

**THE EFFECTS OF MINE DOWNSCALING (AND CLOSURE) ON THE SOCIO-  
ECONOMIC DEVELOPMENT OF MINING COMMUNITIES: THE CASE OF  
ORANJEMUND**

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BY

CHRISTERLINE N. NDELEKI

SUPERVISOR: DR. DEIDRE VAN ROOYEN

## **ABSTRACT**

The research investigates the socio-economic effects, associated with mine downscaling (closure) and understanding community perceptions, risks and opportunities in Oranjemund. Oranjemund is a mining town under transformation, since the mining operations are downscaling and projected to cease operations in 2022. A qualitative research was used by administering open-ended questionnaires and face-to-face interaction with officials from the local mine leadership, local authority, business and local community, mine union, a consultant and non-governmental organisations, in order to collect the required data. Using both purposive and snowball sampling, the first point of contact was the Constituency Office, where a list of names was obtained and participants were purposefully selected to take part in the research. Focus group discussions and individual in-depth interviews were the method of data collection. The interviews used guides, which set out the themes according to the study objectives. Secondary information was obtained by reviewing documented literature, government reports and website articles.

The negative consequences of mine closure on the socio-economic aspects of a community include reduced quality of living standards, upsurge in out-migration, emergence of crime, poor and inadequate infrastructure, loss of employment and income, less employment opportunities in the area and reduction in buying power. The positive effects of mine downscaling include accelerated focus in local economic initiatives for economic diversification and potential assessment studies. The findings suggested that the key characteristics that render local economic development by mining operations 'insufficient', is the lack of community involvement in development. The study findings further suggested that transformation of a mining-led economy requires the involvement of stakeholders including community, local government and the private sector to create a sustainable economy post mine closure.

The study found that mining operations somewhat contribute to local economic development. It also showed that mining communities are at the receiving end of negative effects imposed by mine downscaling and closure. The study also shows that communities do not perceive mine downscaling and closure positively, as they feel that their livelihoods are threatened. The recommendations emphasised strong investment in social infrastructure and participation of communities in development. Lastly, the crucial role of comprehensive legal framework on mine closure was highlighted for the mining industry.

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## **LIST OF ABBREVIATIONS**

CDM	Consolidate Diamond Mines
CDS	Centre for Development Support
COC	Code of Conduct
CoM	Chamber of Mines of Namibia
CSE	Centre for Science and Environment
CSIR	Council for Scientific and Industrial Research
DRC	Democratic Republic of Congo
EMA	Environmental Management Act
EMP	Environmental Management Plan
GDP	Gross Domestic Product
ICMM	International Council on Mining and Metals
IGF	Intergovernmental Forum
IIED	International Institute for Environment and Development
IPPR	Institute for Public Policy Research
ISSD	International Institute for Sustainable Development
MICA	Minerals Intelligence Capacity Analysis
MME	Ministry of Mines and Energy
MUN	Mine Workers Union of Namibia
Namdeb	Namibia Diamond Corporation (Pty) Limited
NCCI	Namibia Chamber of Commerce and Industry
NGO	Non-governmental Organisations
NMCF	Namibia Mine Closure Framework
NSA	Namibia Statistics Agency
OMD	Oranjemund
OTC	Oranjemund Town Council
SME	Small and Medium-sized Enterprises
SPC	Stubenrauch Planning Consultants
SWA	South West Africa
MET	Ministry of Environment and Tourism

## CHAPTER ONE: INTRODUCTION

### 1.1. Introduction and background

Mining is seen as one of the necessary evils of the modern world, which provides the materials required to improve the standard of life (Dubey, 2017). The last 20 years have signified a drastic rise in global mining. Mining is the extraction and enrichment or refinement of metallic ores, coal and industrial mineral deposits (Heikkinen et al., 2008). In simple terms, it is the extraction of any non-renewable resource (Dubey, 2017). Dubey (2017) categorises mining, depending on the purpose and size of the mining operations and can be in the form of stone mining, sand mining and mining of valuable stones among others. The world's biggest mines can now be found in Africa, Asia and Latin America (De Haas & Poelhekke, 2016). Mine downscaling is a well-known international practice and it describes the period of decline that leads to the closure of a mine. However, this phenomenon only became more prominent in Africa in the past two decades (Marais, 2014).

The lifespan of mine operations is to a large extent dependent on the size and grade of the deposits and methods applied, as well as the prevailing good market prices (Heikkinen et al., 2008). Mining operations tend to occur over a long period of time, lasting decades, but products prices are not constant and are likely to cause temporary suspension of operations or even extended periods of closure (Heikkinen, et al., 2008). However, when mining operations become unsustainable due to resource depletion, plans for decommissioning and mine downscaling and closure begin. Mine closure, whereby mining activities stop permanently, and its associated post-closure social and economic characteristics form part of the lifecycle of mining operations (Stacey, et al., 2010). Universally, deterioration of natural resources has become a regular occurrence (Mbwale, 2010). The closure of mines has been a bone of contention, owing to resource reduction and a shift in the economy (Marais, et al., 2005).

In 2002, the World Bank reported that a "wave of mine closures is looming" and predicted the closure of 25 large mines in developing countries by the year 2012. Mine closure is the process followed, when the responsible government body issues a certificate to absolve the owner of a mine from mining activities and from all liabilities and responsibilities associated with social and economic consequences among others (Stacey et al., 2010). Gibson and O'Faircheallaigh (2010) categorise the mine life cycle into five phases, namely: location and the decision to invest; early and advanced mineral exploration; construction; operation; and lastly mine closure and reclamation. The first phases of a mine cycle are known for their economic "boom" generation during which employment and investments rise in a community, while the post-mining phase is known to bring about a sudden "bust" in which economic contraction and out-migration take place. The "boom" and "bust" experience puts social stressors on the residents' livelihoods, placing strains upon social and health services (Gibsons & O'Faircheallaigh, 2010).

Mine operation and its aftermath are known for its unique risks for local communities (Rixen & Blangy, 2016) and there is no denying that this phenomenon has had negative consequences on both the developed and developing countries (Marais, et al., 2005). Mine closure is phenomenon that has adversely impacted on both developed and developing nations (Centre for Development Support [CDS], 2006). The closure of mines has been associated with large-scale retrenchments, which always result in high poverty rates (Marais, et al., 2005). Retrenchments or downscaling is when a company reduces its labour force through collective layoff and early retirement separation (Sleuwaegen, et al., 2007). According to CDS (2006), the effects resulting from mine closure are further made worse by the unique characteristics of mining communities' dependency on a single economic driver.

The operations of mining firms are still of key importance to the socio-economic development in many parts of the world, including many countries found in sub-Saharan Africa (Rogerson, 2011). Mine closure is likely to have far-reaching negative effects, not only for the miners, but also for mining town communities and various government departments (Marais, et al., 2005). The phase of a mine life cycle is characterised by contractions in mineral production and expenditure, a decline in investment and a loss of capital production (Marais, 2014).

Even though the impacts of mine closure on the wellbeing of local communities remain vague and uncertain, local communities experience far-reaching changes that create new stresses on their wellbeing. Rixen and Blangy (2016) sustain that the sustainability of the closure of a mine and its socio-economic legacies is still a controversial topic internationally. For example, lead-zinc mines in Nunavut, Polaris and Nanisivik operated for 20 years before the closure of the mines in 2002. Even though these mines created short-term benefits for the communities, such as new businesses and higher incomes, they generated insignificant benefits for local employees, such as inadequate training in transferrable skills (Rixen & Blangy, 2016).

According to McMahon and Remy (2001), a look at the mines in Canada, Latin America and Spain reveals that socio-economic legacies of mine closure are to a large extent determined by the quality of job opportunities and income benefits among others. The impacts of mine closure are multifaceted; they are diverse and complex and vary from an array of specific social conflicts to a general decrease of the status of the mining towns. The co-existence of town establishments and mining development stops when the mine closes and results in long-term challenges with respect to optimally using and maintaining the existing infrastructure (Marais & Cloete, 2013).

This is likely to cause the mine town to be abandoned, especially in a less diversified economy where the economy is dependent on mining alone (Marais, 2014). According to Marais, et al., (2005), the impacts of the closure of mines is not the same for developing and developed countries, because the latter countries are always left with limited alternative socio-economic

options. Developing countries saw a sharp increase in mining activities and revenue from the 1960s to the 1980s, but the same cannot be said for western countries. Despite this, the majority of mining firms were already nearing the end of their life spans (CDS, 2006).

Even though the majority of studies shed light on environmental issues related to mine operations and mine closure, there is growing consensus that social and economic aspects should be looked at (Marais & Cloete, 2013). This chapter gives an introduction to the research study and will be used to put the study into context. The chapter further provides an outline of the research problems, together with the aim and objectives of the study. Moreover, the chapter includes the description of the research methodology which was applied for this study. Additionally, the chapter highlights the research design, the procedures used for sampling and collection of data, as well as the tools for analysis of data. In closure the chapter outlines a summary of ethical considerations.

Chapter One introduces the study and background context, statement of the problem, research aim and objectives, as well as the limitations of the research. Chapter Two introduces the literature review and then presents the reviewed literature relevant to the research aim and objectives. Chapter Three gives an outline of the research methods used to conduct the research starting with the introduction to the research methodology and a brief background of the study area, research design, sampling design, data processing and analysis methods and lastly research ethics considered for the study. Chapter Four presents the empirical data that the researcher analysed. Chapter Five presents the data analysis of the findings and discussions. Chapter Six of the report consolidates the findings of the results, highlights the key recommendations and presents the limitations encountered by the researcher in conducting the research, as well as the scope for future research.

## **1.2. Problem statement**

The mining sector remains a very important contributor to the economic stability of most southern Africa countries, and its share to the Namibian economy cannot go unnoticed. Since independence, the mining sector has played a major role for its contribution to the country's gross domestic product, contributing approximately 13% on average over the past decade (Institute for Public Policy Research [IPPR], 2017). The nature and dynamics of a mining cycle come with both life and death to mining communities, but it is very difficult to predict (Helmuth, 2009). The phenomenon of mine downscaling or closure has been attributed to the depletion of resources (Marais & Atkinson, 2006).

The Namibia Diamond Corporation (Namdeb), a partnership between the Government of Namibia and De Beers is responsible for mining diamonds in the forbidden territory, known as Sperrgebiet which is situated along the Namibian Atlantic Ocean shore (Mbwale, 2010). Between 1995 and 2001, Namdeb downsized its workforce by approximately 1700 employees

in their land-based activities (IPPR, 2017). During the period of 2000-2007, Namdeb comprised of approximately 3600 employees but by 2008 the number decreased to 1600 employees as a result of the decline in mineral resources (Mbwale, 2010). According to Helmuth (2009), it is projected that with the exhaustion of diamonds in Oranjemund, offshore mining is due to increase, which is more capital intensive, resulting in huge labour cutbacks. In 2017, Namibia's giant mining company, Namdeb in Oranjemund, announced their move to scale-down and ultimately cease land-based mining operations (IPPR, 2017). Diamonds are Namibia's single biggest export product and the backbone of the economy, acting as a catalyst for the provision and extension of infrastructure such as roads, hospitals and schools (Mbwale, 2010).

Towns that mainly depend on mining as a mono-industry are the most affected by any changes resulting from closure or downscaling of a mine. The reduction in resources increases the challenges of economic diversification for such communities (Marais, et al., 2005). Among other negative effects of mine downscaling are the observed considerable decline in the economy and poverty, which often results in a drop in population (Marais & Cloete, 2013), which in turn negatively influences service delivery in mining towns where there is a local government (Marais et al, 2005; Marais & Cloete, 2013).

Company or mining towns are defined as communities which belong to and are overseen by an industrial employer. Such towns have, in the past, been prominent on the mining scene in Namibia. Examples of such communities or towns include the diamond towns of Kolmanskop and Oranjemund amongst others (Littlewood, 2015). The majority of these types of communities in Namibia and their locality are associated with geographical and historical elements. Mineral resources found in Namibia are mainly positioned in remote and under-populated parts of the country, e.g.: the Karas Region, which resulted in the establishment of new settlements to accommodate employees of the mines.

However, like the rest of the world, in Namibia, what becomes of the socio-economy of company towns after mine closure or downscaling has received widespread attention and remains a serious challenge (Littlewood, 2015; Marais et al, 2005). This research therefore seeks to analyse and develop an understanding of the socio-economic influences, associated with mine downscaling in Oranjemund, which has been a mining town since its establishment and was only proclaimed a local authority in 2011, which became fully functional in 2013. In addition, the research seeks to understand the current economic climate in the study area, as well as economic growth opportunities that are likely to diversify the economy.

### **1.3. Research aim and objectives**

The aim of the study were to analyse and understand the effects of mine downscaling or closure on the socio-economic development of Oranjemund, Namibia

The objectives of the study were to:

- a) Build an understanding of the role played by the mine sector with regards to socio-economic development in the study area.
- b) Assess the potential socio-economic opportunities and risks posed by mining downscaling in Oranjemund.
- c) Determine the legislative frameworks on mining and mining closure in Namibia.
- d) Investigate the current climate of social and economic development in Oranjemund in the face of mine closure/downscaling.
- e) Understand community perceptions on socio-economic development and mine downscaling in Oranjemund.

#### **1.4. Research questions**

In order for the aim and objectives to be addressed, the research study asked the following questions:

- a) What role does the mine sector play towards socio-economic development in Oranjemund?
- b) What are the socio-economic opportunities and risks associated with mining downscaling in Oranjemund?
- c) What are the legislative frameworks that guide the mine sector and mining closure in Namibia?
- d) What is the socio-economic development status quo of Oranjemund, despite the ongoing mine downscaling?
- e) What are the perceptions of the community towards socio-economic development and mine downscaling in Oranjemund?

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

This chapter presents the review of the relevant literature for the study. The chapter is separated into five sections. The first section reviews the context of mine downscaling and closure. The second part presents a theoretical review of resource and company towns, which discusses the establishment of company towns as a result of natural resources, such as minerals. This section gives a history and evolution of company towns internationally. This is important for the research as it provides an overall overview and understanding of company towns. The third section focuses on how mining affects development, both positively and negatively. The fourth section reviews the impact that mine closure has on socio-economic development of company towns, whereas the last the section presents the current status of mine downscaling in Namibia, the mining legislative framework and the emergence of mining towns in Namibia.

Apart from being the introductory section, this section highlighted the essence of the follow up chapters after outlining them. The next section deals with mine downscaling and closure in general, both national and international.

### **2.2 Mine downscaling and closure in context**

While the previous section introduced the outline of the chapter, this section sheds light on mine downscaling and closure in general and in context to the research study. The closure of mines marks the final stage of a mine lifespan and is usually associated with depleted resources, but may also be due to economic, geological or structural reasons (Ackermann, et al., 2005). Mine closure is basically the process that involves wrapping up mine operations and includes decommissioning of the mine site, reclamation and continuous monitoring (Dickson & Bryan, 2015). The mine closure phase takes longer to complete in comparison to other stages of the mine life cycle (Ackermann, et al., 2005).

