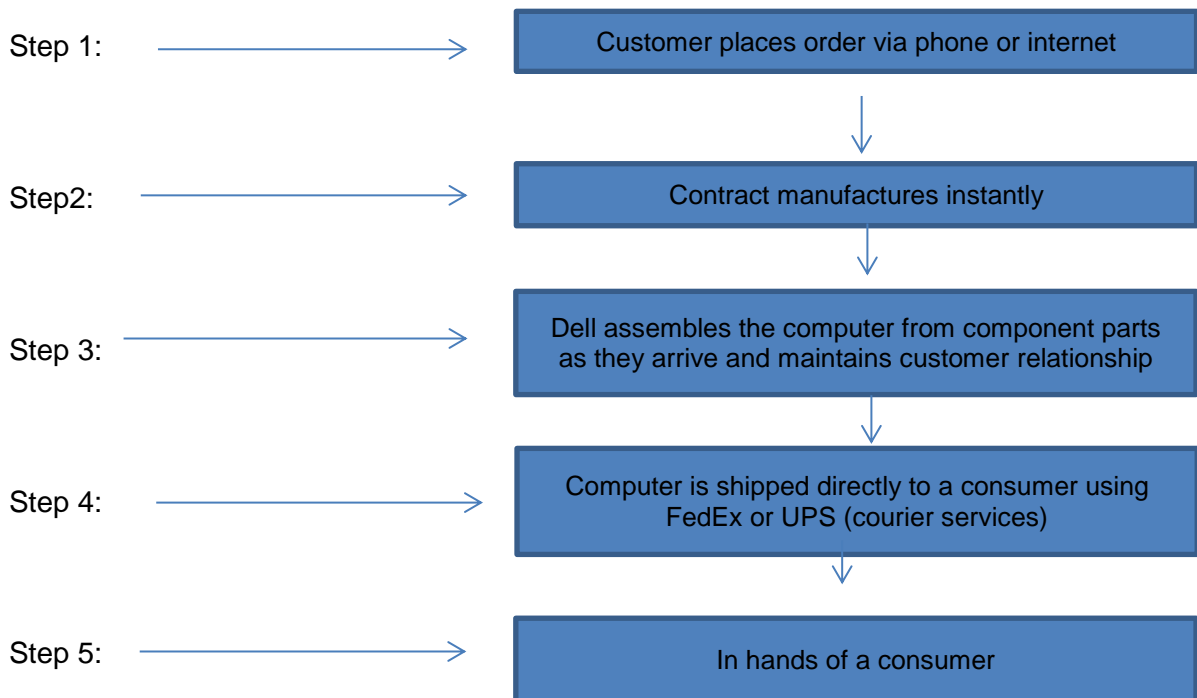
Managerial success factors require business planning, where entrepreneurs draw to the attention of employees to the core strategy, goals and objectives of the business. In order for small-scale mining entrepreneurs to be successful, they should be knowledgeable about their competitors and remain market-focused and provide superior services to their clientele by exceeding their expectations. Other business success drivers include high quality work, financial and business literacy as well as consulting experts to help them make sound decisions. Most importantly, entrepreneurs should make use of a business model in order to be able to operate their businesses efficiently and effectively.

### **2.8.2 Business model**

According to Barringer and Ireland (2010: 202), a business model is a clearly defined procedure that can be used to operate an existing or a proposed company. It details how the business start-up can utilise its resources, compete against rivals, establish strategic relationships, create value for customers and determine how profits will be generated. A business model is usually crafted after an entrepreneur determines the feasibility of the



proposed business start-up, which addresses the question of what resources are needed in order to create value (Barringer & Ireland, 2010: 202; Osterwalder & Pigneur, 2010:14). According to Osterwalder and Pigneur (2010:14) a business model is the rationale of a business start-up detailing how the proposed start-up aims to create, deliver and capture value to its clients. To illustrate a business model, the work of Barringer and Ireland (2010:204) is used. Figure 2.6 depicts a computer giant's business model included for the purpose of simplicity to the concept of a business model:



**Figure 2.6: Dell's business model**

(Source: Barringer & Ireland (2010: 202))

Figure 2.6 illustrates the business model currently employed by Dell computers. This comprises four resource mobilisation stages. In Step1, through market awareness, the company is able to receive orders telephonically or over the internet. Thereafter, in Step 2, the company sources a contractor to build the computer parts to the specification of the customer. Next, in Step 3, Dell receives and assembles the computer parts. In Step 4 the assembled computer is shipped to the customer. The next step is for the company to ensure that the end product reaches the consumer. The assumption that underlies a business model is that if it is appropriately crafted, business success is possible. The implication is that small-scale mining entrepreneurs need a sound business model in order to make their enterprises prosperous.

## **2.9 SUMMARY**

In the chapter the review of literature focused on the challenges faced by small-scale mining entrepreneurs during the business start-up phase, the prospects they have and the support structures available to them during this phase of the business. In addition, the factors that determine success were explored. It was evident that small-scale mining entrepreneurs face a number of challenges when starting up their small-scale mining operations (Appiah, 1998:307; South Africa. Department of Water Affairs, 2006:5). The literature revealed that small-scale mining entrepreneurs are hindered by their low degree of ownership, lack of geological information and lack of financial and human capital.

Alarmingly, national and international government have not yet developed sound measures to help small-scale mining entrepreneurs overcome the challenges they face. The main challenges include lack of geological information, access to markets, access to technology and mining permits. Small-scale mining entrepreneurs have the prospect of building prosperous businesses if they have access to markets and modern technology, obtain mining permits and adhere to government legislation. The following chapter sheds light on the research approach adopted in this study.

## **CHAPTER THREE: RESEARCH PLAN AND DESIGN**

### **3.1 INTRODUCTION**

The previous chapter surveyed the available literature on small-scale mining entrepreneurs, the phenomenon that was the focus of this study. The theoretical framework, needed to answer the main research question and research objectives guiding this research, was based on this survey. The objectives of this research were to: investigate challenges to and prospects for small-scale mining entrepreneurs in SA; to determine success factors of small-scale mining entrepreneurs in SA; and to identify support structures available to small-scale mining entrepreneurs. This chapter draws on the previous chapters as it details the methods and procedures followed to generate and analyse the data. The chapter also provides an outline of the research plan and design used to answer the main research question and to address the research problem underpinning this study.

This chapter deals with the construction of the research design; the description of the research population; the classification of the sample design; the data generation approach that was chosen; considerations related to reliability and validity; the process and method used to do the data analysis; and ethical considerations.

### **3.2 RESEARCH DESIGN**

Tengeh (2012:19) notes that a research plan or design is influenced by the type of questions that the research seeks to explore. In this study, the main question focused on the challenges to and prospects for small-scale mining entrepreneurs in SA.

The research design clarifies the procedure to be followed in generating and analysing the data in order to meet the desired objectives of the research (Durrheim, 2006:34; Creswell, 2009:3; Blumberg *et al.*, 2011:147; Scott & Garner, 2013:4). It may use quantitative or qualitative methodology or combine these paradigms in what is termed mixed methodology. The chief distinction between qualitative and quantitative methodology is that quantitative research is statistically orientated and thus uses a large sample so that generalisations can be made, whereas qualitative research seeks to understand a complex phenomenon and thus uses a small sample to collect data that can be explored in-depth. Quantitative researcher is interested in the numbers involved (Brynard & Hanekom 2006:36; Dun, 2010:42; Gravetter & Forzano, 2009:147), whereas qualitative research seeks to gain insight into personal experiences ('lived' experience). For this reason, qualitative researchers frequently use individual or focus group interviews to elicit data (Brynard & Hanekom 2006:36; Dun, 2010:42; Gravetter & Forzano, 2009:147). Since this study was interested in

gaining an understanding of the challenges to and prospects for a particular group, a qualitative research approach was used to collect and analyse the data (Brynard & Hanekom, 2006:37). A qualitative research approach is useful when a study seeks to gain the participants' perspective through exploring their own written or spoken feedback regarding a phenomenon (ibid.).

### **3.3 RESEARCH POPULATION**

The term "research population" is used to refer to a specific group of individuals who potentially possess a set of knowledge or attributes that makes them appropriate participants for a study (Brynard & Hanekom, 2006:10; Gravetter & Forzano, 2009:128). In selecting the population for this research, comprehensive screening was done. The population of this research consisted of small-scale mining entrepreneurs who had mining permits and were formally registered on Mintek's database for the duration of this study. Small-scale mining entrepreneurs that were not registered on Mintek's database were not included in this research. The research population in this case comprised a total of 31 small-scale mining entrepreneurs in SA.

The selection of the population for this research was based on the assumption that formally registered small-scale mining entrepreneurs were likely to cooperate with the researcher as opposed to their informal and illegal counterparts.

### **3.4 THE SAMPLE DESIGN**

There is general agreement that factors such as cost and time mean that it is not feasible for the entire research population to participate in a single study. For this reason, as well as the fact that the population is often very large, it has become the norm to select a representative sample.

Sampling is the systematic process of selecting potential participants for a scientific investigation. The underlying assumption is that they are able to provide meaningful insight towards the problem under investigation (Oppong, 2013:202). Prior to drawing the sample, a sampling frame is often mapped. According to Blumberg *et al.* (2011:177), a sample frame depicts the source material from which a sample is drawn. In this case it was the list of all of the potential participants. This facilitates the selection of a sample to be drawn from the research population, who meet particular criteria, to participate in a study.

Mutemeri *et al.* (2010:7) warn that small-scale mining entrepreneurs operate informally and are hard to find because they constantly change the site of their operations and because they do not ensure that their contact details are updated with the relevant authority. To overcome this problem, the sampling frame for this study consisted of small-scale mining

entrepreneurs that were registered with Mintek at the time and were in possession of mining permits and have been in business for more than five years. Their contact details were provided by Mintek.

A sample can be selected using a probability or non-probability sampling technique (Dun 2010:205). Probability sampling entails selecting a portion of the research population based on certain probabilistic chances (Polonsky & Waller, 2011:140). This means a sample may be selected using certain criteria that would be appropriate for the research. For instance, the researcher might select small scale mining entrepreneurs who only mine gold. Non-probability sampling on the other hand, maintains that a sample may be drawn from the population randomly or based on the researcher's personal judgement (Blumberg *et al.*, 2011:194; Polonsky & Waller, 2011:140). Using the list of small-scale mining entrepreneurs and the contact details supplied on the database, this study used random sampling. The use of a random sampling technique implies that every participant in the list has as much chance of being selected as any other participant (Polonsky & Waller, 2011:140). It should be noted that the final size of the sample directly influences the confidence with which generalisations can be made. However, it does not affect the trustworthiness of the findings made on this particular group.

Using the information from the MINTEK database, 21 small-scale mining entrepreneurs scattered in four provinces were mapped as the sampling frame. These provinces were randomly selected, and the initial sample consisted of 21 entrepreneurs. During the process of setting up appointments, the researcher found that only eleven mining entrepreneurs were still operating small-scale enterprises. The other ten were no longer in business. Therefore, the total sample size was reduced to eleven mining entrepreneurs located in four different provinces, the Free State, KwaZulu-Natal, Limpopo and Mpumalanga. The initial sample of 21 small-scale mining entrepreneurs referred to above were randomly selected from the database obtained from MINTEK offices in Johannesburg on 9 of October 2014. The following table maps the small-scale mining entrepreneurs, both those still operating and those out of business, who were still on the database.

**Table 3.1: Operational small-scale mining in SA**

| <b>Province</b> | <b>In-operation</b> | <b>Out of business</b> | <b>Number of operational business</b> |
|-----------------|---------------------|------------------------|---------------------------------------|
| Free State      | 2 businesses        | 3 businesses           | 2 operational business                |
| KwaZulu-Natal   | 3 businesses        | 6 businesses           | 3 operational business                |
| Limpopo         | 4 businesses        | -                      | 4 operational businesses              |
| Mpumalanga      | 2 businesses        | 1 business             | 2 operational businesses              |
| <b>Total</b>    | 11                  | 10                     | 11                                    |

(Source: Compiled by the researcher)

Table 3.1 tabulates the four randomly selected provinces where this study was undertaken. Once they had been selected, each of the small-scale mining entrepreneurs was telephoned and the benefits and what would be required of those who participated in the study were clearly explained. It was also made clear to them that participation in the study was entirely voluntary and that they could withdraw at any stage. Appointments were then made to visit those who were willing to participate. The prerequisite for participating in the study was that they had to have valid mining permits and to have been in the small-scale mining business for more than five years. After requesting appointments, follow-up calls were made a week later with the exact interview date and time. The final number of participants was eleven. Ten of the small-scale mining entrepreneurs were precluded, because they did not meet the criteria of active engagement as small-scale mining entrepreneurs and possession of mining permits. Data were collected from the remaining eleven small-scale mining entrepreneurs.