The Minerals Intelligence Capacity Analysis ([MICA], 2017) Factsheet outlines the following activities that form the mine closure process: (i) shut down, which involves downsizing the workforce aimed at leaving a limited number of employees to assist in closing down operations. Mines at this stage may arrange for re-training or early retirement prospects to employees, (ii) decommissioning entails contracting small companies or contractors to take down the mining processing facilities and equipment. Equipment may be sold, buildings disposed of or destroyed and disposal of all waste generated, (iii) remediation/reclamation is done to return the mining site to its almost original state to be able to be used post-mine closure. In addition, any hazardous materials are removed and the land is restored by re-vegetation, (v) post-closure is where continuous assessments and monitoring of the reclamation process and identification of possible corrective measures take place. However, this stage is bound to be long, because care

and maintenance may be required to take care of the mine discharge and maintenance of tailings.

The Industrial Revolution that took place during the 18<sup>th</sup> and 19<sup>th</sup> century in the Western world was based on quarry towns in Europe and North America. As a result, thousands of mining towns and communities were formed. However, structural changes were observed from the 1960s, which impacted regions such as Welsh coalfields and Appalachia (Nel, et al., 2003). As a result, issues, such as resource depletion and price fluctuations among others emerged. Similarly in Sweden the mining sector experienced similar effects, resulting in mine closure and consequently economic marginalisation of associated communities. For this reason, mine closure and wind-down have become common place in several countries (Nel, et al., 2003).

Mine closure has marked its existence into the lexicon of mine companies and policy makers (Ackermann & van de Walt, 2005). This practice can be traced in literature to as far back as 1556. However, the concept of mine closure became more pronounced in the early 1920s (Singh, 2017). This being said, mine downscaling and closure is a new phenomenon in the developing world (Marais, 2013). Nevertheless, it was only in the 1930s that this concept was adopted as a tentative practice in the mining sector. The period between the 1930s and 1960s is important as it marked a transition phase in mine closure practice (Singh, 2017).

At the international level, mine closure has been more apparent in countries like Germany, the United States of America, Canada, Australia and the former eastern bloc (Marais, 2013). Mine closure is a challenge for both the mining sector and the policy makers in many countries. Mines are known to close for different reasons, some of which include resource depletion and unfavourable market prices (Castro, et al., 2011). Additionally, financial and demand cycles are but some of the factors contributing to the reduction of mining operations in developing countries (Marais & Atkinson, 2006). However, mines are also likely to close due to general care and maintenance (Ackermann & van de Walt, 2005).

Among the different causes of mine closure, the depletion of mineral resources has proven to be the easiest to manage compared to other causes which include a decline in commodity prices, regulatory and social issues (Castro, et al., 2011). According to Marais (2014), the diminishing period of a mine is associated with shrinkages in production and expenditure, a reduction in investment, capital loss and loss of production. This phase may result in abandonment of the town site, particularly in a single economy town where the bulk of the workforce is involved in one sector like mining. The concept of mine closure is fast changing over time in terms of scope and responsibilities (Castro, et al., 2011). In the past, when resources were depleted, mines closed and the mining area was abandoned. However, now the closure of a mine requires that the land is rehabilitated into a state that it can still be productive after the mine closure, for example for the use of agriculture (Limpitlaw, 2004).

Xavier, et al., (2015) also state that in the past, mining companies had a different understanding towards mine closure, which only included complying with the law, contributing to taxes, carrying out philanthropy work and conducting social projects while they were exempted from more responsibilities pertaining to socio-economic impacts imposed by mine closure on the residents and government. Marais (2014) states that the period of decline that leads to mine closure demands as much consideration as the mine closure. Being the final phase of a mine life cycle, mine closure has only recently gained momentum as an important phase, given sustainability challenges posed on socio-economic conditions of local communities. Thus, new mines see it fit to incorporate mine closure plans from the conception of the mine until the permanent suspension of mine operations (Pepena & Wanjik, 2003).

Pepena and Wanjiki (2003) make reference to two core activities that happen during the closure of mines, namely: decommissioning of facilities and infrastructure, and; rehabilitation of the mine site. One of the issues arising during these stages includes the possible negative risks on socio-economic conditions of the residents. Even though the biophysical components are less complicated because of their technical and scientific nature, they are still connected to the socio-economic aspects of mine closure. For example, the condition in which land is left after rehabilitation defines the type of socio-economic activity possible on the land and vice versa. Mine closure is and can be very stressful for all stakeholders, especially the local communities who are beneficiaries of the mines.

Planning to close a mine permanently needs to become an integral component of the planning of the whole lifespan of a mine including the socio-economic aspects. An effective mine closure plan is seen to be more beneficial by combining three key role players comprising of central government, the mining community and the mining company. The central government is responsible for development of policies and regulations, while the mining company's role is to provide funding and implementation of the plan. Apart from the government and mining company, employees, local community and non-governmental organisations need to be included from the initial stage of mineral exploration (Andrews-Speed, et al., 2003). Regardless of the cause for a mine to close, mining companies should always be ready to develop and implement a closure plan that ensures that the involved community's post socio-economic state, among other aspects, is well managed (Castro, et al., 2011). According to Marais, et al., (2013), mine closure is 'destined' to become the big mining problem this century as the World Bank (2002) claims that mining closure is one of the big issues that negatively affected mining activities, mining companies and communities over the last couple of years.

In conclusion mine closure marks the final stage of the lifespan of the life of a mine. This stage takes longer compared to other stages. The closure of a mine requires downscaling of operations and human resources. Mine closure is usually necessitated by financial constraints,

unfavourable market conditions and most of all a decline in resources. The next section offers background on resource and company towns.

### **2.3 Resource and company towns**

The previous section presented literature on mine downscaling in context while this chapter outlines characteristics of resource and company towns particularly as a result of mining operations. Company towns have been in existence all around the world since the 19<sup>th</sup> century (Littlewood, 2014). In particular, company towns became more popular from industrial partnerships on the North American resource frontier to far-flung boundaries of the world's habitable regions and in the Global South (Littlewood, 2014). Today, some towns are known as mine cities or university cities due to their primary functions and their social identity because of their economic arrangement (Gümüş & Adanalı, 2014). Gümüş & Adanalı, 2014 give an example of 53 cities in the Ruhr area in Germany which is popular for its mining and could be listed as examples of mining cities which evolved through the Industrial Revolution.

The negative impacts imposed by the dynamic mining environment which is influenced by depletion of mineral resources or the global economic crises, threaten the existence of mining towns because their establishment is based on mining activities. Such towns have been limited in terms of diversified economic activities as back up for tough economic times. Mining towns are a common phenomenon, even on the international urban arena (Marais et al, 2018). Company towns were established by entrepreneurs as a way to provide housing to their employees and wages. This concept became more popular during the period of 1958 and 1980, when mining towns started mushrooming worldwide (Marais, et al., 2018).

The establishment of company towns was closely linked to the Industrial Revolution and spread from the United Kingdom to the world over. Even though company towns have distinct features, they tend to have similar characteristics (Bartasová, 2013). Bartasová (2013) defines company towns as settlements founded by companies, where everything including properties and businesses belonged and were run by a single entrepreneur. In simple terms, a 'company town' means a town which is owned and controlled by an industrial employer (Littlewood, 2014). Mining towns were formed exclusively for entrepreneurial operations for specific mine firms and were as such built and ran by the same firms. Also, mining licenses encouraged mines to develop their settlements.

Even though there were settlements in close proximity, towns in these sites were still established (Marais, et al., 2018). Similar to company towns, mining towns are usually established by an industrial employer, at times in association with the government. On the other hand, a 'resource town' is a town with an economy that is wholly dependent on the extraction of minerals and primary processing of natural resources with the exception of agricultural activities. The mineral resources mined, and or processed in company towns, may be non-

renewable (Littlewood, 2014). Likewise, Littlewood (2014) defines a 'mining town' as a settlement where the extraction of mineral resources, primary mineral processing and accompanying activities dominate the economic activities of that settlement. As such, the majority of housing and business properties in such towns are owned by the industrial employer. In addition, the company also often owns the education, social facilities, health and infrastructure, as well as the responsibility of the provision of municipal services to the community for free or subsidized in most cases (Littlewood, 2014).

Littlewood (2014) cautions that there is an overlap in what makes up a resource town, a mining town and a company town and for the purpose of this research, these terms will be applied interchangeably based on these definitions. The first company towns tended to be situated in remote areas, far from cities yet in close proximity to natural resources (Bartasová, 2013). Nevertheless with time, company towns could also be found in suburbs of big towns. However, characteristics of company towns were determined by the main economic activity, locality of the industry, existence of state capital, dependence on local or migrant labor and the relative self-rule of company towns from local and state authorities. In most cases, the town belonged to the several investors while the management was delegated to a superintendent.

The labor forces of such towns consisted of managers, technicians, specialised and unskilled workers. The employer provided accommodation, a kitchen and a company store, place of worship and employment. Company towns were divided in two parts: one part had mines, oil fields or factories, while housing was located in another part. Employees' housing was established next to the production areas to minimize commuting distances (Bartasová, 2013). The remoteness of the towns made it difficult for employees to leave their jobs. Company towns were dominated by an infrastructure that portrayed the type of industries in the town, such as docks for fishing industries or factories for manufacturing industries, accompanied by high levels of noise pollution. In company towns, the majority of the population are either employed directly by the company or are employed by a contractor for the company.

Company towns can either be 'closed' or 'open'. If the town is closed, it means entry to the town is limited to the families of the company employees or authorised persons only. On the other hand, if the company town is open, public access is not restricted, even though business start-ups or citizenship for non-employees of the company is a challenge (Littlewood, 2014). Even though company towns have been established based on different reasons, these towns are commonly known to be a result of quarrying and extensive resource abstraction sectors. Such company-owned mining communities inhabit a certain place in our geographic imaginations (Littlewood, 2014).

The typical features of company towns exhibit the dominance of the economy by a single industry where the company owns the land, housing and services leaving the company owner at

the centre stage of the local economy and social life. The unique features of company towns have commonly narrated a story of 'boom' and 'bust' and lastly the termination of such settlements after the closure of the mine or industry. Even though the unique features of company towns have been documented in literature, their survival post mine closure remains a concern for these settlements worldwide (Littlewood, 2014). The most striking feature of company towns is that they were developed at once, with no standards of development in place to guide development. Before World War II, housing development in company towns was characterised by a uniformity of style and were built from easily accessible materials.

The construction and design of houses were simple (Bartasová, 2013). Some features of company towns can be observed in company estates and enclave economies. J.D. Porteous notes that company estates and company towns are founded on "factory-type organisation" of labor, reliance on external workforce, social isolation and a level of partnership in labor-capital relations. Nowadays, the term 'company town' often means a town with a single industry economy, established on corporate reasons and controlled by one or several companies (Bartasová, 2013). According to CDS (2003), towns that depend on one source of economy are more affected when a mine closes because mine closure is likely to reduce the economic base. The consequences of mine closure are made worse due to the reason that mining communities possess several social characteristics that are considered unique to mono-industries (CDS, 2003).

According to Ackermann and van de Walt (2005), mining communities refer to the people who are directly affected by mining operations, adjacent or neighbouring a mining site and those areas which contribute to labour for the mining operations. According to Kemp (2009), a mining community includes the people who are located in the immediate impact zone of the mine. This can extend to landlords who are not physically in the mining area's surroundings and people who reside downstream from the mine site. Sigh (2017) states that every mine is bound to reach the final stage of mine operations, which is the closure. The International Institute for Environment and Development ([IIED], 2002) lists the activities that take place during mine closure to include infrastructure removal, development of public safety measures, and the mining company's exit from community and social programmes among others.

The 'boom' of the mine brings with it additional income in return contributing to the economy (Pham, et al., 2013) but the finishing of the mine creates a 'bust', which leaves the community poorer than before the mine opened (Deller, 2014). In general, mining communities are more at risk of any negative impacts arising from the closure of mine operations, especially the ones that solely depend on mining as the only economic engine. This is so because of high dependence on external market factors, such as market prices, which consequently increase their vulnerability to boom and bust cycles. Mining is well known for its significant contribution to welfare of societies, districts and nations with several of those relying on the mining sector for

economic stability (Skeard, 2015). Literature shows that communities that rely on minerals for its economy are threatened by the decline and closure of a mine.

Mining communities are unique because of their heavy dependency on the mining operations to sustain its economy. Therefore, this makes company towns face particular factors that impact their capacity to adapt after mine closure. The fact that many mining towns are situated in rural and remote locations, often with few or no other economic stimulant industries for back up, further exacerbates their vulnerability. At closure of the mines, several key stakeholders have the responsibility to react to, and cope with the situation. These key stakeholders include the mining firm, the governing authority, local employees and the community and the region at large. Even though the closure of mines signals the beginning of the end of some communities, others continue to fight in the face of hardship (Skeard, 2015). This section looked at the characteristics of mining settlements by highlighting the link between such towns and resource depletion. The next section focuses on the relationship between mining and development with specific emphasis on social and economic development of local mining communities and nations.

## **2.4 Mining and development**

After describing the characteristics of mining settlements in the previous section, it is important to shed light on the interlinkages between mining and development of mining settlements in this section. It is easy to see that the economy and development complement each other and they are also alternating processes that take place in a sequential manner (David, et al., 2016). This suggests that economic growth is the rise in output whereas development is the structural transformation. Therefore, growth extends the economy, while development results in equal sharing of income and wealth (Davis & Tilton, 2002). Minerals are a principle source of income for the majority of developing countries, including many in southern Africa (Lange, 2003). The relationship between mining and development has been a topic of many discussions for a long time, with perceptions on mining's share in national development somewhat polarized (Littlewood, 2014).

On the other hand, several stakeholders including the World Bank Group, the mining fraternity and mining advocates never fail to lobby for quarrying as a domestic development strategy (Littlewood, 2014). These institutions are of the opinion that mining generates jobs, offers taxation earnings for industrializing countries and that through charity work; mining firms are now contributing directly to development and the alleviation of poverty (Littlewood, 2014). In contrast, some researchers dispute claims that portray mining as a contributor to national development. Drawing upon the 'resource curse' theory, it is suggested that the abundance of natural resources is an enabler that stimulates a succession of economic and political alterations, which consequently undermine mining's share towards national development (Littlewood, 2014).

Literature argues that the availability of natural resources can negatively affect economic growth of the host country or community by fostering mineral dependency. Further, it is contended that the abundance of natural resources have the ability to erode the quality of national governance, fostering clientalism, graft and corruption, and can in different ways promote and/or perpetuate armed conflict (Littlewood, 2014). According to David, et al., (2016) minerals form a crucial natural resource to the social and economic development of any country or area. Countries that are rich in mineral resources possess an advantage, because minerals provide income for rapid development and poverty reduction. However, the amount of resources a country has does not always guarantee economic prosperity (Lange, 2003).

Moreover, too much dependence on minerals is likely to create a mono industry and employment structure leading to depletion of mineral resources, coupled with a reduction in sustainable development in mineral rich areas (Lei, et al., 2013) According to David, et al., (2016), economic development means advancement in terms of a sustainable livelihood, access to education and basic health care for the majority of a population. The word 'development' can only be clear by understanding the term 'economic growth'. Economic growth is therefore the gradual increase of a country's real output per capital. The ambiguity around the share of mining to national development is simulated in connection to its role in regional and local economic and social development.