### **3.5 BACKGROUND OF THE STUDY AREA: SA**

The world is made up of seven continents: Africa, Antarctica, Asia, Australia, Europe, North America and South America. The country under investigation, South Africa (SA), is located in the continent of Africa. SA has a controversial history. SA is a sovereign state that achieved its democratic status in 1994 when the apartheid regime ended. SA is one of many countries that have experienced some sort of segregation or where one race was excluded from the mainstream economy by the government. In 1994 all South Africans citizens over the age of 18 had the right to vote for the first time. The newly elected democratic government set out to

rectify the imbalances of the past by introducing reforms. Because of the historical imbalances brought about by the economic exclusion of black people, the majority of the black people in the country did not have the necessary business knowledge and expertise to be successful entrepreneurs. As a direct consequence, the mining industry was dominated by major global players and a very few South Africans. For instance, the gold industry is dominated by the three major players; AngloGold, Ashanti, Gold Fields and Harmony Gold. These gold producers accounted for 60% of gold production in SA in 2012 (South African Mining Report Q1, 2011:23).

Jones (1999:525) notes that the platinum industry is dominated by Anglo American Platinum Cooperation Ltd (Amplats), Impala Platinum, and Lonmin Platinum, all foreign companies. In addition, Amplats is the leading platinum producer in the world, which makes SA an investment destination. The major role players in coal mining are: BHP Hilton, Exxaro, Sasol, Xstrata and Anglo American (South African Mining Report Q1, 2011:26). Therefore, the South African mining industry is dominated by foreign-owned companies. The state pays considerable attention to large scale mining, thus marginalising small-scale mining. For instance, the mining indaba does not include small-scale mining operations.

On the positive side, SA is a country which seeks to uphold the following values:

- (a) Human dignity, the achievement of equality and the achievement of human rights and freedom
- (b) Non-racialism and non-sexism
- (c) Supremacy of the Constitution and the rule of law
- (d) Universal adult suffrage, a national common voter's roll, regular elections and multi-party system of democratic government to ensure accountability, responsiveness and openness.

(South Africa. Department of Justice, 1996:3)

SA is a country known for being richly endowed with mineral resources. These have been the cornerstone of economic growth. However, the contribution made to the economy by the mining industry in SA, it is not enough to offset the obstacles to economic growth in SA. This country has vast disparities between rich and poor, and its growth is retarded by high levels of unemployment and few job creation opportunities, the HIV/AIDS pandemic and the short life expectancy of a large number of its population. According to Maswanganyi (2013), during the 2013/2014 financial year SA had a budget deficit of 4.8%.

Despite the above-mentioned circumstances that retard economic growth in South Africa, SA remains a diverse country with nine provinces occupied by different races. These provinces are: the Eastern Cape, the Free State, Gauteng, KwaZulu-Natal, Limpopo, Mpumalanga, Northern Cape, the North West and the Western Cape. This study was conducted in four of

the nine provinces of South Africa: the Free State, KwaZulu-Natal, Limpopo and Mpumalanga, because of the prevalence of mining activities in the regions. In what follows an overview of each of these settings is given, which highlights some key statistics.

### 3.5.1 Free State: QwaQwa

Table 3.2 provides information on the Free State province categorised according to capital city, principal languages, population of the province, and the area of the province as a percentage of the total land mass of SA.

**Table 3.2: Profile of the Free State province**

| Capital  | Bloemfontein            |
|--|-------------------------|
| Principal languages  |                         |
| <ul style="list-style-type: none"> <li>• Sesotho</li> <li>• Afrikaans</li> <li>• IsiXhosa</li> </ul> | 64%<br>12%<br>9%        |
| Population   | 2 760 000               |
| Percentage of total population   | 6%                      |
| Area of free state   | 129 480 km <sup>2</sup> |
| Percentage of total area   | 10.6%                   |

(Adapted from the Pocket Guide to SA (2012:31))

The above table profiles the Free State province starting with the capital city of Free State, Bloemfontein, and the three principal languages spoken there: Sesotho, Afrikaans and IsiXhosa. The population of Free State makes up 6% of the South African population. The Free State province is situated in the central of SA. The interviews were conducted in QwaQwa, a former Bantustan, which is now part of the Free State. According to Pauw (2005:1), the Free State province has the lowest household income in SA. This explains some of the special challenges hindering small-scale mining entrepreneurs. It was noted that they are finding it difficult to make a profit as they have to operate using manual labour rather than technology. Having to be labour-intensive seriously limits the profits they can make, and consequently the growth of their businesses.

### 3.5.2 KwaZulu-Natal (KZN)

Table 3.3 presents some key information on the KZN province. This includes the capital city, the principal languages spoken in that province and the size of the population, as well as the percentage that it makes up of the total size of SA.



**Table 3.3: Profile of the KZN province**

| Capital city  | Pietermaritzburg       |
|---|------------------------|
| Principal languages: <ul style="list-style-type: none"><li>• Isi Zulu</li><li>• English</li><li>• Afrikaans</li></ul> | 81%<br>14%<br>2%       |
| Population  | 11 000 000             |
| Percentage of the population  | 21%                    |
| Size of province ( area)  | 92 100 km <sup>2</sup> |
| Percentage of total area  | 8%                     |

(Adapted from the *Pocket Guide to SA*, 2012:31)

The above table provides a concise profile of the KZN province. As can be seen, the capital city of the KZN province is Pietermaritzburg and the primary language is IsiZulu, with English in the next position: 14% of the population speaks English and 2% of the population speaks Afrikaans.

As previously stated, seven small-scale mining entrepreneurs located in KZN were no longer in business. There could be many contributing factors involved. According to well documented statistics, however, small businesses find it hard to survive for more than five years Cant *et al.*, 2003:1) (. Seven of the ten small-scale mining businesses established in 2008 were no longer operating. The same dismal picture holds true for agriculture, even though it is critical for community development, according to the Background Paper (2009:1) KZN agricultural entrepreneurs are struggling to overcome the challenges facing their businesses. It seems that urgent attention to the problem is required.

Another challenge in KZN is the illegal mining where many are mining without mining permits. However, a current challenge facing the KZN is the xenophobia, where African nationals are being forced to flee from SA, while others have been killed or seriously injured. These xenophobic attacks were followed by the removal of statues and power blackouts, seriously affecting potential investment.

The data collection took place in the following places: Port Shepstone, Westville, and Shakaskraal. A total of three interviews were thus conducted in KZN.

### 3.5.3 Mpumalanga

The table below is a brief overview of Mpumalanga, giving information such as the name of the capital city, the principal languages used there, the population of the province and the percentage the province makes up of the total size of SA.

**Table 3.4: Profile of the Mpumalanga province**

| <b>Capital city:</b>   | <b>Mbombela</b>        |
|--|------------------------|
| Principal languages <ul style="list-style-type: none"><li>• Siswati</li><li>• SiZulu</li><li>• Isi Ndebele</li></ul> | 31%<br>26%<br>12%      |
| Population:  | 3 700 000              |
| Percentage of total population:  | 7%                     |
| Size of the Mpumalanga province (area):  | 80 000 km <sup>2</sup> |
| Percentage of total area:  | 6.5%                   |

(Adapted from the *Pocket Guide to SA*, (2012:31))

Table 3.4 presents some statistics on the Mpumalanga province. It names the capital city of the province, Mbombela and indicates that the three principal languages spoken in Mpumalanga are: Siswati, SiZulu and Si Ndebele. These languages are spoken by 31%, 26% and 12% of the population, respectively.

### 3.5.4 Limpopo

The following table provides information on the Limpopo province: capital city, principal languages spoken, population of the province and the percentage of the total size of the province area.

**Table 3.5: Profile of the Limpopo province**

|                                |                         |
|--------------------------------|-------------------------|
| Capital city:                  | Polokwane               |
| Principal languages:           |                         |
| • Sesotho                      | 52%                     |
| • Xitsonga                     | 22%                     |
| • Tshivenda                    | 16%                     |
| Population:                    | 6 000 000               |
| Percentage of total population | 11%                     |
| Size of the province (area)    | 123 910 km <sup>2</sup> |
| Percentage of total area       | 10%                     |

(Adapted from the Pocket Guide to SA, (2012:31))

As can be seen, the capital city is Polokwane. The main language used is Sesotho, which is the mother tongue of 52% of the population. The figures for Xitsonga and Tshivenda are 22% and 16%, respectively. The total population of the province is estimated to be six million. In addition, the population of Limpopo makes up 11% of the country's total population. It seems that Limpopo is one of the richest provinces, with regard to mineral wealth. Interviews were conducted first in the Mukula village, then in the Nandoni village, and finally in Lebowakgomo.

### **3.6 DATA COLLECTION APPROACH**

According to Tengeh (2012:19) the data collection approach is primarily influenced by the type of questions the study seeks to address. The data collection approach was dictated by the desire to understand the challenges to and prospects for small-scale mining entrepreneurs. As has already been noted, this study adopted a qualitative research approach to collecting data. Participants were interviewed face-to-face. A qualitative approach is ideally suited to research in which the researcher wishes to gain an in-depth understanding of insights which are directly based on people's experiences or personal views (Brynard & Hanekom 2006:36; Dun, 2010:42; Gravetter & Forzano, 2009:147). To gain such insight, the researcher conducted face to face semi-structured interviews as this allowed for further probing questions. The interviews were audio recorded while in progress, with the researcher taking notes at the same time. During the interview each participant was asked a set of open-ended questions. Each interview lasted for approximately 30 minutes. The interviews were of critical importance as they helped to gather first-hand information and to compare and contrast this with what the literature survey had revealed about small-scale mining. It was imperative to get the small-scale mining entrepreneurs' side of the story relating to the challenges to and prospects for them.

Every interview began with a synopsis of the study before the actual questions were posed. The synopsis explained the benefits of this research. In addition, the researcher indicated clearly that participation in the study was entirely voluntary and that they were free to refuse to answer any questions. Participants were asked not to give any personal details. However they were also assured that any information would be treated strictly confidentially and that their identities would not be revealed.

The interview used open ended questions. The interview guide was compiled after numerous interview guides from previous studies had been closely scrutinised. This gave the researcher an opportunity to learn from past research. In total, eleven interviews were conducted with small-scale mining entrepreneurs from the four different provinces that had been randomly selected.

The primary source of data collection in this study was the selected small-scale mining entrepreneurs. This study used face-to-face interviews as the primary data collection instrument. The justification for using the research procedure is that a qualitative study using a very small-sample was more appropriate than using quantitative research.

Prior to the interviews, firm appointments had to be made with the small-scale mining entrepreneurs. This ensured that the participants were available at the time of the interview and eliminated the possibility of any clashes or unnecessary travelling being done.

Prior to interviews taking place, the interview guide was finalised and the smart phone that would be used to record the interviews had been thoroughly checked. The procedure of collecting the data began with asking participants questions. Their responses to these were recorded on a smartphone. The interview guide had a checklist of the questions to be asked. After asking a question, the corresponding block was ticked and the following question was asked. Every question was answered satisfactorily. During the interviews, participants remained interested and readily provided insightful answers without hesitation. Once an interview ended, small-scale mining entrepreneurs showed the researcher around the mining site. Given the nature of the study, particularly the desire to gain an understanding of the lived experience of entrepreneurs, the researcher volunteered to work in the mines to gain an in-depth insight into the operations of a small-scale mining business and to witness the challenges facing small-scale mining entrepreneurs at first hand. Photographs were taken to provide evidence that small-scale mining entrepreneurs were indeed using labour intensive equipment. It was also evident that small-scale mining entrepreneurs had very limited equipment and a small number of employees. The following pictures were taken by the researcher:



**Figure 3.1: Working environment of small-scale mining entrepreneurs**  
(Source: compiled by the researcher)



**Figure 3.2: Small-scale mining labour intensive operations**  
(Source: compiled by the researcher)

### **3.7 RELIABILITY AND VALIDITY**

Reliability and validity in research is concerned with measuring whether the data collection instrument meets certain criteria. Gwija (2014:36) contends that in social science research there is no single measurement technique that would ever suffice.

#### **3.7.1 Reliability**

Burns and Burns (2008:410) contend that reliability refers to the degree to which the findings of the research can be replicated. In this case, reliability would be measured in terms of the consistency of a data collection instrument in terms of providing the same data in homogenous interviews, were the interviews to be replicated (Brynard & Hanekom, 2006:48; Gray, 2009:158). Reliability is measured using the following criterion: stability, equivalence, internal consistency, Inter-judge reliability and Intra-judge reliability (Gray, 2009:159). In testing the reliability of this study, two interviews were piloted using two employees from MINTEK. Thereafter, the researcher made a few changes to the interview guide at 200 Malibongwe Drive, Randburg, Johannesburg, on the 9 October 2014. The data obtained from the piloted interviews were scrutinised for consistency.

#### **3.7.2 Validity**

According to Van der Riet and Durrheim (2006:90), validity in research means that the conclusions that the researcher reaches are sound. Blumberg *et al.* (2011:505) asserts that validity is about whether the study actually measures what it claims to measure. Gray (2009:155) argues that every study should ensure that it is valid. To do so, the researcher needs to use an instrument that measures what it is intended to measure. In the case of this study, the instrument used was validated by the supervisor of this research: the research supervisor checked to see that the research objectives and the instrument were congruent. Additionally, the problem statement and the research questions were assessed in order to establish whether the problem of the research and questions were directly related to the literature review of this study. As a result, the research instrument was deemed valid for collecting the data needed for this research.