Supporters of mining contend that mining generates jobs for the host community, broadens economic prospects and that mining firms always devote significant resources in uplifting local health and education services while at the same time investing in 'host' communities through charitable giving. It is additionally suggested that due to remoteness of mining settlements, mining becomes the most realistic way such communities develop socially and economically aspects (Littlewood, 2014). David, et al., (2016) maintain that the connection between mining and economic development has long been investigated from different perspectives. Therefore, the previous couple of decades have observed the advent of a different and far less benevolent theory of how mining affects economic development, more especially in developing countries (Davis & Tilton, 2002).

Hajkowicz, et al., (2011) in Lei, et al., (2013) argued that mining had a positive influence on incomes, housing affordability, access to accommodation, education and job creation, across Australia. According to Davis and Tilton (2002), if the extraction costs of a mineral commodity are below its market price, mining tends to generate profits or economic rents. Therefore, a great number of economists and policy makers have concluded that mining generates wealth and in so doing, contributes to the development of the economy in both developed and developing countries (Davis & Tilton, 2002). On the other hand, a growing number of researchers have reported a negative connection between mining on the one hand and a host of various economic development indicators. Even though this theory has been criticized, it is

bringing up serious doubts about the benefits of mining for developing countries (Davis & Tilton, 2002). Furthermore, Davis and Tilton (2002) distinguish between two principles regarding mining activities and economic development, namely: a) traditional principle and b) the new principle.

The traditional perspective views mining activities as a positive contributor to economic development, based on neo-classical economies and especially the notion of production role. According to this view, mineral prosperity in the form of deposits can be gainfully extracted as a portion of a nation's stock of investment, meaning the more wealth a country has, the greater its production and the advanced its per capita income. As such, mining is perceived to play a significant role in the economic development progression by transforming mineral resources into a form of investment that supplements a nation's output. The output connected to quarrying mineral resources can be disbursed or devoted in other methods of capital. Consumption is likely to increase present well-being by leading to economic growth (Davis & Tilton, 2002).

Contrary to the traditional view, another view point was born in the 1980s. This view point disputes the traditional view point, owing to the rising number of studies that show single mineral exporting nations that exhibited slight or no economic progress over prolonged periods of time. For some of these countries, development was even undesirable, producing premature regional domination in the economy which did not last. This view point evidently proved that the misuse of mineral prosperity for economic progression was far-off from adequate condition for sustainable economic development. In addition, literature shows that a larger reliance on quarrying is linked with lesser economic growth and so directly contradicts the traditional theory (Davis & Tilton, 2002).

However, despite these differences, the new view point and traditional view point have a few key areas in common. Specifically, there is common consensus that: countries endowed with mineral resources are better off mining these resources, which provide more opportunities for economic development; some developing countries have harnessed the opportunities created by their minerals to promote economic development, i.e. Botswana; in other developing countries, mining has exacerbated poverty and impeded long-term economic development through different avenues (Davis & Tilton, 2002). Even so, the debate on whether or not mining positively influences economic development remains inconclusive. Ultimately, Davis and Tilton (2002) maintain that there exist consensus that rich mineral deposits give developing countries immense potential, which can be used to promote development, even though this can be the opposite in some cases.

According to Davis and Tilton (2002) several literature on the relationship between mining and economic development show that mining slows down economic development and promotes poverty, particularly in third world countries (Davis & Tilton, 2002). David, et al., (2016) claim the

'stable thesis' is one of many linkages between mining and economic development. The 'stable thesis' originates from the proposition that the influence of mineral rent on the economy of mineral-rich countries is combined. According to this standpoint, this influence is what has benefited countries like the United States of America, Australia and Canada among other examples. However, in order for host countries and communities to benefit they need to implement policies that allow them to maximise the mining rents for the development of their economies (David, et al., 2016).

Schüler, et al., (2016) on the other hand, lists the key contributions resulting from mining activities, which expand economic development. These include job creation, public revenues, development of infrastructure, transfer of technology and knowledge. According to Zobrist, et al., (2009), contribution of mining operations towards the social life and economic prosperity of the mining community is huge. However, Rogerson (2012) states that countries that are dependent on mining as a key sector for economic development are subject to major controversy in the global south with the perception that investment in mining and mineral resources does not always result in positive social and economic outcomes for affected communities.

According to Marais, et al., (2017) the end of a mine cycle is characterised by loss of economic bases and mining communities usually fail to stimulate alternative economic expansion. Work from 1969 on the United Kingdom is even confrontationally named 'Derelict Britain' to show the extent of the social and economic impacts, caused by the ending of a mine. As such, the theoretical contexts linked with this work have ranged from economic to social theories. Staple theory, one of the earliest theories, originated from work conducted in Canada and was later implemented in the United States. Even though this theory provides a framework for development in the centre of the reality of the export-led growth linked with minerals and despite the existence of large-scale benefits at the national level, mining companies were still found not to be significantly impacting host communities in a positive way.

Therefore, these theories led to the introduction of the dependency theories, which are similar to the Dutch disease and the Resource Curse theory (Marais, et al., 2017). According to Marais, et al., (2017), advocates for the 'resource curse' hypothesis admit that mining comes with numerous negative effects. Marais, et al., claim it exacerbates corruption levels, creates weak institutions, decelerates economic growth, leads to underinvestment in human capital, depresses overall investment and increases conflicts. Likewise, the Dutch disease thesis maintains that mining hinders economic diversification and discourages export, except exports of mining products which has an effect of improving the exchange rate. While there may be truth in these theories, the positive effects of mining should not be taken for granted. Positive theories have for example been observed on the relationship between mining and development in Ghana and elsewhere in Africa (Marais, et al., 2017). However, non-governmental

organisations and activist researchers draw attention to the concept of a local level 'resource curse', and emphasise the social and economic negative effects posed by mining on communities (Littlewood, 2014).

After reviewing the literature in this section, it is evident that mining has an influence on how development of a settlement shapes during active mining and when mine operations stop. The subsequent chapter investigates the consequences of mine closure and downscaling on socio-economic development in both the international and local context. A link is made between the closure of a mine and the conditions of social and economic aspects of mining communities.

## **2.5 The effects of mining closure/downscaling on socio-economic development**

The previous section focused on the relationship between mining and development. The discussion assisted in increasing the understanding of the interrelationship between mining and development, both negative and positive linkages. This chapter focuses on the effects the closure of a mine could have on social and economic aspects of communities. The issue being investigated in this chapter is the assumption that mining communities depend on mining operations for job creation, provision of services and the creation of a conducive environment for local businesses to be sustainable (Stacey, et al., 2010) after which communities struggle to survive post-mine closure.

The mining boom has renewed the discussion about the impact of mining on socio-economic development (De Haas & Poelhekke, 2016). Mines provide or subsidise social services and infrastructure. However, calculated steps are essential in order to reduce post-mine consequences (Dickson & Bryan, 2015). The closures of mines and post-mining economic challenges have gained a following internationally over the years. This trend has affected both industrialized and industrializing countries (Marais & Atkinson, 2006). The outcome of mine downsizing had substantial consequences in several industrialized countries in the period from 1960 to 1990. Loss of employment is the most direct negative consequence of mine downscaling or closure. Also, lack of opportunities for jobs is one of the most serious and long-lasting consequences of downscaling or closure.

In terms of the developing world, the World Bank (2002) forecasted "a wave of mine closures looming" and estimated that at least 25 large mines would shut down by the year 2012. The World Bank (2002) supplementary claimed that the manner in which collieries would close would define the cost-benefit of mining as an industry. Mine downscaling and closure is a complex concept. In the past, when a mine suspended operations due to mineral depletion, mines were simply boarded up and abandoned (World Bank, 2002). This practice can still be observed today. However, countries and companies have become aware that mine closure is more than suspending production and decommissioning. They now recognise the need to

address socio-economic issues imposed by the mining operations after the closure, which threatens communities and the local economy (World Bank, 2002).

Even though some writers view mines as independent operations with no or little local impact (De Haas & Poelhekke, 2016), looming closure of a mine inevitably poses far-reaching consequences not only for the mining firms, but also for the mining community, as well as government structures (Marais, 2013). Even though mining contributes positively to socio-economic development, its negative impacts on socio-economic conditions of communities cannot go unnoticed (Dubey, 2017). According to McMahon and Remy (2001), studies show that even though the mining sector is known to contribute substantially to the social and economic aspects of local communities, these benefits are not guaranteed.

This can happen even five or ten years after the downsizing of the local mining workforce. Furthermore, due to the specialised skills of the majority of mine workers, they face challenges of being absorbed in the job market due to a mismatch of their skills with other industries (Marais & Atkinson, 2006). Industries and their dependents, such as taxi transport, are likely to completely collapse while businesses such as hawkers, home-shops and small and micro-enterprises are negatively impacted by the downscaling or closure of mines due to out-migration and loss of a steady source of income, which destroys the consumer base, accompanied by a reduction in purchasing power of the community (Marais & Atkinson, 2006).

Marais and Cloete (2013) state that the impacts that result from the closure of a mine are both manifold and complex and they range from an array of specific social conflicts to a general reduction of the socio-economic status of the mining settlements. The co-development that exists between a mine and community development starts to shrink in the face of mine downscaling and results in long-lasting challenges, particularly when it comes to using and maintaining existing infrastructure.

The permanent suspension of mine operations is guaranteed to have immediate and notable negative impacts on the local community, unless the mine is operated in a manner that reduces contact with the affected community (Andrew-Speed, et al., 2003). The downscaling and closure of mines is always characterised by abandoned mines and ghost towns (Ackermann & van de Walt, 2005). Mining closure affects various parties differently, and for mining communities it can lead to distress resulting in a decline in economic activities (World Bank, 2002). However, parties made up of government, a mining company and the community are always at the centre of mine downscaling and closure.

Marais and Cloete (2013) distinguish four main consequences imposed on mining communities by mine downscaling, which is mainly:

- Significant reduction in income which leads to considerable poverty. This happens both to the mining settlement and the areas that provide the mine with labor;
- Reduction in economic conditions has negative impacts on the size of the population due to out-migration;
- Reduced economic conditions and accompanied out-migration of the population is likely to have domino effects on the housing market;
- The move to downsize mine operations poses serious implications for municipalities. When properties are privatised, it creates room for non-payment of services, thereby shifting the burden to the municipality in the area.

The World Bank (2002) reported that in most cases, the mine is the main source of income, employment and services in mine communities. Given this scenario, the winding up of mine operations presents significant consequences to the community and the economy. However, the scale of the consequences is worse in developing countries due to less diversified economic activities (Marais & Cloete, 2013; World Bank, 2002). Several consequences of mine closure have been identified in literature. Firstly, Marais, et al., (2005) identify the lack of capacity by local government and communities required to help organise development processes that would provide appropriate alternatives. In most instances, the community and the mine have formed an interdependent relationship for employment and infrastructure among other issues. This is common in developing countries.

Secondly, the economic reduction is likely to lead to a decline in population. Moreover, mine closure is likely to result in abandonment of a town, especially in a single-industry town where the majority of the labour force is involved in one sector (Marais, et al., 2005). According to Godsell (2011), the dependency of a company town is attributed to the fact that, the company is the town together with its residents, which brings in the money for the company.

Therefore, the company or mine has a high interest in making sure that the town is functional and the residents are satisfied. This creates a town which relies on the mine. For example, take Rooiberg in South Africa, which was once a socially, economically and politically thriving mining town for 86 years due to tin mining in the town. However, this this changed following the closure of the mine with the town currently dominated by a mix of an informal settlement, a retirement village and economic stimulus caused by tourism emanating from a large number of game farms in the area (Godsell, 2011).

Thirdly, this economic decline, together with the associated outflow of people, is likely to have serious implications for the housing industry. According to Marais (2013) the decline phase of a mine is characterized by contractions in production and expenditure, a decrease in investment and a loss of capital. This is likely to result in a town to be abandoned, especially if mining is the main source of economic activity. As such, Marais (2013) states that this phase of a mine's

lifespan is known to bring instability and conflict in the mining area. Mining communities that have been in existence for a long time are more threatened in view of the impact on their personal stability, due to the attachment to the area, which is developed over time; depending on the age and education of the residents, consequences of mine closure are felt differently.

In cases where the majority of the workforce are youths and the working class, they are likely to leave the mining town in search of greener pastures, making the town lose its most resourceful population; the closure of a mine also worsens the stability of a community because the laid-off workers become unable to pay for municipal services, negatively affecting the municipality's income. The decreasing local revenue means the municipality may be unable to keep up the maintenance of the infrastructure and the supply of services; the closure of a mine also poses risks on other types of infrastructure and housing environment. The affected infrastructures include telecommunication infrastructure, schools and health facilities among others.

Similar to mining's contribution towards local and regional economies, mine downscaling and associated effects are hard to ignore (Marais, et al., 2016). In fact, the World Bank (2002) is of the opinion that the manner in which mine downscaling is carried out needs to be integrated into a cost-benefit assessment in line with mining development. Historically, during mine closure, chances of a mining town surviving were minimal because once long-term investment stops there is neither the obligation nor the necessity for the mining company to invest time and more financial resources in the operation of such a town (Rixen & Blangy, 2016).

Lastly, mine downscaling presents serious implications for local authorities (Marais & Cloete, 2013). However, the level of this relationship is determined by the age and location of the mine and the structure of the local and regional economy. For example, in Eastern Europe and the former Soviet Union and in several countries in Africa, Asia and Latin America, most facilities and services such as schools, housing, hospitals and preschools belonged to the mine before they were transferred to private owners. The more remote a mining area, the more it is likely to depend on the mine for roads and transportation networks, telecommunication and water and sanitation services. This shows high dependency on the mine and when the mine downscales or shuts down, these services are likely to be transferred (World Bank, 2002). Literature shows that transferring these services to government has low chances of working out because government structures are not designed to manage such services at a more localised level (World Bank, 2002).

Mining companies are now required to have closure plans before operations commence. But even though some mine closure plans include social dimensions, aimed at mitigating any negative effects imposed on the community by the mine's downscaling and closure, it is usually lacking which limits mining communities from overcoming the consequences of mine closure once the mine activities stop (Xavier, et al., 2015). By the time the mine closes, there is always

a plan in place to protect the further environmental effects. But minimum effort is put towards the planning for the socio-economic effects caused by the mine closure on government, and particularly on communities (Xavier, et al., 2015).

This section dealt with the effects of mine downscaling on socio-economic development in general. The following section gives an overview of the mining landscape in Namibia.

## **2.6 Mining: A Namibian perspective**

The previous chapter discussed the social and economic effects resulting from mine closure and downscaling. This section provides a general perspective of the mining industry in Namibia. The effects brought on by resource depletion and consequently mine closure is more recognisable in unexpected closures of a mine. Namibia is a country located in southern Africa and is endowed with rich mineral resources (Pietrzela, 2013) with a population of 2.4 million people (CSE, 2018). The country is best known for its rich biodiversity and plentiful mineral resources, the major ones including: uranium, diamond, cobalt, nickel, iron and precious and semi-precious stones. In Namibia, the history of mining dates back to as far as the colonial occupation of that country by Germany (1884-1915) (Littlewood, 2014).

Until the 1970s mining activity in Namibia mainly consisted of diamond mining in the south and copper mining in the north central of the country. Since then, the extractive sector in Namibia became more diverse (Littlewood, 2014). For a long time mining has been known as the cornerstone of the national economy. Mining contributes significantly to the country's GDP, specifically through contributions from the diamond industry. Although the revenue generated from the mining of diamond continues to dominate value added to national GDP, the contribution of non-diamond mining to the national GDP has been on the rise in recent years. The country's merchandise exports dominate the mineral exports and keep reflecting the dynamic composition between diamonds and other minerals (Fernandes, 2014).

### **2.6.1 Mining and development in Namibia**

Minerals are a major source of income for many developing countries, mostly in southern Africa. According to Awolusi (2016) mining is a strategic industry in southern Africa with an estimated half of the world's vanadium and diamonds originating from this region. These minerals contribute significantly to the GDP, job creation and reduction of poverty in most southern African countries (Awolusi, 2016). At a first glance, countries rich in mineral resources are better off economically in comparison to countries with less mineral resources, because minerals are known to generate funds which cause rapid development and poverty reduction. However, the abundance of mineral resources for a country does not guarantee economic prosperity for various reasons (Lange, 2003). Similarly, Namibia's economy has benefited immensely from mining. The mining industry developed quite easily, based primarily on minerals discovered at the turn of the century.

Mining as an economic activity is a worldwide phenomenon and Namibia is not unique. As part of economic restructuring after gaining independence in 1990, Namibia promoted the development of the mining sector (CSE, 2018). As a result of the country's ample resources, the extractive industry holds huge potential for even greater social and economic development. Mining provides an opportunity for greater social and economic reform benefits to Namibia (Fernandes, 2014). Namibia's economy is categorised as a mineral-resource based economy. As such, the mining industry plays a significant role towards national economic development through the generated mineral revenue. The generated revenue is used by government to invest and fund national development programmes which comprises of development of infrastructure, creation of jobs and provision of health and education. Even though the role played by the mining sector is economic in nature, the sector also fulfils socio-economic development aspects by way of job creation and human resource development among other roles (Fernandes, 2014).

According to IPPR (2013), the mining sector remains an important source of wealth for Namibia's economy and continues to significantly contribute to the country's GDP. Mining contributes approximately 16% GDP and close to 50% of the country's total foreign exchange earnings (Littlewood, 2014). The industry presents the biggest sub-sector within the primary sector of the economic growth averaging an annual contribution of 11% to the country's GDP (Fernandes, 2014). Taxation from mining entities and their workforce represents a substantial portion of Namibia's state annual revenues and thousands of Namibians are employed either directly in the mining sector or indirectly by a contractor or supplier. In 2012 alone, the extractive industry provided 14, 328 jobs in the same year, which included temporary employees and full-time contractors. As such it is estimated that the mining industry directly and indirectly provides livelihoods for about 100, 000 people in total (IPPR, 2013).

In addition, the mining industry plays a significant role in the country's economy with regards to its contribution to tax revenue and the creation of employment opportunities. Direct tax revenue from the mining industry is still a crucial source of capital for the state's national development programmes. Even though it can be disputed that little has been attained in terms of redistribution of the wealth accumulated from mineral exploration to the Namibian population as a whole, the mining sector still contributes significantly to infrastructure and community development in the country (Simonis Storm Securities, 2006). According to Fernandes (2014), mining contributes significantly to infrastructure development such as roads and railway lines through economic diversification. While this section looked at giving a brief introduction of the mining industry in Namibia and its role in development, the following section outlines and discusses the legal framework on mining in Namibia. According to Fernandes (2014), mining operations still continue to be the leading contributors towards the growth of many national economies.

After recognising that mining is a significant contributor to the country's economy as shown from revenue on annual GDP, the government embarked on a journey to develop a legal framework to regulate this industry both for economic development and mine closure (Fernandes, 2014). The reforms in the mining industry have led to positive development in this sector. The following sub-section is aimed at giving a brief background and current status of mining legislation in Namibia.

### **2.6.2 Namibia's relevant legal framework on mine closure and socio-economic development**

While the previous section cast light on the contribution of mining towards the national economy, this section looks at the various legal frameworks that guide the mining industry in Namibia highlighting issues of mine closure and social and economic development. The section also gives an understanding of the policy framework and how it fits into the broad national mining industry.

Literature shows that the extractive industry in Namibia goes as far back as the year 1761 when Hendrik Hop undertook his journey to the southern part of Namibia where he witnessed mining activities (Lupalezwi, 2014). During his journey, Hop and his group discovered copper. Fast forward to the 1900s, German's rule started in Namibia and marked the start of the transition into one of Africa's fastest growing industries. The provision for prospecting and mining of precious and base metal was first initiated through the Imperial Mining Decree of 1905 which was used to regulate the mining industry of Namibia, then South West Africa (SWA). Following the cessation of German control in SWA, the Union of South Africa took over the mandate of the mining industry.

However, in 1920 Namibia introduced Proclamation No.59 which replaced any mining rights used by mining firms operating at that time in SWA. This move was deemed necessary to ensure open existing territory for more exploration. This provided the basis on which mining was carried out then from that time to now (Lupalezwi, 2014). After independence in 1990, mining legislation, implemented by former governments of German and South Africa, was reviewed and revised after which a new legal framework was born to make provision for the fresh and vibrant mining sector of Namibia (Lupalezwi, 2014). The mining legal framework was developed under the newly formed, Ministry of Mines and Energy (MME), with the aim of improving the mining industry. At the same time, MME devised goals on which to establish a multidisciplinary land-use strategy that would allow coordination of mining operations with other ministries in Namibia. In addition, MME was aimed at overseeing existing legislation and enact any further laws where necessary. Furthermore, MME was aimed at promoting regional and international cooperation within the mineral and energy sectors.

### **2.6.2.1 Policies and regulations**

Since the genesis of mine operations some 3000 years ago, mine operations continue to leave their landmark on the landscape. From government's view, mine closures create a complex combination of social, economic, environmental and development issues, which the state requires that: (i) the mining industry is thoroughly recognized and prepared for the sustainability of mining communities post mine closure, (ii) the closure plan is conducted to the approval of the local communities and other key stakeholders and at all levels of the state (Clark & Clark, 1999).

Governments are now realizing that they deal with the responsibility for defining and making sure that comprehensive mine closure occur within the broader context of social, economic equality and sustainable development issues (Clark & Clark, 1999). In most countries, the state's role in comprehensive mine closure is expanding rather than contracting, mainly because the state's role does not change and is primarily that of passing and implementing appropriate policy and legislation. At the broadest level, the state's policy on mine closure is to an extent dictated by the National Constitution that demands a healthy environment for its citizens or by requirements of international treaties and agreements. All in all, the mining industry is visibly the most regulated in the country, just by looking at the country's exhaustive and comprehensive list of mining and environmental related acts and regulations (CSE, 2018).

Given the vast majority of non-renewable minerals, the laws governing the mining industry in Namibia have been transformed since 1990 and must be applied with the Constitution of the Republic of Namibia, which is the centre of the mining industry in the country (Lupalezwi, 2014). The mining and extractive sector in Namibia is administered by a whole host of laws, most of which were developed and passed in 1991 (Lupalezwi, 2014), namely the;

- Minerals (Prospecting and Mining) Act No. 33 of 1992; this Act is the basis of the mining policy in the country since April 1994. This Policy is underpinned by 12 main objectives, largely aimed at attracting investors by creating a good environment for mining operations, while at the same time maximising economic benefits to Namibian citizens. These objectives include the promotion and stimulation of investment in exploration and mining; maintaining a conducive environment for the industry; promoting and encouraging participation of local people in exploration and mining; and to ensure the promotion of socio-economic empowerment by implementing necessary measures.
- Minerals Policy of Namibia 2002; sets out the mine closure planning steps and inclusion into an integrated land use strategy which encompasses community participation.
- The Diamond Act No. 13 of 1999 regulates and controls the holding, transporting and further processing of diamonds through a system of licenses approved by the Diamond Commissioner. The Diamond Act seeks to guide the diamond mineral industry in Namibia.

- Namibian Mine Closure Framework; the main objective of the Framework is to provide guidance to the mining industry on how to develop relevant, practical and cost effective closure plans. Mine closure is at the centre of the Framework. The Framework recommends that its members make available all relevant financial, knowledge and skills resources at execution of a closure plan.
- Environmental Management Act (EMA) No. 7 of 2007; addresses issues of composing and implementation closure plans for rehabilitation.
- Other regulations include the Mining (Taxation) Act which is responsible for controlling fiscal and royalties of the mining industry.
- Minerals Development Fund of Namibia Act of 1996; is aimed at making provision for establishment of a Minerals Development Fund.
- Mine Health and Safety Regulation Employees Compensation Act of 1995; seeks to oversee issues related to health, safety, blasting and use of explosives in mine operations.
- Labour Act No.6 of 1992; seeks to ensure that labour processes pertaining to severance allowances for retrenched employees are adhered to.
- Atmospheric Pollution Prevention Ordinance No. 11 of 1976 – The main objective of the Act is to facilitate submission of composition and submission of dust prevention and management in mine operations.
- Water Act No. 54 of 1956; this Act empowers the Minister to claim costs of arising issues of pollution from mining companies after closure of mine.

Ultimately, all these acts must be applied in line with the Constitution of Namibia, which states that all natural resources under and above the surface of the land belong to the state (Lupalezwi, 2014). In 2003, the Ministry of Mines and Energy passed the Minerals Policy of Namibia. The overall development and implementation of policies that regulate and control the mining industry lie with MME (Coakley, 2003). The main laws guiding the extractive industry in Namibia are vested in the Diamond Act of 1999; the Minerals Prospecting and Mining Act No. 33 of 1992; as well as the Minerals Development Fund of Namibia Act of 1996.

The mining sector is clearly the most regulated industry in Namibia and mine downscaling forms an important part of the legal framework in Namibia, but the general statute requirements which provide guidance for individual cases of the context within which mine closure should take place, are inadequate in the Namibian mining legal framework. In support, the Intergovernmental Forum (IGF) Mining Policy Framework Assessment for Namibia reveals that the country does not have a legal framework for mine closure or relinquishment of mine operations once the mine closes. Further, the assessment shows that the legal framework has no formal system for dealing with the approval of closure plans. Even though the Minerals Policy and the EMA specifically talks about rehabilitation as a pre-requisite, the frameworks lack

a specific regulation authorised implementation agency and resources (International Institute for Sustainable Development (IISD), 2018).

Namibia's mining legislations are enforced by the government. There is no doubt that mine closure and downscaling forms a significant part of Namibia's mining laws and there is abundant evidence, as can be seen above. The legislation on mine downscaling is articulated in the Minerals Prospecting and Mining Act. At the heart of the Namibia Mine Closure Framework is the provision of mine closure and downscaling plans. The Minerals Policy of Namibia goes further to set out mine closure planning steps. This shows that there is a somewhat positive indication that the country's legal framework is mindful of mine closure and downscaling, at least in terms of guidance and determining mine closure and downscaling requirements. However concise the legal framework on mine closure and downscaling may be, there are still gaps that need to be filled to make the legislation more comprehensive.

The legal framework on mining closure and downscaling in Namibia is inadequate in that it does not provide for formal systems for dealing with approval of closure plans and has no agency to implement these activities. As such, the existing legislation can be improved with the priority being on mine closure and downscaling by developing a formal system tasked with handling mine closure plans' approval, provision of adequate resources for implementing the system (human, financial and infrastructure), while at the same time making sure the system is efficient. In addition, government should develop and implement legislation and policies with clear guidelines, steps and processes for the mine closure. The legislation must be able to address individual mine closure cases without generalising.

#### **2.6.2.2 Mine Closure Framework**

In 2010, the Chamber of Mines (CoM) of Namibia formulated the Namibian Mine Closure Framework (NMCF), as a tool to guide the mining sector in the country on way to improve appropriate, hands-on and cost effective closure plans and to set out the lowest requirements for associates of the CoM, in accordance with the Chamber's Code of Conduct (COC) Ethics. The Framework states that it's a requirement for mines operating in Namibia to undergo the process of planning from initial of the mine life by including closure requirements into operational strategies, in order to reduce final closure obligations.

The NMCF's aim is to encourage its members to: (i) conform to existing regulations, (ii) consult different stakeholders to develop a broadly satisfactory social economic and environmental closure outcome, (iii) formulate an optimum strategy based on visualized and approved final post-mining social and environmental condition, (v) formulate realistic closure plan actions, including the optimal strategy, (vi) offer all relevant financial, information and skills resources at execution of the closure plan (vii) be in possession of a formal abdication procedure in place,

discharging the mining company from imminent duties where closure results have been approved and attained.

This section illustrates the different policies that guide the mining industry in Namibia and how these policies also address issues of social and economic development as well as downscaling in Namibia in the broader context. The section also highlights the aim of the mine closure framework and its role. The following section gives background on the formation of mining settlements in Namibia and their characteristics. The section aims to provide understanding of emergence of mining settlements and how they are influenced by resource discovery.

### **2.6.3 The emergence of mine towns in Namibia**

The previous section focused on creating an understanding of the legal framework on the mining industry and mine downscaling in Namibia. This section describes how mining settlements in Namibia have been formed, their distribution around the country and what resources assisted in establishing these settlements. The section is aimed at setting the scene for mining settlements and also putting the study site in context in relation to other mining settlements in Namibia.

A mining settlement's development depends on the prosperity of raw materials. This is influenced by a variety of factors, including: quality, wealth and size of resources, cost of extraction, distance to markets and the transportation system (Stankevica, 2015). In addition, the available labour, power and capital also play a crucial role in determining the development of a settlement. However, the availability of natural resources does not guarantee the progression of a settlement, but if the resource is economically feasible to mine, a settlement may be established anywhere. All mining towns go through a life-cycle attached to the mine life-cycle and is thus highly threatened by any decline in the mineral resource.

Even though some mines struggle to keep up during hard times, some eventually shut down. Many mining towns emerged between 1950 and 1980, mainly by companies for business activities, and these towns were controlled by these companies (Marais, et al., 2018). Towards the end of the 1980s, mining companies and governments had become reluctant to establish new mining towns. For example, in Australia, mining firms and central governments were curbing the development of new mining towns, with the limited lifespan of mining operations as the main culprit (Marais, et al., 2018). The changing dynamics of mining operations linked to "boom" and "burst" are likely to bring equally life and death to mining settlements (Stankevica, 2015). It's almost obvious that a mining town is threatened by mine downscaling or closure.