### **3.8 DATA ANALYSIS**

Gwija (2014:38) asserts that data analysis is performed to assist the researcher in identifying consistent patterns that emerge during the analysis so that the researcher can group the findings. Therefore, analysing the data was done straight after the data collection. The respondent's feedback was transcribed and later grouped into particular themes. Thereafter content analysis was deployed to analyse the transcribed interviews.

### **3.9 ETHICAL CONSIDERATIONS**

Ethics in research pertains to conducting research appropriately in accordance with certain principals and moral values (Blumberg *et al.*, 2001:114; Gray, 2009:69). According to Blumberg *et al.* (2011:115-118), ethics in research is a set of morals precepts to guide the practice of researchers:

- Benefits of the study: the aim and objectives of the research as well the desired outcome were documented and presented to small-scale mining entrepreneurs in order to show them that that they stood to gain from their participation in the study.
- Informed consent: ethical research requires researchers to send letters of consent to participants for approval prior being granted ethical clearance. Therefore, for this study, a letter of consent was obtained from Mintek and the permission of all of the small-scale mining entrepreneurs was sought before the research was begun; small-scale miners were telephoned and the research was explained to them before they were asked whether they would be willing to participate.
- Right to privacy: potential participants have to be notified that they (small-scale mining entrepreneurs) have the right to refuse to answer any of the questions or to terminate the interview at any given point during the study. Furthermore, their anonymity was ensured and the information they provided was treated confidentially. Each participant was assigned a number from one to eleven.

### **3.10 SUMMARY**

Chapter three explained the research design followed in investigating challenges to and prospects for small-scale mining entrepreneurs in SA. The study adopted a qualitative research approach. This chapter also discussed the population of the research which was limited to small-scale miners operating legally in SA. A further limitation, for sampling purposes, was that the small-scale miners had to be formally registered and be on the Mintek database during the period of this research. Eleven randomly chosen small-scale mining entrepreneurs, who met the criteria for this study, were chosen. In order to collect the data, face-to-face interviews were conducted with small-scale miners in four different provinces of SA. However, prior to data collection, the supervisor of this research tested the instrument to see whether it would elicit data that would make it possible to explore the main research question. This involved ensuring that the interview guide questions were aligned with the research objectives. Data analysis took place once all the interviews had been transcribed. The data analysis tool was content analysis. This chapter described the locations where data collection took place. It also described the research procedures used during the research,

from creating a research design. The following chapter presents the findings and discussions of this research.



## **CHAPTER FOUR: FINDINGS AND DISCUSSIONS**

### **4.1 INTRODUCTION**

Chapter four describes the framework of the study, the paradigm in which it is situated and the methodology chosen. It also describes the location where the data collection was conducted, the process of arranging interviews with participants and the structure of the interview. In this chapter the findings are presented and discussed. Photographs are also provided (titled as figures) to add more weight to the study. Chapter four follows the structure of the interview guide and relates the responses of the participants to the research questions.

This study aimed to address the following sub research questions which were derived from the main research question:

- What are the challenges facing small-scale mining in South Africa?
- What are the prospects for small-scale mining entrepreneurs in South Africa?
- What are the support structures available for small-scale mining entrepreneurs?
- What are the success factors of a successful small-scale mining business?

In order to answer these questions, face to face interviews were conducting in four provinces: Free State, KwaZulu-Natal, Mpumalanga and Limpopo. The small scale mining entrepreneurs interviewed all fit the criteria of being previously disadvantaged people with limited education (see 2.2.3). After the process of data collection had been completed, the transcribed data were analysed using content analysis.

### **4.2 FINDINGS**

This study chose to use content analysis to identify and categorise the themes in the transcribed text. According to Blumberg (2011:294) content analysis is a technique often used to categorise the information in the transcribed data into meaningful themes. In order to do so, each research question was converted into a theme. For instance, the main question guiding this research was: What are the challenge facing and the prospects available to small-scale mining entrepreneurs in South Africa? The main research question was thus divided into two themes: challenges and prospects. This paved the way for analysis.

### **4.3 THEMES**

The data generated from the interviewees were categorised into the following themes: challenges, prospects, support structures and success factors. The participant's feedback was first audio recorded on a smartphone prior to being captured on a word document and summarised thematically. In the case of the small-scale mining business entrepreneurs

interviewed, their businesses were started by either by one entrepreneur, by two or more entrepreneurs who were partners or by a co-operative.

#### 4.4 FINDINGS OF THE PERSONAL INTERVIEWS CATAGORISED ACCORDING TO THEMES

In this section the findings of the interviews are explored in relation to the themes that were derived from the research questions.

##### 4.4.1 Establishing the status of the respondent

In an attempt to ensure that the respondents were small-scale entrepreneurs and the owners of the businesses that they operated, a question was formulated to capture such information.

**Table 4.1: Small-scale mining entrepreneurs in SA**

| Theme question: Are you currently working as a small-scale mining entrepreneur? |  |
|---|--|
| Domain  | Interview finding  |
| Small-scale mining entrepreneur   | Sixty four per cent (64%) of small-scale mining entrepreneur confirmed that they were small-scale mining entrepreneurs operating individually, while the remaining 36% of small-scale mining entrepreneurs were either operating in a partnership or a co-operative. |

As noted earlier, the aim of this question was to determine that the participant was indeed an entrepreneur and not an employee of the organisation, given that the primary focus of the research was on entrepreneurs and not employees. The purpose of the quotations below is to provide the direct responses to the research questions which were obtained from the participants. In the case of each question, each participant's feedback is given in the form of verbatim quotations under the research question. With regard to the question as to whether they considered themselves as small-scale mining entrepreneurs and the owner of the business, the participants had this to say:

- **Participant 1:** *Yes, I am a small-scale mining entrepreneur*
- **Participant 2:** *We are owners.*
- **Participant 3:** *Ja, we own a small-scale mine.*

- **Participant 4:** *I own a small-scale mine.*
- **Participant 5:** *Yes, I am a small-scale mining entrepreneur.*
- **Participant 6:** *Yes I am a small-scale mining entrepreneur.*
- **Participant 7:** *I am a small-scale mining entrepreneur.*
- **Participant 8:** *I am a director. I own a small-scale mine.*
- **Participant 9:** *I do own a small-scale mine.*
- **Participant 10:** *We own a small-scale mine.*
- **Participant 11:** *We are small-scale mining entrepreneurs.*

#### **4.2. Summary of the findings based on the verbatim quotations**

According to the respondents, 64% of small-scale mining entrepreneurs were the sole managers and owners of their business. Thirty six per cent (36%) of small-scale mining entrepreneurs had business partners.

The 64% of the small-scale mining entrepreneurs interviewed who considered themselves sole proprietors, met the necessary criteria. Venter, Urban, Rwigema (2008:183) define a sole proprietorship as an individual operating a business who directly benefits from all profits, on the one hand, and makes all the decisions and exercises full control, on the other. As sole contributors of the capital, however, their prospects of growth were limited as were the opportunities to develop their skills and knowledge. A study by Brink, Cant and Ligthelm (2003:1) found that, the lack of managerial competencies was one of the reasons for the fact that 80% of small businesses fail in South Africa. The small-scale mining entrepreneurs who have no business partners are unlikely to expand their managerial competencies or their businesses. Proprietors who have partners are more likely to develop managerial competencies and to have the resources to expand their businesses.

Thirty six per cent (36%) of small-scale mining entrepreneurs were either in partnerships or had joined co-operatives: hence a significant proportion of small-scale mining entrepreneurs faced fewer challenges than their peers who were sole proprietors. Even sole proprietors with more than five years of experience were less able to overcome the challenges than those who were able to confer with their partners or with others in the cooperative. For

instance, from observing the business premises and equipment (that were used by small scale mining entrepreneurs) it seemed that although some have been in operations for many years, they were still using labour intensive equipment and did not have business premises. They had to operate in the open.

### 4.3 NUMBER OF YEARS IN OPERATION

In this section the findings of the interviews are discussed in relation to the themes based on the research questions:

#### 4.3.1 Establishing the experience of the respondents

In an attempt to ensure that the respondents had been in business for more than five years as stipulated in the sample frame, a question was formulated to capture such information.

**Table 4.2: Number of years in business**

| Theme question: How long have you been operating a small-scale mine? |   |
|--|---|
| Domain   | Interview finding   |
| Number of years in operation   | The least number of years in operation was seven years while the largest was nineteen years in operation. |

The aim of the above question was to determine the number of years that small-scale mining entrepreneurs had been in business, given that the sampling frame stipulated that the sample of the study had to consist of small-scale mining entrepreneurs who have been in business for more than five years. In accordance with this theme, this is what some of the participants had to say:

- **Participant 1:** *I started on the 19<sup>th</sup> of June 2000*
- **Participant 2:** *since 2008.*
- **Participant 3:** *Err ... since 2008.*
- **Participant 4:** *It could be from 2008.*
- **Participant 5:** *This is my ninth year.*
- **Participant 6:** *From 2007.*

- **Participant 7:** *I started in 2005.*
- **Participant 8:** *Since 2006.*
- **Participant 9:** *Since 2008, that's when I started operating, it was very difficult to start.*
- **Participant 10:** *From 1996. It's about 19 years now.*
- **Participant 11:** *It's more than 15 years. I started in 1999.*

#### **4.3.2 Summary of the findings based on the verbatim responses**

Thirty seven per cent (37%) of the small-scale mining entrepreneurs had been in business for seven years while 18% of the small-scale mining entrepreneurs had been in business for nine years. A further 9% of the mining entrepreneurs had been in business for sixteen years. Another 9% of the small-scale mining entrepreneurs had been operating for fifteen years. There were a further 9% of the small-scale mining entrepreneurs who had been operating for more than ten years. Yet another 9% had been in business for nine years. The remaining 9% have been in business for eight years.

Even though 37% of small-scale mining entrepreneurs had been in business for more than seven years, they were still handicapped by lack proper equipment and lack of finance. Many would assume that after years of operations, a vast majority of entrepreneurs would have at least raised the capital needed to invest in developing their businesses. However, this was not the case for these small-scale mining entrepreneurs. It is notable that small-scale mining entrepreneurs who had been in business for more than 18 years were still using unorthodox methods of producing minerals. Mutemeri *et al.* (2010:16), Appiah (1998:307) and the South African Department of Water Affairs (2006:5) concur that small-scale mining entrepreneurs face numerous challenges that include: licensing and formalisation and access to technology (that would enable them to use advanced methods of extracting minerals). In addition to challenges mentioned above, the following challenges were the core of this study.

### **4.4 CHALLENGES**

In this section the findings of the interviews are explored in relation to the themes that were identified:

#### **4.4.1. Establishing the status of the respondent**

In an attempt to ensure challenges and prospects of small-scale mining entrepreneurs, a question was formulated to capture such information.

**Table 4.3: Challenges to small-scale mining entrepreneurs in SA**

| <b>Theme question: What are the challenges facing small-scale mining entrepreneurs in SA?</b> |  |
|---|--|
| <b>Domain</b>   | <b>Interview finding</b>   |
| Financial   | Seventy three (73%) of small-scale mining entrepreneurs agreed that their main financial challenge was the lack of capital and not being able to purchase the desired equipment for their businesses. Nine per cent (9%) of small-scale mining entrepreneurs said their main financial challenge was not being able to make profit. Another 9% indicated that not being able to raise capital from financial institutions was a major problem. The remaining 9% suggested the start-up capital was their major issue as far as finance is concerned. |
| Geological  | Ninety per cent (90%) of small-scale mining entrepreneurs asserted that they did not have any challenges as far as geology was concerned while only 10% indicated that they were either experiencing geological challenges at that point or had experienced them in the past.  |
| Marketing   | Fifty five per cent (55%) of small-scale mining entrepreneurs said they were not facing any marketing challenges, while 27% indicated that their main challenge was the lack of an advertising budget. The remaining 18% reported they experienced fierce competition from illegal miners.   |
| Technical (equipment)   | Only 9% reported that they had no challenges when it came to the technical aspect of their businesses. Seventy three per cent (73%) of small-scale mining entrepreneurs said they did not have access to appropriate equipment. A further 9% of the mining entrepreneurs indicated that their main challenge was using outdated equipment. The remaining 9% reported that they were using labour intensive equipment.  |
| Environment   | Twenty seven (27%) of small-scale mining entrepreneurs indicated that they had no environmental challenges. Eighteen per cent (18%) of small-scale mining entrepreneurs revealed their challenges revolved around climate issues. Another 18% of small-scale mining entrepreneurs acknowledged that they were polluting the environment. Yet another 9% of small-scale mining entrepreneurs indicated that their businesses had labour intensive productions, while the remaining 9% stated that their business faced rehabilitation challenges.     |

These questions were geared towards answering the main research question. Their purpose was to determine the challenges of small-scale mining entrepreneurs in SA face. This is what the participants had to say:

**Given that you currently operate a small-scale mine, what are the main financial challenges facing your business?**

- **Participant 1:** *Our main financial challenge is the cost of repairing our equipment, so we end up making a loss.*
- **Participant 2:** *Initially, it was start-up capital. That was the most challenging. So we approached government and other private companies and then we formed a partnership.*
- **Participant 3:** *Our main financial challenge is that sometimes you find that illegal miners are selling their products at low prices and then people don't buy from us. Even our employees, are stealing our money.*
- **Participant 4:** *We do get financial challenges. We started very small and even now we can't purchase the equipment that the mine needs. The money the mine makes is very small and you are unable to even fix your equipment.*
- **Participant 5:** *Lack of finance to purchase equipment for transporting the minerals for beneficiation.*
- **Participant 6:** *... is that we don't get support from financial institutions; they just don't take us seriously, whether you have a grant or not, you cannot get top up from financial institutions.*
- **Participant 7:** *We sell our minerals at low prices because we don't have proper equipment, so make little money.*
- **Participant 8:** *IDC gave me R1 million to start-up the business, thereafter I have been falling short of money to repay the money.*
- **Participant 9:** *Firstly when you starting a business, you need funds and a feasibility study. So I didn't have any funds for conducting a feasibility study, so I resigned and took my package.*

- **Participant 10:** *We don't have finance to purchase equipment in order for us to cut stones.*
- **Participant 11:** *Our main financial challenges are setting up a processing plant and the handling cost of transporting our minerals.*

#### **4.4.1.2 Summary of the findings based on the verbatim responses**

Seventy three (73%) of small-scale mining entrepreneurs agreed that their main financial challenge was the lack of finance and not being able to purchase the desired equipment for their businesses. Bradford (2007:97), Thwala and Phaladi (2009:533), Ledzani and Netswera (2009:225), Mutemeri *et al.* (2010:19) and Luiz (n.d:3) made similar findings. Luiz (n.d:3) found that a significant proportion of small businesses often complain that the lack of finance to re-invest in their business is a major challenge. This is echoed in the work of Cant and Wiid (2013:707). They found that the lack of finance (together with other associated challenges) was the main challenge facing small businesses in SA and that it directly contributes to the failure rate of small businesses (*ibid.*). On a different note, Smit and Fatoki (2012:1146) argue that the challenges facing small businesses in SA not only limit the start and creation of business but also retard the growth of the business. As a result millions of Rands are lost on business ventures due to avoidable mistakes and challenges (Brink *et al.*, 2003:1).

Nine per cent (9%) of small-scale mining entrepreneurs said their main financial challenge was not being able to make a profit. This could be attributed to various elements. However, this study suggests that the lack of entrepreneurial flair and managerial competency and financial skills was the crux of the problem. Small businesses owners in SA lack management skills, financial skills, and marketing knowledge (Luiz, n.d:1; Bradford, 2007:96; Thwala & Phaladi, 2009:533; Lekhanya, 2010:5; Fatoki,2011:193; Fatoki,2012: 179; Cant & Wiid, 2013:707). According to Fatoki (2012:179), small businesses in SA do not engage in financial planning and control, investment appraisal and financial analysis. Fatoki (2011:193) asserts that challenges facing small business in SA are a combination of financial problems and managerial shortcomings.

#### **What are the main geological challenges facing your business?**

- **Participant 1:** *We have to go far to get our minerals and it causes delay. The nearby minerals need dynamite to blow them up because they are big.*
- **Participant 2:** *At the moment we don't have any geological challenges. Therefore, there is no impact. We are only dealing with surface minerals.*



- **Participant 3:** *Apparently, we don't have problems to get the sand. It is easy for us to get the sand because there's too much sand in the river so I can't say I have any geological challenges.*
- **Participant 4:** *If you go to the river you will see the sand I mine is the best, I have no problem when it comes geological factors.*
- **Participant 5:** *I don't have geological challenges my sand is high quality. There's no sifting or cleaning of sand.*
- **Participant 6:** *The quality is good; the site is also good because we have done soil investigation. I don't have geological problems.*
- **Participant 7:** *We have medium to fine sand big companies want fine sand. However, we do not have the equipment to provide washed sand.*
- **Participant 8:** *I have alluvial gold and its high quality. I don't have geological challenges*
- **Participant 9:** *According to a geological report I got from one guy, my sand is high quality. I can even sell it outside the country. I have no geological challenges.*
- **Participant 10:** *We don't have any problems where geology is concerned. In fact our place have quality stones and we even have scarce stones here ... different colours: yellow, blue, brown and marble etc. So we don't have any geological challenges.*
- **Participant 11:** *The only problem we have with geology is that we have a permit for only one colour stone so we can't mine other colour stones.*

#### **4.4.1.3 Summary of the findings based on the verbatim responses**

It seems that the small-scale mining entrepreneurs in this study had few geological challenges. Ninety per cent (90%) of small-scale mining entrepreneurs said as much. However, 10% of small-scale mining entrepreneurs identified the distance they had to travel in order to get their minerals as a geological challenge. They had to travel some distance because the minerals that were less far away required specialised equipment (which these small-scale miners did not have). It is clear that geology featured least in the challenges reflected in the themes. However, in other parts of the world small-scale mining entrepreneurs face the challenge of having to mine low quality minerals in small quantities.

That is not the case in the South African context judging from the 90% response rate. Hence, geological challenges are not a significant obstacle to small-scale mining. After all, SA has a rich endowment of mineral resources.

### **What are the main marketing challenges you face?**

- **Participant 1:** *We don't have any marketing challenges because the people that purchase our minerals are tenderpreneurs, homeowners, construction companies and people who buy to resell, so there is always business.*
- **Participant 2:** *Marketing is not a problem, there are a lot of developments taking place here, and sometime we fail to meet the demand. So marketing is not an issue.*
- **Participant 3:** *Customers prefer buying sand from illegal miners because illegal miners sell their minerals way below our cost price.*
- **Participant 4:** *Marketing would not be a challenge if we were not imputed by illegal mining. Illegal miners are selling their minerals at low prices and customers prefer to purchase minerals from illegal miners because they are doing it illegal and therefore sell it way below market value because they are not paying any taxes.*
- **Participant 5:** *At the moment we advertise locally on newspaper not television ads. The advertising budget is very minimal – we rely on word of mouth.*
- **Participant 6:** *We don't have any marketing challenges – we even have big businesses that are interested in working with us.*
- **Participant 7:** *When it comes to marketing it's not bad, because they know me, so they come and negotiate the price. There is too much development happening here.*
- **Participant 8:** *I've never had any marketing challenges because I registered with First SA in Johannesburg to sell my minerals.*
- **Participant 9:** *First of all you need to have funds to go up and down marketing your business, the funds is something I do not have.*
- **Participant 10:** *We have challenges when it comes to advertising, even though it's the largest company in our area, but because of the very same factor of us not having*

*finance, we are not able to publicise our company. We don't have any flyers we rely heavily on word of mouth.*

- **Participant 11:** *We have actually created a separate company from this small-scale mining business. The separate company specialises in our marketing. We have a website and a lot of people are purchasing our minerals through the website. We even distribute flyers. We are now in the process of creating showrooms where we get to display our minerals to clients in showrooms.*

#### **4.4.1.4 Summary of the findings based on the verbatim responses**

Fifty five per cent (55%) of small-scale mining entrepreneurs said they had no marketing challenges. Twenty seven (27%) indicated that their main challenge was the lack of an advertising budget. These findings are not in line with the findings of Cant and Wiid (2013: 707) and Lekhanya (2010: 5) that the real problem is that they lack the knowledge of how to market. Cant and Wiid (2013: 707) considers that the lack of knowledge of marketing should be seen as part of a general lack of managerial skills and financial acumen. Whatever the case, it is clear that a major marketing challenge small-scale mining entrepreneurs face is their inability to establish markets for their products and services (Hentschel *et al.*, 2002:5-6; Mutemeri & Petersen, 2002:286; Hentschel *et al.*, 2003:7; Banister *et al.*, 2006:1; Mutemeri, *et al.* 2010:16).

Making a different point, Brink, Cant and Ligthelm (2003:1) argue that small businesses in SA might have genuine business ideas, but they do not have a grasp of business fundamentals. Small businesses in SA face similar challenges related to finance and marketing. The lack of finance undermines marketing of small businesses, in a sense that there is no advertising budget to increase awareness of what they have to offering, a key aspect of business success. It is a fair assumption that if small-scale mining entrepreneurs were able to market their businesses successfully, the majority of them would not rank finance as the main challenge.

However, 18% of small-scale mining entrepreneurs reported that there was fierce competition from illegal miners. Small-scale mining entrepreneurs reported having few marketing challenges. Their main concern was that illegal miners sold minerals below their market value. Potential clients prefer to purchase minerals from illegal miners rather than from legitimate entrepreneurs because they save money that way. In the view of the participants, marketing and geology ranked as the least of their challenges while finance was the main challenge that affected 90% of these small-scale mining entrepreneurs. In their view, marketing was not an issue because they had been operating as small-scale mining

entrepreneurs for quite some years hence, and found that word of mouth was a very effective form of advertising.

Despite the potential significance of marketing to small businesses, the vast majority of small-scale mining entrepreneurs had a very limited sense of the role that marketing could play.

#### **What are the main technological challenges you face?**

- **Participant 1:** *The equipment we are using is old fashioned and it stores dust as opposed to other equipment that dispenses dust. In the machines we are using, we have to put minerals ourselves and is very labour intensive.*
- **Participant 2:** *Although we have sophisticated equipment, they are labour intensive.*
- **Participant 3:** *Err ... at the moment we don't have those big equipments and the business is too slow. I can't say we will make money to buy the equipment we need because the equipment we need is estimated to cost R2.5 million.*
- **Participant 4:** *I think I sit here knowing what I require, if I had the money, the technical aspect of my business would not have problems, but the handicap is that I do not have funds to purchase equipment.*
- **Participant 5:** *At the moment we outsource our equipment and it is very expensive.*
- **Participant 6:** *Whe Zandisile, we don't get funding for equipment regardless whether we have mining permits or not. It is very difficult because most of the time we don't have collateral. However, DMR offers assistance to you if you are a female small-scale mining entrepreneur.*
- **Participant 7:** *That is my main challenge because if you don't have capital to hire someone's equipment, we won't make any profit. Lack of equipment and infrastructure is my main challenge.*
- **Participant 8:** *No, infrastructure is there, I don't have technical problem. I am sorry we met far [from the mine]. I would've loved to show you the infrastructure and you could also take photos.*

- **Participant 9:** *Currently we having challenges to get bulldozer to clear the area and again you need to have water and electricity, we don't have that most of the time.*
- **Participant 10:** *Since, we don't have finance, infrastructure is also a problem.*
- **Participant 11:** *From a technical point of view, we can fix any equipment. However, we need new equipment to break up some stones.*

#### **4.4.1.5 Summary of the findings based on the verbatim responses**

Seventy three per cent (73%) of small-scale mining entrepreneurs did not have access to appropriate equipment. Mutemeri *et al.* (2010:18) concur with the above findings, indicating, that despite technological requirements being different from operation to operation, mining entrepreneurs across all regions experience a similar challenge, which is the lack of the appropriate technology for effective mining operations. Given that small-scale mining entrepreneurs do not have the funds to purchase appropriate equipment, it stands to reason that they would be without the appropriate equipment to benefit from technical advancements.

Phiri (2011:14) found that small-scale mining entrepreneurs make use of rudimentary tools due to their inability to obtain technological equipment. Given the challenges they face, small-scale mining entrepreneurs are therefore compelled to use rudimentary methods and often conduct small-scale mining operations individually and illegally (Heemskerk & van der Kooye, 2003:666; Avila, 2003:15; South African South Africa. Department of Water Affairs & Forestry, 2006:5; Phiri, 2011:1). As a direct result of their use of rudimentary business methods, the manner of extracting gold or other mineral resources is deleterious to the environment and human health (van Straaten 2000:45; Drasch, O'Reilly, Beinhoff, Roider and Maydly (2001:151).

Nine per cent (9%) indicated that their main challenge was using outdated equipment and another 9% reported that they were using labour intensive equipment. Another 73% said they did not have the finance to purchase the equipment they needed. Only 9% of the small-scale mining entrepreneurs in the study reported that they had no challenges when it came to the technical aspect of their businesses. Therefore, only a small proportion of small-scale mining entrepreneurs had the equipment to increase their productivity because the majority either had too little or labour intensive equipment.