The earliest mining towns recorded in Namibia can be found in the areas of Tsumeb, Onganja, Matchless, Drierivier, Oamites and Klein Aub (Stankevica, 2015). Similarly, the earliest mining camps in Namibia can be traced back to the 18<sup>th</sup> century when Europeans used the 'harmer and move approach' in search for new resources after depletion. This approach meant mining sites

were abandoned and left uncovered after operations. As a result, mining camps were shut down after resource decline or depletion. The extraction did not leave any local economy legacy. Likewise, mining areas that grew around mining mineral deposits disappeared due to the mineral resources that finished. Stankevica (2015) categorises three areas of mining interest and their locations in Namibia.

First, the diamond zones along the Namibian west coast; second, different base metals found in the central part of the country; and third, uranium deposits in the Erongo region. It can be said with certainty that all three categories of mineral groupings have retained distinction until today and continue to be popular objects of mining interest. The discovery of a diamond by Zacharias Lewala in the year 1908 brought about the establishment of Oranjemund and Kolmanskop among other areas. The 'copper rush' of 1853 led to the establishment of the Tsumeb mining town in 1893, which still stands in present day Namibia (Stankevica, 2015). Other mining settlements that were triggered by mineral deposits in Namibia include the towns of Uis, Kombat, Klein Aub and Rosh Pinah. These towns can also be seen expanding today (Stankevica, 2015). After highlighting the development of mining settlements in Namibia in this section, the following section deals with the current state of mine downscaling and closure in Namibia. This section will help in understanding the trend in mine downscaling in Namibia and highlight the role of resource dependency by these settlements.

#### **2.6.4 The current state of mining and mine downscaling and closure in Namibia**

The previous sub-section gave an overview of how mining settlements in Namibia were formed and how they are spread across the country. It was pointed out that mining towns undergo a life cycle which is highly linked to the life of the mine for sustenance and thus any decline in the life of mine directly affects the existence of mining towns post mine closure. This chapter casts critical eyes on the status of mine downscaling and closure in Namibia. The role played by the mining industry towards the country's economic development remains the same over the years. However, the capital resources linked to this role has not remained the same due to the global economic crisis. As a result, several mining companies adopted stringent cost cutting technologies. This in turn contributed to negative socio-economic conditions that continue to prevail within the country. The economy at the national level declined due to an overall decrease in the industry's financial contribution (Fernandes, 2014).

Historically, the mining industry in Namibia has been dominated by diamond mining. Diamond mining started in the early twentieth century (Mabudafhasi, 2002). Other metals that became popular in the post-World War II period include: copper, zinc, and lead, while uranium mining started in the early 1970s (Lange, 2003). At the start of the 1980s, Navachab gold mine opened its doors. However, land-based diamond mining deposits in Namibia's ancient coastal marine terraces became depleted, resulting in major mining firms, who are the major employers, to start

with the process of downsizing their mining activities (World Bank, 2002). Downscaling in the mining sector has already created adverse effects on the livelihoods of inhabitants because the industry is the largest employer in the country. Generally, the loss of employment means loss of income, which threatens livelihoods of communities (Mabudafhasi, 2002). Extensive decommissioning of land-based mining activities has resulted in substantial levels of unemployment.

Lange (2003) states that by the time Namibia got its independence in the 1990s, the country's mining industry appeared largely exhausted. By 1998, the main copper mines closed down, the majority of on-shore diamond reserves had been depleted thus mining relocated the majority of its operations to off-shore reserves. Despite the abundance of off-shore reserves, they are more expensive to mine (Lange, 2003). In the year 2000, Namibia's mining industry outlook had substantially improved. The copper mine and smelter at Tsumeb re-opened in 2000, together with the copper mines at Kombat and Otjihase. Similarly, diamond exploration both off-shore and in the north-eastern part that borders Botswana, have yielded positive results (Lange, 2003).

The mining sector, particularly diamond mining, has been one of the biggest contributors to economic growth in Namibia. This industry has also attracted significant foreign direct investment in the country (Nakale, 2016). The contraction of the diamond sector has contributed to the significance decrease of employment in the mining sector, which employed an estimated 8000 people in 2009. Namdeb's labour force was reduced by almost 50 percent during this period (Nakale, 2016). However, the diamond sector is still a major co-driver of the Namibian economy. Even though by the third quarter of 2009, production of uranium, gold, refined zinc and copper blister went up; diamonds and zinc continued to go down (Hoadley, 2009). However, non-diamond mining has been on the rise and represents an increasing proportion of national mining operations. This change shows both an increase in non-diamond mining, but also changes taking place in Namibia's diamond mining sector (Littlewood, 2014).

Land-based diamond mining has been taking place for more than 100 years and has played a key role in the country's economy (Littlewood, 2014). Presently, diamond resources are declining. The global financial crisis that took place in 2008 placed strain on this situation and triggered an industry slump. Even though this situation has improved, the status of land-based mining is still risky. The continued decline in land-based diamond mining has given rise to marine diamond mining, which has been expanding over the years as a way to compensate for government revenues. While the country's mining sector is undergoing a period of transition, this sector is still a central pillar of the country's economy (Littlewood, 2014).

According to Littlewood (2014), the Chamber of Mines in Namibia developed a Mine Closure Framework in 2010. The Framework recognises Namibia's historic and ongoing problems with

regard to mine closure and the disadvantages of the current legal framework. However, the Framework only provides guidelines and is not a requirement for mining companies. Furthermore, the Framework does not have specific reference to company towns, even though these types of communities are a common characteristic of mining operations in Namibia. Even though mining operations in Namibia are not the same, including relationships between mining companies and local communities, it is regrettable that mining companies and the effects imposed on them, due to mine closure, is largely overlooked (Littlewood, 2014).

## **2.7 Conclusion**

The literature review paid attention on the concept of mine downscaling and its relationship to social and economic development with specific emphasis on mining settlements. The review also focused on the contribution of mining towards development in the broader context and the effects of mine closure on mining communities. It appears that in general, mining plays a pivotal role to the development of communities established due to mining operations and that the dependency of these communities on a single source of economic development poses a risk for less economic diversification and stagnated growth when the mined resource begins to decline. In addition, the literature review also focused on mining in Namibia by focusing on the mining industry in context with emphasis on the legal framework and the status of mine downscaling in Namibia.

The following chapter deals with the research methods used for the collection of data and data analysis among other steps which were followed to gather the relevant data to understand the socio-economic effects associated with mining.

## CHAPTER THREE: RESEARCH METHODOLOGY

### 3.1 Introduction

After the literature review from the previous chapter, this chapter describes the research methods by outlining the research site background and sampling designs. Then it proceeds by outlining the methods that were applied in data collection and how data was analysed in order to align with the aim and objectives of the study. Thereafter the limitation and challenges encountered during data collection were briefly explained. Finally, a summary of ethical considerations is given. The study took the format of a qualitative data collection and analysis.

### 3.2 Research site background

Oranjemund is located in the Karas Region, one of the 14 regions in Namibia. The Karas Region is popular for its mining industry among other offerings. The region is 161 325 km<sup>2</sup> and is the least densely populated region in Namibia at only 0.4 persons per square kilometre, compared to the national average of 2.2 persons per square kilometre (Enviro Dynamics, 2010). Even though Karas is the largest region in the country, it only has a population of 77 421 with an annual growth rate of 1.1% (Stubenrauch Planning Consultants [SPC], 2015; Namibia Statistics Agency [NSA], 2011). The region has three major towns, namely Oranjemund, Luderitz and Karasburg. Oranjemund (Figure 1) forms one of the six political constituencies in the region and borders South Africa to the south along the Orange River, which forms the boundary between Namibia and South Africa (Helmuth, 2009; Enviro Dynamics, 2010).

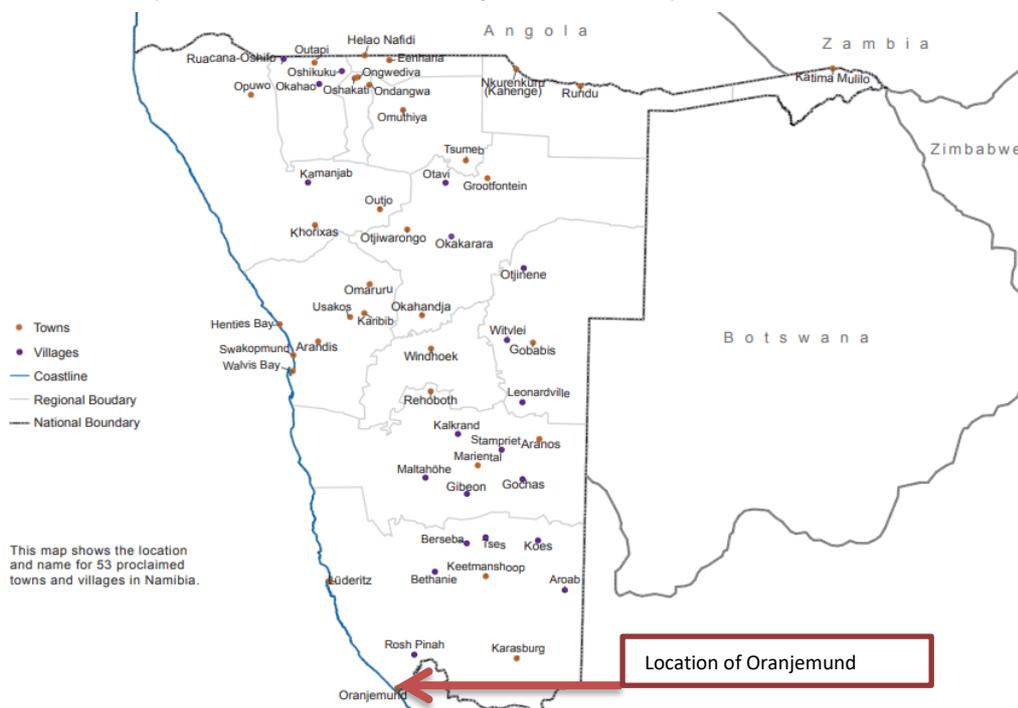


Figure 1: The location of Oranjemund on the Namibian map (Source: Namibia Statistics Agency, 2011)

The discovery of diamonds led to the establishment of Oranjemund in 1936, which means “mouth of the Orange” in German, for its close proximity to the mouth of the Orange River. Until October 2017, access to Sperrgebiet, the protected area in which Oranjemund is located was

highly restricted by Namdeb, with the use of a valid permit (Helmuth, 2009; OMD 2030, 2017). Oranjemund was established to support operations of land-based diamond mining and was a private town until proclamation in 2011, with further removal of access permits in October 2017 (SPC, 2015; OMD 2030).

Oranjemund town has an estimated population of 3 908 (NSA, 2015), while the whole constituency, which includes the small mining town of Rosh Pinah, consists of 8 620 people (NSA, 2015). Even though the land in Oranjemund belongs to the Government of Namibia, the infrastructure and assets are the sole property of Namdeb (CSIR: Environmentek, 2005). Most social services in the town are provided for by Namdeb in the form of community development initiatives, health facilities, libraries, parks and recreation facilities among other services. Oranjemund developed a viable commercial service and industrial sector suitable for big towns.

### **3.3 Research design approach**

According to Bhattacharjee (2012), a research design is a detailed plan in preparation of data collection in a research project. It is simply a “blue print” targeted at addressing specific research questions in which the data collection process, the development of data collection tools and sampling processes are identified. In order to effectively address the research problem of this study, a single case study approach was followed to provide a detailed examination of the issues relevant to the topic. According to Creswell (2003), a case study is a study where the researcher examines an activity or event systematically and is bound by time and activity. In this way, the researcher is at liberty of collecting data, using different data collection methods over a continued period of time.

Ishak and Bakar (2014) further state that a case study design allows researchers to choose a single case study, provided the selected case depicts an extreme or distinctive case as similar to this research. In addition, the necessity for this type of research approach is confirmed by Bhattacharjee (2012), who defines a case study as a research method that is used to thoroughly investigate a phenomenon in its natural setting over a given period of time in one or two study sites. The case study approach benefitted this study due to its flexibility of being able to employ various data collection techniques and its ability to make inferences about a phenomenon of interest to be rich, detailed and contextualised. Moreover, this method allowed the researcher to conduct a detailed and intensive analysis of the issues under examination.

The research used a qualitative study approach based on constructivist paradigm. According to Creswell (2014), social constructivism means that there exist various socially formulated realities where individuals seek to understand their world by creating subjective meanings of their experiences directed towards certain objects or things. Therefore, the research forms constructs of the reality surrounding it through engaging with the subject. In Creswell (2014), qualitative studies depend on views by the participants and tend to ask broad and general

questions. The data collected from the participants was mainly text, which was described and analysed to generate themes. Creswell (2003) further defines the qualitative research method as one where the researchers base their knowledge claims on constructivist grounds. This type of inquiry employs the use of case studies among other methods, which formed the approach of this research study. This approach was in line with the aim of this study, as it aimed at depicting the reality of impacts caused by mine downscaling on the socio-economic development in Oranjemund with the aim of improving the understanding of the socio-economic development during mine downscaling together with the meanings and values attributed to by individuals.

Based on these characteristics, an exploratory research approach formed part of the inquiry for this study. The need for this type of inquiry is confirmed by Reiter (2013), who states that an exploratory research provides an opportunity for the researcher to not only measure but to also apply their mind, experience and skill to propose alternative ways of how to examine and interpret reality. Moreover, exploratory research was appropriate for this study, because the study was aimed at creating more understanding and shedding more light on a topic that requires in-depth understanding. Exploratory research is also suitable to be done rigorously to increase validity of a research (Reiter, 2013). Therefore, the study on mine downscaling (a contemporary phenomenon) in Oranjemund (a real-life context) was well aligned with the criteria of a case study design.

### **3.4 Data collection**

Universally, researchers cluster research methods into two distinct divisions based on their epistemological orientation, namely: qualitative and quantitative (Bryman, 2012). A quantitative approach to research focuses on quantification of collected data and analysis and entails a deductive approach. In contrast, a qualitative approach places emphasis on text compared to numbers in data collection and analysis and entails an inductive approach (Punch, 2006; Bryman, 2012).

For the purpose of this study, a qualitative method was used to collect the data required to explore and understand the issues of mine downscaling and socio-economic development in Oranjemund. This approach allowed the study to generate large amounts of data from various sources for theory building. Fieldwork methods were used to collect primary data using semi-structured interviews with identified key informants and local communities, while documents review was used for collecting secondary data. In total, 12 in-depth interviews and seven focus group discussions were conducted at various selected locations in the study area, which made up of three groups of six each, two groups of seven each and two groups of eight each.

#### **3.4.1 Primary data**

In Boaduo (2011), data sources are grouped into two main categories, namely: secondary and primary data sources. In order to achieve the objectives of this research, primary data was

collected, using semi-structured interviews for stakeholders as key informants and focus group discussions with community members. Osang et al., (2013) define primary data as new data collected first-hand by the researcher from the identified sources. It is data that is originally collected from individuals, focus groups and a panel of participants arranged by the researcher to obtain information about a specific research topic. Even though primary data collection may be time consuming and difficult to collect, it is a more precise and less expensive data collection technique.

In addition, primary data collection provides the researcher with recent information concerning the topic under investigation. In order to establish perceptions on the research topic, primary data was collected using fieldwork methods. Semi-structured interview guides were developed and used for in-depth interviews with key informants and focus group discussions. The interview guidelines were in the form of open-ended questionnaires, which gave the researcher and the respondents room for a free-flowing dialogue and the flexibility to probe further on issues that emerged during the interviews relevant to the topic under investigation. The collected data was used to describe experiences and consequently make conclusions regarding the effects of mine downscaling and closure on socio-economic development in the study area.

#### - **Key informant interviews**

Key informant interviews are designed to provide in-depth information from participants. Often, the participants in key informant interviews are identified due to the knowledge they possess regarding a particular subject (Elmendorf & Luloff, 2006). Likewise, key informant interview participants are identified based on their organisation, community positions and reputation. The purpose for key interviews for this research was to allow the researcher to capture information from local key stakeholders in the study site who are knowledgeable and possess first-hand information and provided a background understanding on the issues of socio-economic development and mine downscaling and closure in Oranjemund. Conducting interviews is a very important technique used to collect data through the use of verbal communication between the researcher and the identified subject. Interviews are different in that some take the approach of a lengthy and detailed interview, while others are only to elicit short and specific responses (Mathers, et al., 1998). A continuum is a good concept in describing forms of interviews, because an interview can range from 'unstructured' to 'structured'. Newton (2010) describes the 'unstructured' continuum being in close proximity to observation.

Mathers et al., (1998) also describe semi-structured interviews as a series of open-ended questions, derived from the research topic, covered by the researcher. According to Newton (2010), when a researcher chooses interviews as a data collection method, it places value on personal language as data. In support to the decision to use the face-to-face semi-structured interviews for primary data collection with key informant interviews, Newton (2010) claims that face-to-face interviews are more useful for studies where depth of meaning is crucial and the

research is mainly concentrating on obtaining insight and understanding of the research subject. Furthermore, this data collection strategy was employed for its ability to generate huge amounts of qualitative data within a short period of time (Bernard & Gery, 2010). Semi-structured interviews with key informants were therefore consistent with the data collection needs for this research.

A semi-structured interview guide was developed for data collection from key informants, which covered all the themes of interest for this study and areas where in-depth information was required. In order to ensure validity (Dilshad & Latif, 2013), the interview checklist was piloted on 3 respondents after which the checklist was revised before the interviews took place. Taking notes of responses is crucial for any interview; therefore the interviews were done by the researcher who used a notebook and an audio recorder. Dilshad and Latif (2013) confirm the necessity of using a notebook and audio recorder, because the researcher was not be able to capture everything said in the interview and the audio recorder was useful as it captured and stored the information for the researcher for reference during data transcription. This data collection method was used to collect data from key stakeholders. In total, twelve in-depth interviews were conducted.

#### - **Focus group discussions**

Focus Group Discussions are techniques employed to investigate a subject in detail, using a group of subjects which range from six to eight people, focusing on a particular topic of interest (Bryman, 2012). This approach uses a moderator who facilitates a discussion around a subject of interest to the researcher (Nyakiri, 2009). Group discussions benefit from a mix of respondents who share experiences, while at the same time allowing in-depth investigation of a topic. Focus group discussions are beneficial in that they tend to generate in-depth understanding of societal norms and processes of a specific group of individuals, based on the aim and objectives of this study. Similarly, Breen (2006) emphasises that focus group discussions are very appropriate when the research seeks to generate new ideas formed within a social context. Focus groups were conducted to unpack perceptions about the effect of mining and mine downscaling on socio-economic conditions in the study area.

For data collection, an interview guide containing open-ended questions was designed and used. According to Breen (2006), an interview guide assists researchers in ensuring that there is consistency across discussions of different focus groups. Similar to the semi-structured interviews approach, a notebook was used to take notes during the discussions. The focus group discussions were also recorded with a digital audio recorder to ensure proper capture of all information, as the researcher was not able to capture all the discussions in a notebook. According to Dilshad and Latif (2013) focus group discussions can be recorded by taking notes, with an audio recorder or a combination of both techniques, as it is highly unlikely that the note taker will be able to record everything from the discussions. The notes taken and the audio

recorded discussions of the focus group discussions were used to assist the researcher during data transcription.

First and foremost, the interview guide was pre-tested on two focus groups consisting of six participants each and was revised after getting insights as to how the respondents answered and reacted towards questions and at the same time, this exercise improved the researcher's effectiveness in moderating (Breen, 2006). The researcher introduced the research subject at the beginning of each focus group discussion, which helped to stimulate the participants' thinking around the topic of discussion. The recorded responses were beneficial, because the researcher was able to access the full account of the group discussions, which assisted in generating data rich in content during data transcription (Dilshad & Latif, 2013).

The local community is predominantly Oshiwambo speaking, but the researcher does not speak nor understand this local language. Due to the language barrier, the researcher used two assistant data collectors who speak and write Oshiwambo to moderate and take notes during some of the interviews as the majority preferred to be interviewed in English. Dilshad and Latif (2013) believe that group discussions can be conducted in the native language of the respondents in cases where the language of the researcher and respondents is different.

For this reason, they further recommend the use of a bilingual moderator or translator. In order to facilitate this, the question guide for focus group discussions was translated into Oshiwambo before data collection. In total, seven focus groups discussions were conducted, comprising of three groups of six each, two groups of seven each and two groups of eight each and were conducted in selected locations of the study area. In total, 48 respondents participated in this study. Both genders were represented. The recruitment of smaller groups for focus groups was preferred, due to the ease of managing the size, moderation and successful data analysis.

#### **3.4.2 Secondary data**

Secondary data was also critical to this research study. According to Osang et al., (2013), secondary data refers to existing data. This type of data is not only less expensive and cost effective, but it is also easier to retrieve. Secondary data sources for this research were retrieved from available government reports, books, trade publications, academic papers, journals and company websites. Secondary data added value to the research, as it offered significant background to the topic and study area (Boaduo, 2011).

#### **3.5 Sampling design**

In order to obtain data for this research, a sample was required. Nyakiri (2009) defines a sample as a subcategory of a population from which information is obtained. Maree (2016) also defines sampling as a process whereby a portion of a population is selected as the area of focus for a study. However, the distribution of a sample has an influence on the decision of the type of sampling design. Therefore, this technique was applied in order to choose the required number

of respondents per population category to form a sample. This was needed because the size of the population in the study site is big and would be challenging for the researcher to reach every individual sample.

Two main categories of sampling exist, namely probability and non-probability sampling (Ishak & Bakar, 2014). Unlike probability sampling, non-probability is more appropriate for qualitative research and for the purpose of this research, non-probability sampling was followed. Non-probability sampling does not involve randomization of the sample units, hence lack of emphasis on the representativeness or detailed sampling techniques for coming up with a probability sample (Ishak & Bakar, 2014). Rather, the focus for qualitative researchers, using non-probability sampling, is on small samples or small units of data collection with the purpose of depicting social life or the phenomenon under research. In using this technique, the researcher was able to select exclusive study units or cases for their relevance to the topic under investigation. Moreover, non-probability sampling allows qualitative researchers to select study units or cases progressively with no limit on the number of respondents owing to data saturation (Ishak & Bakar, 2014).

According to Ishak and Bakar (2014), non-probability sampling consists of several sampling procedures, which include: convenience sampling, quota sampling, purposive and snowball sampling. This study used purposive sampling, also referred to as judgement sampling. In Luborsky and Rubinstein (1995), purposive sampling is defined as a method where subjects are chosen on purpose to embody certain predefined features or situations. The purpose of this technique was to provide reasonably equal numbers of various elements or people to enable exploration and description of the conditions and meanings taking place within the study area.

In short, purposive sampling is the selection of parts, which can be people or organisations with a direct link to the questions raised by the research study (Bryman, 2012). This sampling procedure was used, as it helped the researcher to select units that were especially informative with the aim of discovering exclusive types of cases for in-depth investigation (Ishak & Bakar, 2014). The purposive sampling procedure was applied for semi-structure interviews for in-depth key informant interviews with the local authority, ministry, mine union and local mine, non-governmental organisation, and the business community, as well as the mining leadership in Oranjemund.

### **3.5.1 Recruitment and selection procedures**

#### **- Key informant interviews**

The interview participants for key informant interviews were those who have a role to play in the social and economic development and mining operations in Oranjemund, based on their working area and expertise. The in-depth key informant interviews were conducted with the local authority, ministry, mine union and local mine leadership, non-governmental organisation,

and the business community, as well as the mining leadership in Oranjemund. The participants were identified using purposive sampling and the first point of contact was the Regional Constituency Office, a local government office, which was approached for a database for stakeholders in the study area. This was easy because the researcher is familiar with local government structures in the study area as an employee of the Oranjemund Town Council for 18 months. As such the researcher had a good understanding of key stakeholders actively involved in socio-economic development and mining activities of relevance to the research subject.

The researcher used the database from the Constituency Office to purposively sample and shortlist participants. Before obtaining the database, the researcher introduced the research topic, aim and objectives to the Constituency Office. The researcher then purposively identified and selected key informants from the database, shortlisted and contacted the participants. After a respondent was identified according to the pre-determined profile, contact was made by the researcher with an interview request attached for an appointment using telephone and email. The interview request attachment contained the purpose of the study, interview date and time and contact information of the researcher. In addition, an interview guide was sent to allow for the participant to prepare for the interview in advance. The appointments with respondents depended on the availability of respondents. The interviews were conducted in private locations of offices to maintain a confidential environment, which allowed the respondents to be free to express their views on the topic under discussion and this also avoided distractions.

In addition snowball recruitment was applied by asking those who were interviewed to recommend participants to ensure that the researcher covered all the key stakeholders needed for this research. The key informant interviewees were officials working for local government offices, the mine union and mine leadership and local businesses. The respondents were selected based on their close link to local economic development and their association to the mining sector in Oranjemund. The information gathered from this level gave the researcher an overview of issues relevant to socio-economic development in Oranjemund, mine and mine downscaling activities, to capture perceptions at this level as they are involved in day to day operations of the different economic aspects of the study area. The business community was also interviewed due to their association and role as intermediaries between government and the community.

The key informant target population was divided into two sub-categories, which are:

**i. Stakeholders:**

- Oranjemund Town Council (OTC)
- Namdeb
- Ministry of Environment and Tourism (MET)

- OMD 2030
- FreedThinkers Consultants
- Mine Union of Namibia (MUN) local branch

**ii. Business Community:**

- Namibia Chamber of Commerce and Industry (NCCI)
- Local Bank
- Small and Medium Enterprises

A total of 12 individual interviews were conducted for the purpose of this study.

**- Focus group discussions**

For focus group discussions, purposive sampling was used in combination with snowball sampling to identify participants for the focus group discussions from the community. According to Ishak and Bakar (2014), a snowball sampling procedure is more common for researchers who prefer to choose study units from different stratified groups, while avoiding non-biasness of unit selection. The reason for interviewing the community members was to get an informed and convincing account of social life in Oranjemund relating to any socio-economic aspects emanating from mine downscaling in the study area. The study area was split into three sections being: (a) Baghdad and Welwitchia, (b) Swartkops, (c) and the town area. This was to ensure representation from the different parts of the study area even though this study did not seek to generalise findings. In total, seven focus group discussions were conducted.

The target participants for focus group discussions in these areas were community members over the age of 18 years old and have lived and or worked or are working in Oranjemund for a minimum period of five years. In addition, the participants were both males and females who are head of households. Participants who did not meet these basic criteria were excluded from taking part. Okeeffe et al., (2016) points out that having exclusion criteria of study units is necessary before data collection to eliminate participants who are not relevant to the study under investigation. Furthermore, exclusion and inclusion helped the researcher to ensure the best of resources allocated for this study. The participants were first recruited purposively from a database, provided by the Constituency Office, due to their established presence in the area and thus possessed valuable knowledge regarding characteristics of the residents of Oranjemund and are familiar with the community. The researcher introduced the research to the Constituency Office staff, the purpose of the study and the profile of the participants.

From the provided database, the researcher purposively selected and made a list of participants, based on the pre-determined sampling profile. In addition, the researcher used the piggy bank approach to recruit more participants through the Constituency Office, during their monthly community meeting with community members. During this time, the researcher approached community members who met the profile and made appointments for the group

discussions. Each group discussion consisted between six and eight participants, represented by both male and female participants for the purpose of maximising diversity of perceptions and experiences from the community. This group of participants is referred to as the local community in Chapter Four and Chapter Five of this study.

In some of the interviews, the researcher used two assistant data collectors who were fluent in speaking and writing Oshiwambo. This was necessitated by the fact that the researcher does not speak the local language and this would have made it difficult and compromised the data collected from the focus group discussions. The role of the assistant data collectors were to moderate the focus group discussions and to take notes in Oshiwambo for respondents who preferred to do the interviews in the local language. Even though the researcher used data collection assistants, the researcher was present at all focus group discussions for supervision.

### **3.6 Data processing and analysis**

Even though data analysis is commonly known as one of the important stages in research, choosing a data analysis method should be in line with the philosophical underpinning of the study (Herwitt-Taylor, 2001). Bryman (2012) defines data analysis as a process used to bring together various elements with the aim of reducing huge amounts of data that is generated during data collection into meaningful information. In contrast to quantitative research, data analysis for qualitative research makes use of words and not numbers, because the use of quantitative research data analysis is likely to reduce the essence of qualitative data, which is its strongest attribute used to bring out in-depth meanings (Herwitt-Taylor, 2001). In order to generate the needed in-depth and meaningful information for this study a thematic data analysis technique was used.

Braun and Clarke (2006) define thematic data analysis as the process involving the identification, analysis and reporting of data patterns. This process involves grouping codes from transcripts to present qualitative research in a coherent and meaningful manner (Sutton & Austin, 2015). Nowell et al., (2017) confirms that thematic analysis is a good technique used by qualitative researchers to summarise key features of a large data set, as it pushes the researcher to implement a well organised structure method.

After each interview, the collected data was safely stored in a locked cabinet. After all the data was collected, the researcher began transcribing the data from the audio recorder. Each interview audio was transferred into a readable transcript. This step was done thoroughly and cautiously to avoid leaving out any details of the interviews, which would jeopardise the quality of the information that was required for analysis. Once the transcripts were ready for analysis, substantive portions of the transcript, which was related to the research questions, including issues on mine downscaling and socio-economic development were then categorised and put into codes according to themes. The themes were later used as categories for data analysis. In

brief, data obtained from the fieldwork was all transcribed before the responses were coded, categorised and placed into themes using Thematic Analysis method.

### **3.7 Research ethics**

Due to the complex nature of issues involved in social science research, it is important to deal with the ethical considerations that may emanate from conducting this research. Research ethics determine the trustworthiness and validity of a research (Madushani, 2016). This makes it crucial to underline the expected ethical issues that will be looked at for this study. First and foremost, a research clearance was sought and approval was given from the University of the Free States' Research Ethics Office before data was collected to determine any risks pertaining to the research and to assess the sensitivity which may have been imposed by the research questions used towards the subjects.