## What are the main environmental challenges you face?

- **Participant 1:** *We used to pour water on the stones to reduce dust but the problem is that our machine was stolen. We don't have it anymore. The dust doesn't go far it is trapped by trees.*
- **Participant 2:** *Err ... but as you can look around, we've got big machines and even though this is labour intensive, but we are using sophisticated machines here. As you can hear the jaw crusher is busy crushing those stones from there to different sizes.*
- **Participant 3:** *I think the dust from operations can affect those people who do not have masks but we are not using steel that can cause pollution for the environment. The challenge that we have, I think, is for workers because they are using cement most of the time and the ones who mine sand. You find out they are digging building sand is not the same as river sand. It creates more dust so that thing can affect their health.*
- **Participant 4:** *In this area here, one can know what time is the rain coming, what season and what month. During the rainy season we stop operations making sure we still have minerals so that we can avoid being confronted by angry customers. There is no need for someone to come here to buy minerals and then we tell them that kunile (it has rained) we can't help you. You've got to stay focused when problems are coming seasonally.*
- **Participant 5:** *Illegal miners, illegal miners use a lot of water. Too much dust therefore ends up polluting the water.*
- **Participant 6:** *90% of small-scale miners are illegal so they don't care if the environment is damaged or not and the DMR does nothing to deal with this issue of illegal mining.*
- **Participant 7:** *The first challenge is DMR because they come and tell you how to mine, dig and cover the sand, but if you don't have right equipment we can't rehabilitate our **sites**.*
- **Participant 8:** *I don't pollute anything, even DMR inspectors come and find nothing.*

- **Participant 9:** *Currently, I don't have that much, the equipment we are using is manually operated. We don't make any dust or whatsoever; it doesn't impact that much.*
- **Participant 10:** *Climate. When it's raining it is impossible to work, because we work outside we don't have a structure.*
- **Participant 11:** *We mine and rehabilitate at the same time because we know how deep to go get quality stones, so we rehabilitate immediately to save cost. We have also built tennis courts for communities.*

#### **4.4.1.6 Summary of the findings based on the verbatim responses**

Twenty seven (27%) of small-scale mining entrepreneurs indicated that they had no environmental challenges. For 18% of the small-scale mining entrepreneurs, the challenges were related to climatic issues such as heavy rain. Eighteen per cent (18%) of small-scale mining entrepreneurs admitted that they were polluting the environment. Two other two challenges were mentioned. The one was related to having to be labour intensive (9%), and the other was the need to rehabilitate the land (9%).

It seems that pollution is one of the environmental challenges small-scale mining entrepreneurs face. It should be noted, however, that some entrepreneurs make conscious attempts to repair the damage they cause to the environment. They, for instance, rehabilitate the areas in which they mine. It seems that the machinery that some miners is often the cause of the pollution. Another major challenge is the weather. Most small-scale mining entrepreneur worked in the open. Therefore when it rained, they had to either stop or delay their operations and wait for the rain to pass.

The literature speaks of the challenges related to lack of finance, business knowledge and lack of equipment (Hentschel *et al.*, 2002:5-6; Mutemeri & Petersen, 2002:286; Hentschel *et al.*, 2003:7; Mutemeri, *et al.*, 2010:16; Buxton, 2013:7). The findings of this study are congruent with this literature. Financial challenges and technical challenges were the main handicaps small-scale mining entrepreneurs faced. Although geological, marketing, and environmental challenges did play a role, small-scale mining entrepreneurs were impacted most by financial and technical challenges. The findings of this study concur with the literature on small-scale mining that financial institutions are not willing grant small-scale mining entrepreneurs loans or overdraft facilities because they do not have sufficient financial stability, Hence, a significant proportion of small-scale mining entrepreneurs find it difficult to develop their businesses into medium sized businesses despite the abundant opportunities small-scale mining offers.

The following theme refers to prospects available to small-scale mining entrepreneurs.

## 4.5 PROSPECTS

In this section the findings of the interviews are revealed in conjunction with the relevant themes:

### 4.5.1 Prospects

In an attempt to establish the prospects small-scale mining entrepreneurs have, a question was formulated to capture such information. The interview findings are tabled below.

**Table 4.4: Prospects for small-scale mining entrepreneurs in SA**

| <b>Theme question: What are the prospects for small-scale mining entrepreneurs in SA?</b> |   |
|---|---|
| <b>Domain</b>   | <b>Interview findings</b>   |
| Opportunities   | Forty five per cent (45%) of small-scale mining entrepreneurs suggested that there were plenty of opportunities for emerging small-scale mining entrepreneurs. Thirty six per cent (36%) of mining entrepreneurs revealed that there was a huge market for small-scale mining entrepreneurs, while 9% regarded the accessibility of mining permits as an opportunity. Furthermore, another 9% suggested free training from government as an opportunity for emerging entrepreneurs. |
| Exploitation of opportunities +   | Fifty five per cent (55%) of small-scale mining entrepreneurs noted that, to exploit these opportunities one needed to have funds. Twenty seven per cent (27%) of small-scale mining entrepreneurs indicated that to exploit prospects in mining, small-scale mining entrepreneurs and would-be mining entrepreneurs had to be registered with the relevant authority. On the one hand, 9% of small-scale mining entrepreneurs revealed that in order for                           |



|                                       |  |
|---------------------------------------|--|
|                                       | <p>them to exploit these opportunities, companies needed to create joint ventures. On the other hand, 9% of mining entrepreneurs asserted that government should force big companies to purchase their products.</p>   |
| <p>Accessibility of opportunities</p> | <p>Sixty four per cent (64%) of small-scale mining entrepreneurs agreed that it is easy to reap the benefit of the prospects in the mining industry while 36% of small-scale mining entrepreneurs claimed that it was very difficult to reap the benefits of prospects in the mining industry.</p> |

The aim of the above questions was to assist answering the main research questions. The objective of these questions was to determine the prospects for small-scale mining entrepreneurs in SA. In answering questions that reflected this theme, this is what the participants had to say:

**What opportunities are there for small-scale mining entrepreneurs?**

- **Participant 1:** *The opportunities for small-scale mining entrepreneurs is that you get training from LIPSA before starting a small-scale mine even when you have already started. The training is free of charge.*
- **Participant 2:** *Opportunities are there because ... err ... I mean if the market is there it actually means there's a possibility of making good money there. You can start small but after some time then you grow bigger.*
- **Participant 3:** *Err ... the opportunities you get is sometimes the municipality. You find out that they are having projects where the construction needs to lay pavement of which they going to use river sand and sometimes they buy the paving bricks that we are manufacturing and last year we were busy with other they were building a plaza we were the ones who supplied the sand and stones.*
- **Participant 4:** *I think opportunities are there, because in black areas we don't have competition and government is ordering sand from Polokwane instead of Lebowakgomo.*

- **Participant 5:** *There are plenty of opportunities you just need to tap into the mining industry.*
- **Participant 6:** *There are many opportunities, community development and exposure.*
- **Participant 7:** *There are many opportunities for emerging small-scale mining entrepreneurs. It is easy to get mining permits.*
- **Participant 8:** *There are a lot of opportunities for local people and you need a lot of funds and support and you will create jobs.*
- **Participant 9:** *It's a lot of opportunities. There are a lot of jobs in small-scale mining, even local communities are engaging in illegal mining. Small-scale mining provides jobs for rural communities.*
- **Participant 10:** *Opportunities are big, because as we speak everybody wants a structure made of sandstone. People come from as far as Johannesburg to purchase sandstone and we are told that people from Johannesburg export our minerals, so if things can be okay, we will export it ourselves.*
- **Participant 11:** *Opportunities are huge. We can work together with small-scale mining entrepreneurs and create partnerships.*

#### **4.5.1.1 Summary of the findings based on the verbatim responses**

Forty five per cent (45%) of mining entrepreneurs noted that there are plenty of opportunities in small-scale mining. Thirty six per cent (36%) of mining entrepreneurs revealed that there is a huge market for small-scale mining. On the one hand, 9% of small-scale mining entrepreneurs noted that obtaining mining permits for a small-scale mine was an opportunity on its own. On the other hand, 9% of small-scale mining entrepreneurs mentioned free training and grants as prospects.

Small-scale mining entrepreneurs noted that there are many opportunities for small-scale mining entrepreneurs and would-be entrepreneurs. More importantly, small-scale mining entrepreneurs were the leading employment provider in rural areas across the world (Veiga, et al., 2006:436; Hilson, 2009:1). This statement was supported by the fact that the majority of small-scale mining entrepreneurs in this study agreed that they were the major employer in the rural areas where this study was conducted. This finding is in line with those of (Hentschel et al., 2002:3). Some small-scale mining entrepreneurs had diversified and had

built toilets and tennis courts in the community, for instance. There was general agreement that small-scale mining offered many opportunities.

**Referring to the opportunities noted earlier, how can small-scale mining entrepreneurs exploit these opportunities?**

- **Participant 1:** *To exploit these opportunities one would have to go there and register with LIPSA.*
- **Participant 2:** *Err ... it's always difficult to get off the ground you know, because if you don't have enough working capital you can't make it in this business. Err ... if you have enough resources, then you will be able to make enough opportunities in this industry. But if you don't have any resources, I mean it difficult. I don't know what's happening at Mukula there because when they started it's like they were using this manual system. But I don't the current state now. I mean look at what we are doing here. Had we not entered into a partnership with government and private institutions we were not going to make it. So it needs a lot of resources. But opportunities are there once you start. I'm telling you within a short space of time you will be laughing going to your bank.*
- **Participant 3:** *You know what? The thing is ... err ... we can be able to buy some other trucks or to buy equipment and machines and create more jobs so that people can create more jobs. Most of the people in the community are unemployed. I think if we can manage to get those things. Maybe we can build a big company so people can work and be able to support their family.*
- **Participant 4:** *You can exploit them if you have the expropriation rights. If you are able to produce a document barometer to measure what you want. You must have knowledge and equipment in order to exploit what you want; desire needs an instrument to exploit.*
- **Participant 5:** *Get into the industry is to join the mining association, be a member and go to DMR and SEDA to get information.*
- **Participant 6:** *This industry is good to people who have money. You can only exploit these opportunities only if you have money.*

- **Participant 7:** *I think the government should force companies to buy products from small-scale mining entrepreneurs. The state should give incentives to companies buying from small-scale mining entrepreneurs.*
- **Participant 8:** *To be successful you need to have funds available.*
- **Participant 9:** *Well they can only apply for a mining permit from the DMR.*
- **Participant 10:** *Mining is very vast, mining is very broad, and people can access opportunities within small-scale mining if they have funding. Funding is the main problem. If there was funding everything would be easy*
- **Participant 11:** *Through creating relationships and consortiums.*

#### **4.5.1.2 Summary of the findings based on the verbatim responses**

The universal answer from small-scale mining entrepreneurs was the prospects are exploitable provided that there is availability of funds to do so. Drawing from the respondent's feedback, 55% of small-scale mining entrepreneurs noted that, to exploit these opportunities one needs to have funds. Twenty seven per cent (27%) of small-scale mining entrepreneurs indicated that to exploit the prospects within mining entrepreneurs, small-scale mining entrepreneurs and would-be mining entrepreneurs had to have mining permits. On the one hand, 9% of small-scale mining entrepreneurs argued that in order to exploit these opportunities, companies needed to create joint ventures. On the other hand, 9% of mining entrepreneurs asserted that government should force big companies to purchase their products. Despite the difficulty of starting a small-scale mine, small-scale mining entrepreneurs needed to meet the necessary requirements in order to exploit the available opportunities. If they did not, they would be severely hampered.

#### **How accessible are these opportunities to small-scale mining entrepreneurs?**

- **Participant 1:** *Easily available, they don't take time.*
- **Participant 2:** *Err ... is to get the right people. If you know the right people like the department itself, they do offer some assistance to small-scale miners, so they are always accessible so when it comes to private companies. I mean you must know their profile otherwise you'll encounter a lot of problems, because some of them are not reliable so you must get other good companies.*

- **Participant 3:** *Somewhere, somehow I can say they are a bit difficult to get those opportunities because we come across some challenges when we try to get these opportunities.*
- **Participant 4:** *I think they are accessible if you comply with the Act and regulations of the Petroleum and Resources Development Act of 2008 and having power, appropriate documentation.*
- **Participant 5:** *Getting information from mining associations is very accessible. The problem is to get funds and start your business.*
- **Participant 6:** *They are not accessible because it's also expensive to apply for a permit. So if one doesn't have money, for instance the application of a mining permit can cost up to R 75 000 per hectare.*
- **Participant 7:** *No you can't access these opportunities. There are too much middle men in here.*
- **Participant 8:** *if you have good people that can run that operations, then yes, they are accessible.*
- **Participant 9:** *Quick, people get their feedback in three to six months when applying for permits.*
- **Participant 10:** *They are not accessible. I'm telling you, the DMR is not easily available. You will fill in forms and it will take time for approval. Another problem of accessibility is that all these forms are written in English, They are not translated. Therefore, we can't express ourselves properly.*
- **Participant 11:** *These opportunities are easily available and the market is so huge, we can even offer training and process stones for small-scale mining entrepreneurs.*

#### **4.5.1.3 Summary of the findings based on the verbatim responses**

There are plenty of opportunities for small-scale mining entrepreneurs and would-be mining entrepreneurs. However, accessing them requires having ready capital. Sixty four per cent (64%) of small-scale mining entrepreneurs agreed that prospects in the mining industry are easily accessible while 36% of small-scale mining entrepreneurs claimed prospects in the mining industry are very difficult to access.

## 4.6 SUPPORT

In this section the findings of the interviews are revealed in conjunction with the following themes:

### 4.6.1. Support structures.

In establishing the availability of support structures for small-scale mining entrepreneurs, a question was formulated to capture such information. Below are the interview findings.

**Table 4.5: Support structures for small-scale mining entrepreneurs in SA**

| <b>Theme question: what are the business support structures available to small-scale mining entrepreneurs in SA?</b> |   |
|--|---|
| <b>Domain</b>  | <b>Interview findings</b>   |
| Support structures available   | Fifty five per cent (55%) of small-scale mining entrepreneurs agreed that there were support structures available while 45% asserted that there were no support structures available.   |
| Needed support   | Fifty five per cent (55%) of small-scale mining entrepreneurs needed mentoring and training in order to grow their businesses. Twenty seven per cent (27%) needed financial support while 9% needed joint ventures and the remaining nine per cent (9%) said they needed government officials to open up to them. |
| Support beneficial or not  | Ninety per cent (90%) of small-scale mining entrepreneurs agreed that support received thus far had been beneficial while the 10% that had not received support did not agree that support has been beneficial.   |

The objective of this question was to answer the sub-research questions. The objective of these questions was thus to determine what support structures were currently available to small-scale mining entrepreneurs; the support needed by small-scale mining entrepreneurs; and whether the support structures were beneficial or not. In responding to the relevant questions this is what the participants had to say:

## What business support structures are available for small-scale mining entrepreneurs?

- **Participant 1:** *When we first started we were being supported by the local chief until a guy called and wrote a letter to LIPSA so that LIPSA can support us.*
- **Participant 2:** *I have mentioned about the department itself. They offer support on an on-going basis so they provide capacity building programme and even financial support. So government itself is really supportive. LIPSA, MINTEK capacity building. Institutions like SEDA even though they are parastatals. MINTEK came and provided training here, skills development. So it was MINTEK. SEDA I can't remember but there are a lot of institutions that offer support in terms of skills development.*
- **Participant 3:** *We didn't get support. My grandfather was working somewhere so he managed to buy those trucks and equipment.*
- **Participant 4:** *I have support from my eldest son who is a lawyer by profession, and my grandson.*
- **Participant 5:** *DMR assists small-scale mining entrepreneurs after obtaining a license. DMR purchased trucks and equipment.*
- **Participant 6:** *There aren't any support structures, because DMR officials are not business people so they don't understand us. To get help you must bribe a DMR official.*
- **Participant 7:** *IDC started to support us but now I don't see the support anymore, because even other small-scale mining entrepreneurs which were assisted by IDC didn't succeed. The capital we got from IDC is too small. For instance, IDC gives you money that they think is substantial. IDC should provide us with mentors when giving us money. Even the companies we buy our equipment from should come and train us on how to use the equipment.*
- **Participant 8:** *LIPSA, IDC, SEDA. These guys contributed a lot.*
- **Participant 9:** *Nothing no support.*

- **Participant 10:** *No, we don't get support from anyone if we had support we would've had all our machines.*
- **Participant 11:** *Well, they should but they don't, there was support in the past for instance, years IDC gave people R 250 000 and people actually eat the money*

#### **4.6.1.1 Summary of the findings based on the verbatim responses**

Fifty five per cent (55%) of small-scale mining entrepreneurs agreed that there are support structures available while 45% of mining entrepreneurs asserted that there are no support structures available. Support structures are available for small-scale mining entrepreneurs that offer the following support: training, funding, grants and mentoring to small-scale mining entrepreneurs and would-be entrepreneurs.

Some of the literature claims that small-scale mining entrepreneurs are without support. For instance, Shen and Gunson (2006:427) contend that despite the public protestations by both national and international government small-scale mining entrepreneurs are without support. Given the information provided by the respondents in this study, however, Shen and Gunson's claims are without foundation as far as the South African situation is concerned. Fifty five per cent (55%) of the small-scale mining entrepreneurs in this study acknowledged that they had been supported in the past and the support had been beneficial. It would make complete sense to claim that illegal miners do not receive support because a prerequisite for any small-scale mining entrepreneur to receive support from any institution is registration with the relevant authority. However, there can be no doubt that there are support structures available to small-scale mining entrepreneurs.

#### **What business support do small-scale mining entrepreneurs need in order to grow their businesses?**

- **Participant 1:** *We need more funding for buying new equipment because our equipment breaks every time. DMR must extend the period of mining permits.*
- **Participant 2:** *Capacity building, mostly capacity building.*
- **Participant 3:** *Workshops and training.*
- **Participant 4:** *If DMR can help us with mentoring and funding our businesses will be profitable.*



- **Participant 5:** *Small-scale miners need to join ventures with established companies.*
- **Participant 6:** *Whe, Zandisile, we need support from the government official, they need to be easily available when we need them.*
- **Participant7:** *I'm talking for myself, if someone from DMR asks me what I need I would say equipment, full equipment, not second equipment.*
- **Participant 8:** *One can say that we need, look, it depends what the owners are looking for. If they don't know, for example if they get money from the government, government must monitor, because the government just gives funds and goes without monitoring. Immediately I get the money I buy a BMW.*
- **Participant 9:** *Support from the chief. You need finance for paying people and for buying equipment like snooze boxes for screening that alluvial gold. You must get water rights from the authority and you need electricity.*
- **Participant 10 :** *More training from companies that can offer itself because we want more skills so that we can meet the standards and marketing*
- **Participant 11:** *The marketing is there, the support we need is from people to make us known.*

#### **4.6.1.2 Summary of the findings based on the verbatim responses**

Fifty five per cent (55%) of small-scale mining entrepreneurs said they needed mentoring and training in order to grow their businesses. Twenty seven per cent (27%) needed financial support, while 9% needed to be involved in joint ventures. The remaining 9% said they needed government officials to be readily available. Small-scale mining entrepreneurs also felt that they needed more funding in order to purchase brand new equipment that would last instead of second hand equipment. Moreover, small-scale mining entrepreneur needed their mining permits to be extended beyond the current two year period so that they would be eligible for loans by financial institutions. These institutions would not grant a loan without solid proof that it could be repaid. The small-scale mining entrepreneurs were unable to provide this, because they were confined to the period of their current permit. This did not give them enough opportunity to make the necessary money.

Small-scale mining entrepreneurs also commented that they needed moral support and advice from more established companies. This would make it possible to share resources

and synergies and thus be in a stronger position to ward off possible failure. On a different note, a vast majority of potential interviewee's businesses had either closed doors or had failure.

Small-scale mining entrepreneurs noted that they also needed the support of local chiefs and not their opposition. Local chiefs were well-known for opposing small-scale mining entrepreneurs unless they met their demands. For instance, local chiefs demanded that small-scale mining entrepreneurs purchase alcohol whenever they visited the mining sites of small-scale mining entrepreneurs.

**If any, has the business support received thus far been beneficial?**

- **Participant 1:** *The training has helped us, but we still need more help from DTI and DMR.*
- **Participant 2:** *Their support is beneficial and they monitor their support on a daily basis.*
- **Participant 3:** *Ja, it's beneficial for us as small-scale miners. We do get support because sometimes DMR call us for workshops and meetings.*
- **Participant 4:** *None, I don't get support from anyone but my son.*
- **Participant 5:** *It has been beneficial but has not been sufficient, I need much more equipment and staff.*
- **Participant 6:** *Yes, it was beneficial. But if it wasn't for the laziness of the staff of DMR, I wouldn't have lost my equipment, because of floods. I applied for a permit, but the DMR officials misled me and I couldn't mine illegally like everybody else.*
- **Participant 7:** *DMR issues permits only. IDC gave minimal money. Therefore, we buy second hand equipment, loans are minimal, an excavator cost R1.6 million. The machines are expensive. Government should negotiate with buyers because they add 12% hire purchase and we end up paying R30 000 per month.*
- **Participant 8:** *I cannot say yes, because DMR came after a while. They put hands on the business, checking what you are doing on a daily basis. Their support is beneficial, but needs someone to monitor.*

- **Participant 9:** *Yes, but the only thing is I couldn't repay them because of external challenges.*
- **Participant 10:** *Yes because the IDC once gave us the machine that we are using. They gave us a grant so the support has been beneficial.*
- **Participant 11:** *MINTEK has supported us and the support has been beneficial.*

#### **4.6.1.3 Summary of the findings based on the verbatim responses**

Ninety per cent of (90%) of small-scale mining entrepreneurs agreed that support received thus far has been beneficial while 10% that has not received support could not agree that support has been beneficial. Small-scale mining entrepreneurs get support from the following organisations: LIPSA, IDC, DTI, SEDA, and MINTEK. Therefore, there are support structures available to small-scale mining entrepreneurs. These support structures provide training, funding, capacity building, grants and mentoring. However, small-scale mining entrepreneurs mentioned that the support is not consistent. It should be noted that although some small-scale mining entrepreneurs spent the money on items that were for their personal use, other entrepreneurs actually invested the capital in their businesses.

Opinions on whether there were support structures were divided. Fifty five per cent (55%) of small-scale mining entrepreneurs agreed that there are support structures available while 45% of mining entrepreneurs asserted that there are no support structures available. Fifty five per cent (55%) of small-scale mining entrepreneurs needed mentoring and training in order to grow their businesses. On the one hand, 27% needed financial support. None per cent (9%) wanted joint ventures and the remaining 9% said they needed government officials to be available to help them. Ninety per cent (90%) of the small-scale mining entrepreneurs agreed that support received thus far has been beneficial while 10% of mining entrepreneurs stated that they have not received support, and therefore could not agree that support has been beneficial.

Small-scale mining entrepreneurs clearly needed more support in order to sustain their businesses. For instance, small-scale mining entrepreneurs suggested that they needed more established companies to partner them in order to share responsibilities, resources and synergies in a bid to sustain their businesses. Conversely, a stumbling block for small-scale mining entrepreneurs is the fact that a majority small-scale mining entrepreneurs are operating their businesses in isolation, hence, their business growth is retarded. Summing up

what has been said here, it seems that small-scale mining entrepreneurs consider that the support received thus far had helped them to have successful businesses.

#### 4.7 SUCCESS FACTORS

In this section the findings of the interviews are presented and discussed with reference to the following themes:

##### 4.7.1. Success factors

To elicit factors that are instrumental in helping small-scale mining entrepreneurs achieve success, an appropriate question was formulated to capture such information. See table 4.6 (on the next page

**Table 4.6 Success factors for small-scale mining businesses**

| Theme question: what makes a small-scale mining business successful? |  |
|--|--|
| Domain   | Interview findings   |
| Success factors  | Thirty six per cent (36%) of small-scale mining entrepreneurs saw marketing acumen as a success factor, while 27% identified having the necessary business knowledge as a success factor. On the one hand, 9% of mining entrepreneurs revealed that being in possession of the appropriate equipment was crucial to the success of a small-scale mining business. For another 9% of the mining entrepreneurs success related to certain attributes: entrepreneurs need to be passionate and work hard. Nine per cent (9%) of mining entrepreneurs suggested that mining effectively and efficiently were success factors. Another 9% of mining entrepreneurs were unable to pinpoint any success factors, suggesting that nothing was always successful. |
| Limiting factors   | Small-scale mining entrepreneurs identified the following limiting factors: lack of finance, lack of equipment, unfair competition from illegal mining, the opposition of local chiefs, licensing costs and lack of entrepreneurial  |

|                      |  |
|----------------------|--|
|                      | zeal.  |
| Period before profit | While the majority of small-scale mining entrepreneurs suggested that it was years before a profit could be made, the minority indicated that it was possible to make a profit within 6 months.                    |
| Sustainability       | Small-scale mining entrepreneurs suggested for their operations to be sustainable they needed to have appropriate equipment, to remain competitive, to undergo continuous training and to expand their businesses. |

The objective of this question was to determine what makes a small-scale mining business successful. The above table represents success factors indicated by small-scale mining entrepreneurs. The reason there are no percentages is that each entrepreneur had something different to say as to what makes a small-scale mining business successful and what are the limiting factors of success. In their answers that related to this theme, the entrepreneurs had the following to say:

#### **What are the success factors of a small-scale mining business?**

- **Participant 1:** *Having the right equipment to successfully produce minerals and provide rich minerals to clients they can successfully run their business.*
- **Participant 2:** *It's not always successful, because mining is a bit complicated this business is difficult, it can't be compared to other businesses. Even ourselves at one stage we failed then we got business partners.*
- **Participant 3:** *I don't know what to say, but it's all about marketing the business, are people happy with your service?*
- **Participant 4:** *Well it's an ongoing business because it has been patronized by the public.*
- **Participant 5:** *Be competitive, sell good products of quality. That's how you sustain your business. We produce quality products and that gain customers by word of mouth. Have a good relationship with your customers*

- **Participant 6:** *Quality sand, accessibility of the mining site. Customer care, you must have proper landscape and be consistent.*
- **Participant 7:** *I think logically you must know from the first time what is going on, know the ins and outs of the business. Try and establish the business to be sustainable, grow the business, stay in the business, keep your labours, empower people. Our employees have been working with us for 15 years. Most entrepreneurs don't care about empowering.*
- **Participant 8:** *Each and every business, not necessarily a small-scale mine, any business needs people who are business minded. You need to be clued up.*
- **Participant 9:** *It's to mine that alluvial gold and sand because people can live from operating a small-scale mine. You can hire up to 20 people.*
- **Participant 10:** *The good management skills handle our finances properly, have good skills so they can provide according to the requirements.*
- **Participant 11:** *Passion, hard work, effort.*

#### **4.7.1.1 Summary of the findings based on the verbatim responses**

Thirty six per cent (36%) of small-scale mining entrepreneurs noted success factors as a marketing acumen, while 27% saw having the necessary business knowledge as a success factor. On the one hand, 9% of mining entrepreneurs revealed that being in possession of the appropriate equipment was crucial to the success of a small-scale mining business. Nine per cent (9%) of mining entrepreneurs instigated that entrepreneurs need to be passionate and work hard. Nine per cent (9%) of mining entrepreneurs suggested mining effectively and efficiently as one of the success factors. There were 9% of the mining entrepreneurs who could not mention any success factors, on the grounds that nothing that guaranteed success.