According to Cheraghi et al., (2014) anonymity, confidentiality and informed consent form the most important issues to be considered during qualitative research. In this research, one critical ethics issue was the confidentiality of the information gathered during data collection from interviews and group discussions. As such, the respondents' names were recorded using alphabetical codes and will not be shared with third parties or be made public. To confirm this approach, Bryman (2012) states that qualitative research is flexible in that it easily allows the researcher to record information anonymously and publish findings without identifying the sources or respondents involved. Furthermore, Cheraghi et al., (2014) state that there are various ways to keep personal information, obtained during research private, by getting rid of identifier components and the use of pseudonyms among others. In addition to confidentiality and anonymity, the researcher explained the research purpose, as well as the aim and objectives to the respondents. This was done by the researcher by briefing the participants at the beginning of each the interview. According to Cheraghi et al., (2014), the researcher is obligated to inform the respondents of the research aims and objectives. In addition, the researcher needs to make clear the nature of the study, the role of the respondents and how the results will be published.

All the participants were asked to give written consent to the researcher, after briefing about the research, before every interview and the researcher made the participants aware that their participation in the research was voluntary and that they had the right to withdraw from participating at any point of the interview, without consequences. To support this, Halai (2006) writes that it is the duty of the researcher to seek consent from the research participants. This is to prevent participants from taking part in research projects against their will and to ensure they have the relevant information prior to the consent. In most cases, consent is sought using written consent forms, which contain the purpose of the research, procedures, benefits and a clause, which emphasises the voluntary nature of the study and makes it clear that the respondents are free to withdraw from the research at any time (Halai, 2006).

The researcher made use of an audio recorder during the interviews and focus group discussions for the purpose of capturing all the views of the participants (Dilshad & Latif, 2013). As such, the researcher sought for written consent from the individual participants before the use of the audio recorder (Halai, 2006). Struwig and Stead (2001) underscore the importance of plagiarism as a key component when doing research. They define plagiarism as using one's work that is not the original product of the researcher without appropriate acknowledgement of the real source of the work. To avoid plagiarism, the researcher made sure every work used to contribute to the research was acknowledged and referenced as necessary.

### **3.8 Conclusion**

In order to understand community perceptions relating to mine closure and the relationship between mine closure and socio-economic development, a qualitative research methodology study focusing on a case study was selected for this research. Interviews were conducted with focus groups and individual interviewees directed by interview guides with clear open-ended questions relating to the topic under investigation to gather the necessary data. The collected data was transcribed where essential patterns and themes arising from the data set was grouped and coded into themes in line with the study's research questions.

The next chapter presents the findings of the research from the collected data from the individual interviews and focus group discussions after the data was analysed, grouped into themes and finally discussed from which findings were drawn.

## **4. CHAPTER FOUR: RESEARCH FINDINGS AND ANALYSIS**

### **4.1 Introduction**

Based on the methodology explained in the previous chapter which gave a description of the processes followed to collect the data required for this study, this chapter gives an analysis of the results from the primary data obtained during fieldwork in order to answer the objectives and questions of the research. The chapter starts off by presenting the findings of the research, followed by the discussion of the same. The analysis and presentation of the main findings is done in thematic areas as follows: mining and local development in Oranjemund; community perceptions on mine downscaling and development; description of socio-economic development in Oranjemund and; effects of mine downscaling on socio-economic development and identified risks of mine downscaling, concluding with the involvement of the local authority as a new role player. It is important to note that the mining company being referred to in the research refers to the company based in Oranjemund Local Authority, which is Namdeb.

### **4.2 Respondents biographical data**

The results present findings obtained from 7 focus group discussions made up of local community members with a total of 48 participants and 12 key informant interviews of individuals representing key stakeholders from government institutions, businesses, non-governmental organisations and the mine union and the mine management. The total number of respondents of both focus group discussions and key information interviews was 60 of which 26 were female and 34 were male. The presented data shows that 43.3% of the participants were females while 56.7% were males. The gender distribution is in line with the Namibia Statistics Agency report (2014), which shows that the Oranjemund Constituency has a higher population of males at 54.7%, compared to the regional of 50.9%. Stubenrauch Planning Consultants (2016) attributes this to the mining operations and higher employment rate of males in the mining sector. Even though the gender was not equal, the number of female participants is still significant, considering the nature of the community. According to Sharma (2010), the phenomenon of statistical dominance by males in mining towns is likely to have effect on the social capital of such towns.

While this section presented the number of participants involved in the study and the proportion of gender to female, the next section presents findings on the role the mine plays in the social and economic development of the study area.

### **4.3 Mining and local development**

This question was posed to the local community interview groups, the business community and stakeholders. The stakeholders in this Chapter and Chapter 5 include the following participant representatives; the mine officials including the mine union, the local authority, government officials/ministry and the non-governmental organisation representatives. The question was used to probe from the respondents their experience of the role of the mine in the community.

### **4.3.1 The local community**

When asked about the role of the mining and mine activities in the community, the community group respondents had mixed feelings about the benefits accruing from mining activities in the area. A minority of the respondents reported that the mine is not benefiting the community and one respondent stated that the mine's role in the community is not felt, but believes that the mine should have a role to develop the area.

*"Nothing. Even accommodation is not enough for everyone, only the mine employees are sorted."* (Focus Group 5, 2018).

*"We the community members who are not employed directly by the mine don't see any benefits from the mine. You see, even people who work as domestic workers or workers for mine sub-contractors are pushed to Baghdad and Welwitchia which is the informal settlement."* (Focus Group 6, 2018).

To emphasise their point, the respondents made a comparison of Oranjemund and Rosh Pinah, because they felt that Rosh Pinah, which is the closest mining town to Oranjemund is more developed socially and economically compared to Oranjemund. This was attributed to the fact that Rosh Pinah has a large population in comparison to Oranjemund. In addition, the reason some respondents felt there was not enough development by the mine considering that the mine has been in Oranjemund for a very long time was attributed to the lack of services found in the town. In terms of health care facilities, Oranjemund only has one public government clinic and one private hospital, which only caters for those who can afford private health care.

*"You see, even Rosh Pinah is doing better than Oranjemund. Oranjemund residents live like they are on a farm. Rosh Pinah has many shops, there is only one big shop here and there are lot of shacks which shows that there are many people."* (Focus Group 5, 2018).

In contrast, some of the respondents reported that the mine has played a role in the past by providing free accommodation, water and electricity, particularly during the time before the establishment of the local authority. The respondents made reference to the upgrading of the road between Oranjemund and Rosh Pina, from gravel road to bitumen standard, free public transport in the town, the installation of electricity meters in houses and the management of public open spaces and parks when describing the role of the mine in the area. During the interviews, a marginal number of respondents revealed that only the residents directly employed by the mine benefit from the mine as they are given free accommodation. Some respondents however reported that the mine's role is witnessed through job creation, both directly and through sub-contractors. The respondents added that the mine has played a role in promoting and supporting small and medium enterprises in the town. However, there was a general consensus from the respondents that there has been no significant infrastructural development in the recent years in the area.

### 4.3.2 Stakeholders

The respondents reported that the local mining company's contribution to development in the area has been positive. The respondents stated that the mine is the majority employer and by creation of jobs for residents, income is generated. However, the respondents elaborated by saying there are currently few visible roles and contributions by the mine, which include management of the local parks and green spaces, which is done through sub-contractors.

*"The mine has the responsibility to assist people, for example manage parks and games through sub-contractors even though this creates a dependency on the mine."* (Interview 4, 2018).

There was a common view that the mine has committed significant financial resources for health programmes and social projects in the form of sponsorship to schools and community managed projects through the mine's social corporate investment activities. The respondents further made reference to the Futree Community Garden, which is a community project aimed at providing skills transfer and capacity building for the residents. In addition, the respondents maintained that due to the existence of the local authority in the area, the approach of the mine to development in the area is rather to support the effort of the local authority and not to be in the forefront.

The respondents also reported that the mine contributes to the local economy's social, health and education aspects through its corporate social responsibility umbrella. From the interviews it was established that the mine's corporate social responsibilities are implemented through the Namdeb Foundation, which is now known as the Namdeb De Beers Foundation. The respondents further attested that the mine continues to collaborate with relevant stakeholders to identify potential economic activities for Oranjemund, while at the same time continue to accelerate social, health and education aspects of the town.

*"OMD2030 is a programme which acts as a steering committee formed by OTC, Namdeb, NCCI and the community. OMD2030 was formed to assist stakeholders in transforming the town to a new economy by undertaking community projects".* (Interview 2, 2018).

One such programme with stakeholders such as the Oranjemund Town Council (OTC), Namibia Chamber of Commerce and Industry local branch, is OMD 2030 tasked with the overseeing of the town transformation from an exclusively mine town to a normal town sustainable beyond mine closure. To this, some of the respondents remarked that if there are no private investors, the town will 'collapse'.

*"The sooner investors come on board the better, otherwise the town's economy will die and the town will collapse."* (Interview 7, 2018).

### **4.3.3 Business community**

The majority of the business community respondents were of the opinion that the local mine laid a foundation for businesses to function particularly in terms of creating and building the business sector in Oranjemund. However, a small number of the respondents felt that even though the business sector was formed, it has become unsustainable attributed to lack of continuous investment in recent years. The respondents recognised the infrastructure put in place and the business environment even though a small number felt that the infrastructure is not sufficient. The respondents further reported that during times of the Consolidated Diamond Mines (CDM), the predecessor of Namdeb, all services and businesses such as retail and furniture shops, liquor stores and postal services were run by CDM. However, this was changed by Namdeb in the 1990s which sold its shares to some residents and some employees and privatised these services while the mine continued to focus on diamond mining.

*“Oranjemund dynamics are different. Everything belonged to the mine and was later outsourced by allowing employees and residents to form partnerships and buy out the mine.”* (Interview 5, 2018).

In addition, a significant number of respondents stated that the business community continue to benefit from the mine by taking part in tender processes and any other type of contracts outsourced by the mine. A small number of the respondents registered their discontent in the duration of contracts which are said to be short i.e. one year compared to long term projects offered in the past which could last five years. This was said to emphasise the dependency of the local economy on mine operations as any change in mineral resources has negative domino effect on the growth of the business sector in the absence of other economic drivers in the area.

*“In the past we got long term fixed tenders. Most contracts were up to five years in the past but now it’s just short term, maybe it’s because of the predicted short life of the mine.”* (Interview 3, 2018).

On the other hand, a small number of respondents were of the opinion that the local mine has not done enough in terms of building capacity of local businesses both financially and opportunities created to sustain businesses after the mine closes.

## **4.4 Community perceptions on mine downscaling**

### **4.4.1 Local community**

With regards to the interpretation of the mine downscaling happening in the study site, there were mixed feelings from the respondents on how the process is unfolding and what this means for the residents and the economy of the area. However, the majority of the respondents reported that whatever this is, it will have a direct impact on the community and economy. One of the respondents related the current mine downscaling to the retrenchment undertaken by the mine in 2008/2009 due to the economic recession experienced.

*“When you look at 2009, we were in the same situation. People resigned and many were retrenched. People lost jobs and we can see this happening again and we only expect this to get worse until we are forced out of here.”* (Focus Group 5, 2018).

When asked if they thought the mine would close, the majority responded that they did not expect the mine to close and that they were not actively thinking about it until now. Interestingly, a marginal number of the respondents reported that the downscaling has become a reality, because they have witnessed community members who have lost their jobs or are only employed temporary, pending the closure of the mine. One of the respondents reported that the downsizing exercise by the mine has affected his contract as it will not be renewed when it ends in 2019.

*“Like me, I am only waiting for my contract to end in February 2019. This is what I was told and because it’s a contract I cannot ask questions. What can I do now? I will just go back to the north where I came from because everyone is saying the mine is closing.”* (Focus Group 1, 2018).

Some of the respondents felt that the status of the downscaling of the mine is confusing, because even though they are letting go of staff through voluntary separation, they are outsourcing most of their operations to sub-contractors. The respondents further claimed that there is lack of information as to what is exactly happening, because information is only heard through community members with no proper information. However, one respondent reported that the information regarding the downscaling of operations by the mine was in one of the local newspapers.

*“I heard that the mine is closing from rumours. I also read it in the newspaper and I don’t think the newspaper was lying because they got the information from the mine.”* (Focus Group 2, 2018).

A marginal number of respondents believe that the outsourcing of activities of the mine to sub-contractors is contributing to unemployment. Most of the respondents felt that the exercise will cause negative consequences to the community, especially loss of jobs. One respondent said that:

*“Downscaling is sending people into poverty.”* (Focus Group 5, 2018).

While another respondent said:

*“The recent closure of E-Bay, another Namdeb owned mine is proof that mines do close and this trend is coming to Oranjemund.”* (Focus Group 6, 2018).

The community respondents believe that Oranjemund cannot 'exist' without the mining of diamonds and thus the mine downscaling and closure is the beginning of the end of the town and residents live in fear of the future of the town. According to community respondents, there exist more risks for the town of Oranjemund, as a result of the downscaling and looming closure of the mine, which is projected in three years. They view this process as the making of a "ghost town".

#### **4.4.2 Business community**

When asked their view on the current mine downscaling, some of the business community respondents replied that the mining company is profit oriented and not for development so if resources are finished, it means income is reducing and the mine is required to reduce operations. Some respondents expressed that the downscaling is not optional, but that it is dictated by the availability of mineral resources being mined. Some of the respondents stated that when the mine announced the downscaling, it affected everyone in the town, claiming that 99% of the community depend on the mining operations in one way or another. One respondent reported that business cannot operate without the mine.

*"The thing is doing business in Oranjemund very much depends on the mine because they are the majority when it comes to giving tenders and contracts. It is also the mine that employees the majority of people and keeping people in Oranjemund. This already shows you the dependency businesses have on the mine. It controls the purse strings."* (Interview 5, 2018).

However, one of the respondents reported that after speaking to old citizens of the town, there is now confidence that the ongoing process will not cause too much damage to the economy compared to 2008/2009 when the mine retrenched a large number of employees following a decline in the global economy. Even though the respondents were divided on the interpretation of the downscaling, the majority reported that the downscaling, particularly of jobs, will contribute to unemployment and further reduction of the money pool entering town, while accelerating the speed at which the money leaves town through out-migration of residents. The respondents believe that the reduction in the population size will reduce the footprint in the business market. As such, the majority of the respondents believed that businesses will be negatively affected and some might be forced to close down. To this, one respondent said *"businesses are there to serve people, but if people leave businesses will close"* (Interview 3, 2018). The respondents felt that there is now pressure for the town to find alternative sources of income to drive the economy. One respondent remarked that:

*"There will be limited source of income once the mine closes, people are already feeling threatened."* (Interview 1, 2018).

#### 4.4.3 Stakeholders

The stakeholders in this section also refer to the mine officials including the mine union, the local authority, government officials/ministry and the non-governmental organisation representatives. Given this background, a marginal number of the respondents explained that downscaling of any entity is not optional, but it is informed by the situation at hand. A marginal number of the respondents claimed that the mine downscaling in the area is not well interpreted to the community and there is lack of information, causing confusion. Some of the respondents were of the view that mine towns, where the economy depends on mining, are likely to be ghost towns when the mining stops because there is nothing to fill the gap in the economy to sustain them. As such, the respondents felt that if the mining operations in Oranjemund stop, it will be difficult to fill the gap in the economy. To this, some respondents strongly believed that there is a need to diversify the economy in the area.