In answering the foregoing question, every entrepreneur had something different to say. However, what the answers had in common was the view that small-scale mining entrepreneurs had to have essential resources in order to succeed in business. These included: appropriate equipment, good management skills, markets for their products, a good client base, funds, and business acumen so that they could expand their business and remain successful.

**What are the factors that prevent a small scale mining business start-up from being successful?**

- **Participant 1:** *Capital to expand, machines.*
- **Participant 2:** *Lack of machines, you won't make it in this industry.*
- **Participant 3:** *The thing is maybe you find out like here, we plan this thing, like this area nhe is still developing. So you will find out maybe where people are still trying to build so they buy sand from us and try to develop the sites.*
- **Participant 4:** *There could be numerous. One would be climate, change of weather. When it's raining we are unable to deliver. Well, there are other factors: repairs, services, theft. These are factors prohibiting us.*
- **Participant 5:** *They're operating illegally. They sell at any price, getting the sand for free. They got no overheads, no tax. It's more profitable to be an illegal miner than to be a legal miner. Get the market first before you get the permit.*
- **Participant 6:** *Lack of finance. Whe, Zandisile, people take mining as a difficult job. Each and every time when we talk about mining people scream, 'Hayi enye into (another thing)'. Zandisile, these chiefs are not well educated and they don't care whether the mine will provide jobs. All they want is benefits. He can easily chase you because you couldn't buy him alcohol.*
- **Participant 7:** *Licensing issues, business challenges, surveying, geologist, cost of permits.*
- **Participant 8:** *Look a few issues. We are in the rural area. We do have problems with the local chiefs. Chiefs, they play a big role in us becoming successful, because the chief owns the land. Chiefs are controlling since they own the land. These are stumbling blocks.*
- **Participant 9:** *The people defiling the place, false land claims from fraudulent folks and people are scared from running to courts.*
- **Participant 10:** *its funding okay ... err ... skills development.*

- **Participant 11:** *'I don't care' attitude, if you don't like what you are doing, you will never succeed. People are after money so they don't care about the business.*

#### 4.7.1.2 Summary of the findings drawing from the quotations

Small-scale mining entrepreneurs suggested that the lack of finance was the most serious factor limiting their success. Other factors included: lack of appropriate equipment, climate, licensing issues, positioning of their business (based in rural areas) and lack of passion. To be precise, 9% of small-scale mining entrepreneurs noted a lack of equipment as a limiting factor of success. Nine per cent (9%) of mining entrepreneurs said climate was one of the limiting factors of success given that small-scale mining entrepreneurs operated in open structures. While 9% of mining entrepreneurs claimed that illegal mining was bad for their businesses, 9% of mining entrepreneurs reported licensing issues that were limited their success, another 9% of the small-scale mining entrepreneurs reported that local chiefs had demanded money from them on several occasions, for no good reason. Nine per cent (9%) of mining entrepreneurs suggested community member were digging their own minerals and therefore not making use of the services of small-scale mining entrepreneurs. Yet another 9% of small-scale mining entrepreneurs were confronted with false land claims from confidence tricksters. The final group, another 9% of small-scale mining entrepreneurs, said that mining entrepreneurs often fail because of their 'I don't care' attitude.

#### How many years does it take for small-scale mining entrepreneurs to be successful?

- **Participant 1:** *Right the business is not running successful in 12 months. The business makes a profit for 3 months, so we take our salaries to pay for business's expenses when we make loss.*
- **Participant 2:** *Plus minus 5 years because we are talking about capital investment so you can only realize profit after 5 years.*
- **Participant 3:** *Eish ... err ... I can say in 6 months. In 2008 we were making money due to development.*
- **Participant 4:** *From the beginning you can struggle. It's not easy to start. You get used to the problems being brought about, you are able to solve problems, you measure up with the challenges, you know how to approach them and deal with them.*



- **Participant 5:** *For the first three years you scrape along, but after 5 years you should be able to see your profit.*
- **Participant 6:** *Iyashesha (its quick). With the correct equipment you can see profit within 6 months because sand is in demand. With right products and equipment, you can hire equipment and product but if the site is inaccessible then you can't operate.*
- **Participant 7:** *I'm telling you Zandisile, you start realising profit after paying your credits. You see success after you are established approximately 5 years.*
- **Participant 8:** *It depends – it will take some years. Firstly when you start you need capital that will need to be repaid and fixed expenses.*
- **Participant 9:** *Not long, after two years you can start getting your nice profits.*
- **Participant 10:** *If you want to be a very good entrepreneur you must wait for five years to see profit. Five years should be the minimum, step by step.*
- **Participant 11:** *It took me six months to realise profit because I was doing things according to specifications.*

#### **4.7.1.3 Summary of the findings drawing from the foregoing quotations**

Forty five per cent (45%) of small-scale mining entrepreneurs suggested the success of a small-scale mining business can be measured after five years, as that is when the majority of small-scale mining entrepreneurs start making a profit. However, 27% of small-scale mining entrepreneurs started making a profit within 6 months. The reason was that during the start-up phase of their businesses, there had been a lot of development taking place in their communities and nearby places. Nine per cent (9%) of mining entrepreneurs stated that in their case, it took two years before they were able to show a profit. Another 9% had experienced a loss in all the time they had been in operation because they lacked appropriate equipment. They were therefore unable to give a direct answer. A further 9% stipulated that it is not easy for a small-scale mining business to be successful because of the constant challenges they were faced with.

#### **How can small scale mining businesses continue to be successful after the business start-up phase?**

- **Participant 1:** *Getting advanced technology to successfully break down the stones.*

- **Participant 2:** *To get all resources that are needed. Without financial resources you can't make it, productions are very small, but very expensive. You lose lot of money for production, hence sustainability is hampered.*
- **Participant 3:** *I think they can manage to manage their business and to advertise a lot to supply products.*
- **Participant 4:** *A small-scale mine river sand is an on-going business because God replenishes it. Whenever there is rain, there is sand. If it wasn't for the rain, sand would be exhausted.*
- **Participant 5:** *Going forward, to remain in the industry, you must have funds. State must be lenient, take risks, and you need clients, market. You can't get profit if you don't have the market.*
- **Participant 6:** *Establish a good clientele, what else? I think that you need good employees and you will be covered.*
- **Participant 7:** *You need to run the business well, with flow, you must have standard market stable markets. Development comes and goes but you need reliable markets. Netherlands buys sand from SA.*
- **Participant 8:** *The good management. If you are a manager that eats money, there is nothing you can do. When we see you eating money we will see a Mercedes Benz. If you are a good manager, you will know business will come first.*
- **Participant 9 :** *They can just expand and extend right up to the big open cast where they dig up to 20 metres you can expect good reef gold.*
- **Participant 10:** *Passion, we like, we love what we are doing. We love our government as well.*
- **Participant 11:** *Training, show them how it's done so they can become self-sufficient. It's either you learn it or don't do it at all. If its 100% then its close enough*

#### **4.7.1.4 Summary of the findings based on the verbatim responses**

Thirty six per cent (36%) of small-scale mining entrepreneurs suggested that in order to remain sustainable, mining entrepreneurs need to have the desired resources, human

capital, finance and the appropriate equipment. Eighteen per cent (18%) of small-scale mining entrepreneurs stated that to remain sustainable, mining entrepreneurs had to have a good client base and market share. In addition, 18% of mining entrepreneurs indicated that small-scale mining entrepreneurs had to undergo continuous training. On the one hand, 9% of mining entrepreneurs mentioned advertising as playing a crucial role in remaining sustainable. On the other hand, 9% of mining entrepreneurs saw business expansion as the crucial element in remaining sustainable. Nine per cent (9%) of small-scale mining entrepreneurs highlighted the important role “being passionate” about the work they do plays in sustaining their success.

In discussing the ingredients of sustainability, every entrepreneur implicitly suggested that small-scale mining entrepreneur needed to overcome the factors that limited their operations. In order to do so they need: available funds, all the necessary resources such as the appropriate equipment, a good client base, human capital and the ability to expand their businesses.

#### **4.8 SUMMARY**

In this chapter the findings are explored. The key findings that emerged were:

- ✓ **The major challenges facing small-scale mining entrepreneurs were a lack of finance and appropriate equipment.**
- ✓ **Free training and the grants that are available to them help them to gain the benefits of the prospects offered by mining, However, would-be entrepreneurs first had to be in possession of a mining permit before they could enjoy these benefits.**
- ✓ **There are major support structures available to small-scale mining entrepreneurs such as IDC, SEDA, NEF, MINTEK, DTI and LIPSA, which small-scale mining entrepreneurs find very beneficial.**
- ✓ **Success factors were marketing acumen, business knowledge and appropriate equipment.**

Chapter four presented and explored the findings of this study. These were categorised in terms of the research questions and questions in the interview schedule. The findings were arrived at using content analysis of the data that had been transcribed from the recordings made using a smart phone. The findings of this study revealed that the main challenges

hindering small-scale mining entrepreneurs were financial and technical. The secondary challenges they faced were geological, marketing and environmental.

This study also found that free training and funding were available to entrepreneurs to help them to develop their businesses. However, it was not always easy for them to take advantage of these because of the conditions that were imposed. For example, they needed to have a strong financial base and good business networks. Even though the literature portrays support structures for small-scale mining entrepreneurs as limited, the respondents revealed that there are support structures for small-scale mining entrepreneurs and that they are readily available. Support structures include government organisations that assist small-scale mining with free training, funding and capacity building. On a different note, success factors in small-scale mining business were closely tied to the availability of funds, accessibility of the appropriate equipment, being in a position to expand the business and having the desired resources and human capital. Conversely, factors that limit or hinder the success of small-scale mining entrepreneurs are lack of finance, lack of appropriate equipment, lack of business partnerships and lack of business acumen.

The findings of this study further reveal small-scale mining entrepreneurs could only be in a position to make a profit once they have operational for a longer period than five years. However, it seems that some mining entrepreneurs had been operational for longer periods yet they were still experiencing financial challenges and could not raise capital to invest in their business. According to the findings of this study, the government is doing everything in its ability to ensure that small-scale mining entrepreneurs are given the help they need in order to be successful. For instance, government parastatals has made more than R1.5 million available to businesses, either through liquid cash or grants for mining entrepreneurs (personal communication). However, this is not sufficient. What small-scale mining entrepreneurs need is continuous training and mentoring programmes.

The following chapter concludes the research report and provides possible recommendations and areas for future research.

## **CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS**

### **5.1 INTRODUCTION**

Chapter five presented the findings and discussion of the study. This chapter concludes the entire study by providing a summary of each of its chapters, discussing the limitations of the study and the suggestions for future research and giving a series of recommendations based on the key findings.

### **5.2 A BRIEF EXPOSITION OF THE PRECEDING CHAPTERS**

The aims of this study were to investigate the challenges faced by small-scale mining entrepreneurs in SA and the prospects they have; to investigate the support structures available to small-scale mining entrepreneurs in SA; and to investigate success factors of small-scale mining businesses in SA.

#### **5.2.1 Chapter one**

Chapter one provided a foundation for the study as well as the rationale for the research. The research problem and questions were provided and the methods used were outlined. In addition, the limitations of the research were highlighted.

#### **5.2.2 Chapter two**

This chapter gave attention to the current work surrounding small-scale mining globally. The historical development of the mining industry in SA and the term small-scale mining was defined succinctly. A conceptual model was presented as a lens to view the research problem. In addition, challenges and prospects of small-scale mining entrepreneurs were explained in conjunction to push and pull factors of entrepreneurship. Additionally, support structures and success factors for small-scale mining businesses were also discussed. On the one hand the literature revealed predominant challenges to be: lack of finance, business knowledge and equipment. On the other hand, the literature also revealed that there are few support structures for small-scale mining entrepreneur, which limits their chances of running profitable businesses. Chapter two also discussed success factors of small-scale mining entrepreneurs.

#### **5.2.3 Chapter three**

The purpose of chapter three was to explain the research design of this study. In chapter one the design was mentioned briefly, and in chapter three the design of the research was explained in detail.

#### **5.2.4 Chapter four**

In chapter four the findings and discussions are presented.

#### **5.2.5 Chapter five**

Chapter five provides a conclusion of the entire thesis where the aim of the study is revisited.

### **5.3: KEY FINDINGS**

Qualitative research methods were used to collect and analyse the data on the challenges and prospects of small-scale mining entrepreneurs. The following findings emerged:

#### **5.3.1 Finding one**

The major challenges facing small-scale mining entrepreneurs are a lack of finance and appropriate equipment.

#### **5.3.2 Finding two**

Free training and grants help to make it possible for mining entrepreneurs to enjoy the benefits. Mining and would-be entrepreneurs first had to be in possession of a mining permit.

#### **5.3.3 Finding three**

There are major support structures available to small-scale mining entrepreneurs such as: IDC, SEDA, NEF, MINTEK, DTI and LIPSA, which small-scale mining entrepreneurs find beneficial.

#### **5.3.4 Finding four**

The main success factors are: effective marketing, business knowledge and appropriate equipment.

### **5.4 PROBLEMS AND LIMITATIONS OF STUDY**

A major challenge in executing this research was language. The research was conducted in four different locations in rural areas. In most instances, participants spoke in their own language as they could not understand English. This problem was overcome by hiring an interpreter to translate the entire interview guide and the responses of the participants.

This study was limited to the challenges faced by small-scale mining entrepreneurs and the prospects they have in four provinces.

### **5.5 RECOMMENDATIONS**

The objective here is to propose a series of recommendations for each finding that was noted in chapter five.

### **5.5.1 Finding one**

The investment made thus far on small-scale mining by the IDC and other government entities is not sufficient to overcome the challenges that small-scale mining entrepreneurs face. The South African government should provide potential small-scale mining entrepreneurs with appropriate training or education they need in order to make a success of their business ventures. Furthermore, the South African government should review the mining permit system, particularly the period stipulated in the permits. Instead of lasting for only two years before having to be renewed, permits should be issued for between seven and to twelve years. This would allow small-scale mining entrepreneurs to apply financial institutions for loans.

### **5.5.2 Finding two**

Given that entrepreneurs who hold mining permits are unable to capitalise on their prospects, the South African government should establish a business incubation programme for merging small-scale mining entrepreneurs. This would allow entrepreneurs to overcome many of the challenges they face and make it easier to make use of the opportunities small-scale mining offers. To access these opportunities, small-scale mining entrepreneurs should consider partnering with other small-scale mining entrepreneurs so that resources can be shared among them, instead of trying to operate on their own.

### **5.5.3 Finding three**

Local government should increase support initiatives and skills development for small-scale mining. Small-scale mining entrepreneurs acknowledge that they do get support from government, which the literature confirms. The views of the mining entrepreneurs in this study and those found in the literature on other research studies, it is clear that there is a mismatch between the support received by small-scale mining entrepreneur and what they need. Therefore new approaches should be developed. The South African government should determine what support is needed by small-scale miners so more realistic support can be provided.

Small-scale mining is a global phenomenon. The entrepreneurs in this study face similar challenges to those faced by their counterparts in other parts of the world. Consequently, both national and intentional governments should encourage fair-trade initiatives in which small-scale mining entrepreneurs are provided with suitable market conditions to sell their products to developing nations through the formation of cooperatives.

### **5.5.4 Finding four**

The most outstanding success factors were marketing acumen, business knowledge and appropriate equipment. Given that the IDC and NEF are financial service providers to small-

scale mining entrepreneurs, this study recommends that the Business consultancy service unit at NYDA be tailor made for small-scale mining entrepreneurs. This might help small-scale mining entrepreneurs with business planning, feasibility skills and so forth.

## **5.6 FUTURE RESEARCH**

Future research should be geared towards investigating the challenges that lead to the closure of the ten small-scale mining entrepreneurs in KWAZULU-NATAL.

## **5.7 CONCLUSION**

This study found that small-scale mining entrepreneurs indeed face similar challenges across the globe. These challenges include the lack of finance: lack of advertising budget, lack of proper equipment in order to enable productivity to increase. Furthermore, this study also found that the small-scale mining entrepreneurs had no real challenges with regard to geology. The main challenge facing small-scale mining entrepreneurs was a lack of finance and equipment. The findings of this study suggest that small-scale mining entrepreneurs experience these challenges because they are still operating individually after running their businesses for an average of 7 years. Venter, Urban and Rwigema (2008:183) contend that when entrepreneurs operate individually, they limit their growth, because they are personally liable for the company's debt and success. Hence, small-scale mining entrepreneurs are not able to grow their businesses.

To overcome these challenges, some small-scale mining entrepreneurs need access to opportunities within small-scale mining. This study found that there are plenty of opportunities for small-scale mining entrepreneurs ranging from training opportunities to funding from government parastatals to a huge market waiting to be exploited. However, accessing these opportunities is often difficult. In order to access these opportunities, small-scale mining entrepreneurs either have to know people within the parastatals or have funds available. In exploiting these opportunities, therefore, some entrepreneurs experience a degree of difficulty while others entrepreneurs claim that these opportunities are easily exploitable.

As far as support is concerned, a majority of small-scale mining entrepreneurs contradicted the literature stating that there are support structures available for small-scale mining entrepreneurs. These support structures include: mentoring, skills development; training and funding. However, the limiting factor was that in most cases the parastatals concerned give funding to small-scale mining entrepreneurs, but they neither monitor the spending nor offer mentoring to small-scale mining entrepreneurs. In addition to these support structures, small-scale mining entrepreneurs need support from stakeholders in order for them to establish



successful businesses. They need an increase in the level of funding that is offered by the following organisation: DMR, DTI and IDC. Nonetheless, 90% of small-scale mining entrepreneurs agreed that the support received thus far had been beneficial to their businesses.

This study also found that there were factors that determine whether or not the small-scale mining businesses thrive. The findings were that in order to be successful, small-scale mining entrepreneurs had to have access to finance, appropriate equipment, the ability to engage in extensive marketing, quality minerals to sell and human capital.

This study made four recommendations: First, the South African government should provide potential small-scale mining entrepreneurs with the training or education they need to be successful. Secondly, The South African government should establish a business incubation programme for emerging small-scale mining entrepreneurs as this would help them to overcome the challenges and take advantage of the opportunities that are available. Third, the South African government should determine the support that is needed by small-scale miners. Fourth, the Business Consultancy Service Unit at NYDA should provide advice that is tailor made for small-scale mining entrepreneurs. This would help to enable small-scale mining entrepreneurs to do activities like business planning, and feasibility studies.

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**APPENDICES**

**Appendix A: Interview guide**



**CHALLENGES AND PROSPECTS FOR SMALL-SCALE MINING ENTREPRENEURS IN SOUTH AFRICA**

| CONSENT TO PARTICIPATE IN THE STUDY |   |     |  |    |
|-------------------------------------|---|-----|--|----|
| 1                                   | I agree to participate in this study.   | Yes |  | No |
| 2                                   | I am aware that participating in this study is voluntary.   | Yes |  | No |
| 3                                   | I have been assured that my identity will be kept confidential and that none of my responses will be traced back to me. | Yes |  | No |
| 4                                   | I am fully aware that I am at liberty to refuse to answer any question that I do not wish to answer.                    | Yes |  | No |

**INTERVIEW GUIDE**

**Day of interview** .....

**Time of interview** .....

**Location:**

|   | QUESTIONS  | CHECK |
|---|--|-------|
| 1   | Are you currently working as a small-scale mining entrepreneur?  |       |
| 2   | How long have you been operating a small-scale mine?   |       |
| <p>Now, we are going to talk about the challenges to and opportunities for small-scale mining entrepreneurs. In particular we will be looking at financial challenges, geological challenges, marketing challenges, environmental challenges and technological challenges. We will also be looking at the prospects for small-scale mining entrepreneurs to build successful businesses, as well support structures available for small-scale mining entrepreneurs.</p> |  |       |
| 3   | <p align="center"><b><u>CHALLENGES TO SMALL SCALE MINING ENTREPRENEURS</u></b></p> <p>You currently work as a small-scale miner:</p> |       |

|  |     |  |  |
|--|-----|--|--|
|  | 3.1 | What is the main financial challenge facing your business?     |  |
|  | 3.2 | What is the main geological challenge hindering your business? |  |
|  | 3.3 | What are the main marketing challenges you face?               |  |
|  | 3.4 | What is the main technological challenge you face?             |  |
|  | 3.5 | What is the main environmental challenge you face?             |  |

|   |   |   |  |
|---|---|---|--|
| 4 | <b><u>PROSPECTS FOR SMALL-SCALE MINING ENTREPRENEURS</u></b>          |   |  |
|   | 4.1   | What opportunities are there for small-scale mining entrepreneurs?  |  |
|   | 4.2   | Referring to the opportunities noted earlier, how can small-scale mining entrepreneurs exploit these opportunities? |  |
|   | 4.3   | How accessible are these opportunities to small-scale mining entrepreneurs?   |  |
| 5 | <b><u>SUPPORT STRUCTURES FOR SMALL-SCALE MINING ENTREPRENEURS</u></b> |   |  |
|   | 5.1   | What business support structures are available for small-scale mining entrepreneurs?                                |  |
|   | 5.2   | What business support do small-scale mining entrepreneurs need in order to grow their businesses?                   |  |
|   | 5.3   | Where applicable, has the business support received thus far been beneficial?                                       |  |

|          |  |  |
|----------|--|--|
| <b>6</b> | <b><u>SUCCESS FACTORS IN SMALL-SCALE MINING</u></b>  |  |
|          |  |  |
| 6.1      | What are the success factors in small-scale mining?  |  |
| 6.2      | What are the factors that prevent a small-scale mining business start-up from being successful?    |  |
| 6.3      | How many years does it take for small-scale mining entrepreneurs to be successful?                 |  |
| 6.4      | How can small scale mining businesses continue to be successful after the business start-up phase? |  |

**THANK YOU FOR ANSWERING THESE QUESTIONS**

## Appendix B: Ethical clearance



P.O. Box 1906 • Bellville 7535 South Africa • Tel: +27 21 6801680 • Email: saliefa@cput.ac.za  
Symphony Road Bellville 7535

|  |                          |
|--|--------------------------|
| Office of the Chairperson<br>Research Ethics Committee | Faculty: <b>BUSINESS</b> |
|--|--------------------------|

At a meeting of the Research Ethics Committee on 03 September 2014, Ethics

Approval was granted to MKUBUKELI, Zandisile (210169273) for research activities


Related to the MTech/DTech: MTech: BUSINESS ADMINISTRATION

at the Cape Peninsula University of Technology

|                               |   |
|-------------------------------|---|
| Title of dissertation/thesis: | Challenges and prospects of small-scale mining entrepreneurs in growing their business in the Ehlanzeni District Municipality of Mpumalanga<br><br>Supervisor: Dr RK Tengeh |
|-------------------------------|---|

Comments:

Decision: **APPROVED**

|   |                   |
|---|-------------------|
|  | 03 September 2014 |
| Signed: Chairperson: Research Ethics Committee                                      | Date              |

|   |      |
|---|------|
| Signed: Chairperson: Faculty Research Committee | Date |
|---|------|

## Appendix C: Consent letter



ISO 9001:2008  
QUALITY  
MANAGEMENT SYSTEM

ISO 17025:2005  
RESEARCH/CALIBRATION  
LABORATORY

ISO 14001:2004  
ENVIRONMENTAL  
MANAGEMENT SYSTEM

OHSAAS 18001:2008  
OCCUPATIONAL HEALTH AND  
SAFETY MANAGEMENT SYSTEM

*In your reply please quote:*

Dr. Robertson K Tengeth  
Cape Peninsula University of Technology  
Department of Scholarship & Professional Practice  
Faculty of Informatics & Design

15 October 2014

**Consent Letter 2014**

I, Dr. Makhapa Makhafola in my capacity as General Manager: R&D give consent in principle to allow Zandisile Mikubukeli, a student at the Cape Peninsula University of Technology, to collect data at Mintek's Small Scale Mining & Beneficiation Division (SSMB) as part of his M Tech (IT) research. The student has explained to SSMB the nature of his research and the nature of the data to be collected.

This consent in no way commits any individual staff member to participate in the research, and it is expected that the student will get explicit consent from any participants. I reserve the right to withdraw this permission at some future time.

In addition, the company's name may or may not be used as indicated below.

|     | Thesis | Conference paper | Journal article | Research poster |
|-----|--------|------------------|-----------------|-----------------|
| Yes | ✓      |                  |                 |                 |
| No  |        | ✓                | ✓               | ✓               |

**Dr Makhapa Makhafola**  
*General Manager – Research & Development*  
**MINTEK**

**Office +27 (0)11 709 4485 | Fax2email +27 (0) 872344847**

200 Mailbongwe Drive, Strijdom Park, Randburg, Gauteng Province, South Africa

Private Bag X3015, Randburg 2125, Gauteng Province, South Africa

Website: [www.mintek.co.za/](http://www.mintek.co.za/)

**MINTEK – Celebrating 80 years of excellence in mineral and metallurgical innovation**

## Appendix D: Language Editing Certificate

TO WHOM IT MAY CONCERN

This is to attest that the master's dissertation named below has been proofread and language edited:

**“Challenges and prospects for small-scale mining entrepreneurs in South Africa” by Zandisile Mkubukeli.**

A handwritten signature in black ink, appearing to read 'ER', with a stylized flourish extending to the right.

(Dr) Elaine Ridge BA UED (Natal) DEd (Stell)  
Freelance Editor and Translator  
Presenter of Practical English Editing 771 at Stellenbosch University

11 November 2015