One of the respondents claimed that there is a very short time to transform the economy of the town before the mine closes in the next three years. The respondent further reported that town transformation can take from 15 to 20 years, which reduces the survival chances for Oranjemund after the mine closes.

*“The mine only has 3 years left to close but transformation of a town takes between 15-20 years. The mine will have a short period to transform Oranjemund which means there is a slim chance of making Oranjemund a success.”* (Interview 4, 2018).

A marginal number of respondents explained that the magnitude of the mine downscaling impacts imposed on the community and economy mainly depend on two things: first, the speed at which the mine will exit the area will determine the extent to which the social and economic progress will decline. The respondents claimed that a deep decline in the economy will mean that there will be less employed people to pay for municipal services, which will jeopardise the ability of the local authority to generate revenue; second, is a question which needs to be carefully considered. If and when the mine leaves, will it continue to support economic development in the area?

A marginal number of the respondents felt that if the mine stops operation suddenly, it will have a shock effect and the economy will go into a deep decline. Most of the respondents were of the view that the future of the town's economy depends on how the mine downsizes operations and that the town will experience a decline in the economy, but it will rise again.

*“If mine pulls out suddenly, there will be toxic shock and the town's economy will go into a deep decline; this will be hard. Who will pay municipal bills because if half the citizens go, it means half the money will go.”* (Interview 8, 2018).

*“Everything depends on how the mine scales down operations.”* (Interview 11, 2018).

Some of the respondents believe that Oranjemund faces the danger of becoming a ghost town, while some feel that the town will only shrink in size and will become a rundown town. However, the respondents believe that Oranjemund has an opportunity to turn into a model town.

#### **4.5 Socio-economic development and diversification**

##### **4.5.1 Socio-economic description**

There were mixed feelings from the respondents when asked to describe the socio-economic development in Oranjemund. Some respondents felt that the town is further behind in terms of socio-economic development than what it should be and particularly in comparison to northern towns. In addition, some respondents reported that the economic situation is on a downward spiral and that growth is stagnant. One respondent described the economy of the town as depressing. The majority of the respondents were not satisfied with the current condition of socio-economic development and reported that the over-dependency on the mining company is concerning and needs to be addressed. The respondents were convinced that the socio-economic development is changing in a negative way and maintained that the over-dependency on one source of income is a contributing factor. Some of the respondents described the status of the local economy as challenging, particularly with the ongoing downsizing by the mine and that the town has not fulfilled its potential because the town was primarily owned by the mine, which has its own standards. One of the respondents revealed that downscaling has affected over 150 employees through voluntary separation in the first phase carried out by the mine to downsize operations, while closure of the mine will affect approximately 1500 employees.

*“The union currently has 1300 members working for the mine of which 154 went on voluntary separation.”* (Interview 7, 2018).

*“More employees were retrenched during the 2008/2009 economic downturn compared to currently where roughly 150 people have left on voluntary separation.”* (Interview 11, 2018).

*“The mine currently has about 1500 employees and these will be affected as the mine finally stops operations.”* (Interview 11, 2018).

The majority of the respondents reported that infrastructure in the town is not enough, referring to medical care, health facilities, schools and poor roads in the informal areas of the town. In addition, one respondent claimed that 99% of the community depends on the mining industry.

*“When the mine announced and embarked on the downscaling it became everyone’s business because 99% of the community depend on the mine operations.”* (Interview 10, 2018)

Another respondent felt that there is no development in Oranjemund and that the economy is not good anymore. One respondent claimed that there is little entrepreneurship in Oranjemund. However, some respondents indicated that they are fine with the current state of social and economic development in Oranjemund. They further supported this by saying that there are less

poor people and fewer informal settlements in Oranjemund, compared to other areas, which they attributed to better living standards of the residents in the area as a result of the economy.

*“Development is very slow here, the north is better.”* (Focus Group 3, 2018).

*“Things were better in the past, even accommodation, water and electricity were free. The standard of life was ok but maybe production was higher compared to now.”* (Focus Group 7, 2018).

#### **4.5.2 Alternative sources of income**

Regarding sources of income, the majority of the respondents reported that the mine is the majority employer in the area and that the mine is the majority provider of sub-contract jobs, as they have outsourced most of their activities. One respondent said:

*“Everything in this town depends on the mine. People are either directly employed by the mine or sub-contracted by the mine”.* (Interview 9, 2018).

The respondents further reported that sub-contractors, government and private institutions also employ a small number of the residents, while the small services sector is another source of income, which includes retail, hospital, schools and lodges around the town. More employment can also be found at local cucashops and through domestic work. Some respondents reported the diminishing employment opportunities in the area, yet some respondents reported that the existence of local government institutions in the town has brought additional employment in the town.

*“The opening of the town was a little too late if you ask me. The town should have opened after the 2008 economic crisis which income decline would have picked up again but now the mine is about to close and when the economy goes down, there might be no mining to improve the economy.”* (Interview 9, 2018).

*“There are few places to work here but the mine is best to work for because it pays well.”* (Focus Group 5, 2018).

*“The economy is dependent on one source of income but also social work is around the mine.”* (Interview 8, 2018).

### **4.6 Mine downscaling and socio-economic development**

The question posed to the local community, business community and the mining official, local authority and the ministry was about consequences caused by the downscaling in the area.

#### **4.6.1 Local community**

During the interviews, the respondents revealed that they are already faced with challenges arising from the ongoing downscaling of the mine.

*“We don’t make enough money anymore; we can’t even support our families.”* (Focus Group 2, 2018).

*“People are suffering from expensive transport charges.”* (Focus Group 4, 2018)

The majority of the respondents reported that the scarcity of housing and accommodation is one of the major drawbacks the residents are faced with, followed by loss of employment and income. The respondents claimed that even though the majority of the houses in the town belong to the mine, in the past accommodation was easily available and affordable compared to now. In addition, some respondents claimed that due to the loss of jobs and income, they are struggling to pay for accommodation and school fees for their children in school or even send money back home for remittance. Some of the respondents had this to say:

*“Most parents moved their children from the private school to the government school because they can’t afford the private school anymore.”* (Focus Group 1, 2018).

*“Now income is not enough anymore because we have to be deducted for rent and if you don’t pay you will be chased out of the house.”* (Focus Group 5, 2018).

Another concern from respondents was the increase in criminal activities in the area, after which they claimed that the town is not as safe as it used to be in the past. There was a broad view from most of the participants that lifestyle is becoming expensive in the town. To this, the respondents claimed that there is only one supermarket and a few shops that provide services, which causes monopoly and makes goods and products unaffordable for the residents. The respondents further remarked that investors are not coming, because of the ‘unstable’ environment in the town following the announcement of the mine to downscale their operations.

*“We have been hearing that there is a shopping mall coming but up to now there is nothing. Everyone is just scared to come to Oranjemund because of this situation with Namdeb.”* (Focus Group 7, 2018).

Interestingly, a marginal number of respondents reported that even though there is loss of jobs in the labour force, a small number of residents have in return benefited from this through temporary employment, due to an increase in the number of sub-contractors and informal businesses. However, some respondents felt that even though residents have opportunities to work for sub-contractors of the mine, the sub-contractors tend to always bring their own employees and do not employ a significant number of local people.

#### **4.6.2 Business community**

After interviews with members of the business community, it emerged that people are already struggling to make ends meet. The majority of the respondents reported concerns of reduction of disposable income as a serious concern, which reduces the buying power of the residents.

*“Disposable income will drop dramatically which will make people leave. Business will be affected because when population reduces, footprint is reduced. Malls are there to serve people but if this happens it means shops will close leading to more job losses.”* (Focus Group 3, 2018).

One of the respondent remarked that in the past businesses were thriving compared to now. Some respondents reported that business establishments are declining in the area and in agreement, some respondents reported that they used to have more employees in the past, but this has changed. To this, one of the respondents claimed that in the past the mine used to give long term contracts to sub-contractors, which could last five years, but now they only get short term contracts of up to one year. This, according to the respondent, has created uncertainty for businesses and they have had times when they had to retrench and only employ more staff depending on the magnitude of contracts. One respondent reported that the downsizing of the mine operations has resulted in loss of income from clients and customers who left.

*“There has been a loss of few businesses and clients due to people who have moved out of town after their work came to an end.”* (Focus Group 10, 2018).

Another concern raised by the majority of the respondents was the small market size in Oranjemund. To this, the respondents claimed that with the ongoing downscaling and decline in population, as people have already started to move out of the town, it makes it difficult for expansion of businesses. One of the respondents maintained that since the introduction of the local authority, the business community is faced with change where they have to pay what was referred to as high water bills to which the respondent claimed that when all the businesses in the area start paying for water services and electricity on top of rent, most of them will close down. The respondent further said:

*“OTC and Namdeb should work together to strategize and reduce water prices which could be an attraction for businesses and investors.”* (Interview 5, 2018).

#### **4.6.3 Stakeholders**

Interviews with the mine official, mine union representative, local authority and the ministry, non-governmental organisations and the business body representative in Oranjemund revealed that there was a general view that the population is declining in the area. Most of the respondents reported that people are moving out of town, to which one respondent said: *“there is a mass exodus of people”* (Interview 9, 2018) which the respondents believed is negatively affecting the size of the population in the area. Some respondents also felt that unemployment is increasing and so is the loss of potential income. One respondent reported that there is a slight increase in crime in the area, even though the respondent was quick to say that Oranjemund is still one of the safest towns in the country.

While a marginal number of the respondents reported that the lack of diversifying of the economy in Oranjemund is of concern, some respondents felt that, due to the size of Oranjemund, there is a lack of market for expansion of businesses. A marginal number of the respondents were of the view that even though relevant stakeholders are collaborating and working together, there is less focus on current livelihoods and accommodation of the residents. Some respondents also expressed concern over the notable loss of skilled people in the community. A significant number of the respondents also reported that the standard of living is becoming unaffordable for the residents and attributed the reason to the monopoly of goods and products without competition in the retail services market.

*“We are losing young professionals with skills. Since the news broke, people have been leaving. This situation means people are not being attracted and those that are recruited are not being retained and people are afraid of being in a sinking ship.”* (Interview 7, 2018).

#### **4.7 Oranjemund future development: risks, threats and opportunities**

The collected data revealed that there is potential in Oranjemund and that if tapped into can significantly contribute to the town’s social and economic growth. The identification of relevant potential ventures is essential to the development, as this is likely to lead to formation of new business ventures that could create and propel alternative sources of income and employment in the area.

##### **4.7.1 Development risks and threats**

###### **4.7.1.1 Unemployment**

The majority of the respondents reported that the rising unemployment in the area, evident from the loss of employment in the area, will slow down the economic growth in the area. One respondent lamented that unemployment among the youth is already high and the loss of jobs will only exacerbate the situation.

*“The loss of jobs will cause people to move out of Oranjemund for greener pastures.”* (Focus Group 6, 2018).

###### **4.7.1.2 Lack of infrastructure**

Another threat identified by the majority of the respondents, critical to the development of the economy in the town, was infrastructure. They are convinced that the current schools and health facilities are not sufficient for the current population. The majority of the respondents reported that accommodation and housing in the area are not sufficient for the population and that this is not easily available and accessible to private individuals who do not work for the mine. What’s more, the respondents cited the pending sell of mine properties to private individuals which they believed to prevent residents from investing in Oranjemund through property purchase particularly those being given voluntary separation by the mine.

*“Accommodation is a challenge especially for low-income group categories.”* (Focus Group 5, 2018).

*“There is only 1 government school which is not enough for the community.”* (Focus Group 2, 2018).

*“The delay in selling properties by the mine is working against potential buyers who should have paid a certain percentage to their mortgage bonds but still pay rent to the mine. If residents buy properties it means there is money that is invested in the area through renovation works and so on.”* (Interview 9, 2018).

The majority of the respondents believe that this will eliminate accommodation problems and most people, even those who are leaving the mine and outsiders, want to buy and invest in properties in Oranjemund. In addition, the respondents emphasised that the delay of selling properties presents a threat to the town, which could leave properties that will be run down and that residents will continue to pay high rental fees, which could have contributed to their property payments. A marginal number of respondents also cited that there is lack of infrastructure that can be used for businesses.

#### **4.7.1.3 Retail**

Another common concern noted from the respondents was the absence of shopping malls in the area. One respondent stated that when it comes to buying goods in Oranjemund, choices are limited hence residents are forced to buy expensive goods. Most residents reported that they are forced to travel more than 100 kilometres for affordable and variable goods, which is not ideal for them. The respondents believe that this increases the movement of money outside the town, which could instead be spent in the area. Apart from this, some of the respondents believe that more retail facilities will reduce monopoly and increase availability of essential goods and services.

*“The location of Oranjemund is a disadvantage because it creates expenses for residents when traveling to other towns like Springbok in South Africa to do shopping because the few shops in Oranjemund are not affordable.”* (Focus Group 1, 2018).

*“Oranjemund is like a sieve, there is huge amount of money in the town but it leaves. Money goes out and is spent outside the town.”* (Interview 8, 2018).

#### **4.7.1.4 Investment and market size**

When asked about evidence of new investment into the area, the majority of the respondents were negative, claiming that the current situation of downscaling and the declining population is enough to deter investors. The majority of the respondents felt that if the mine ceases its operations as it has been announced, Oranjemund will become a ghost town attributed to the over-dependence on the mine as it is the main source of income and attraction of people. Some

respondents believe that due to the population, which they perceive as small, it means the market is small for economic development to be feasible.

*“Even other banks can’t come to Oranjemund; there is no market in Oranjemund, not good for business.”* (Interview 5, 2018).

*“Investors are no longer interested to invest because there is no market; no buying power which means even people who would have benefited from new investment in the form of income generation or employment will lose out.”* Interview 7, 2018).

The respondents re-iterated their concern for the lack of significant investment in the areas, as they saw this as a game-changer for the town. They emphasised the need for businesses in the area, specifically shopping malls, which are inclusive of services and goods as the current goods providers are seen as expensive with limited variety of stock. This, according to the majority of respondents, is contributing to the high cost of living in the area and is seen as detrimental to the development of the town.

#### **4.7.1.5 Location**

A common problem, which the respondents identified, is the location of the town as a contributing factor as to why investors are not attracted to Oranjemund. The majority of the respondents reported that even though there is free access into the town since 2017, they believed that the geographical isolation of the town might work against the town in attracting investors.

*“The challenge is where Oranjemund is located; no one will come if there are no jobs, no need for people to come because there is nothing that will attract people.”* (Interview 4, 2018).

*“Some opportunities are not feasible in Oranjemund due to the location; it doesn’t work because it will be costly so you have to export to find markets for your products.”* (Interview 9, 2018).

#### **4.7.1.6 Training and development**

A marginal number of respondents reported that training and skills transfer is critical to the development of Oranjemund and if not addressed, will impede any efforts towards economic development. The respondents reported that a good number of the population do not have the necessary qualifications and skills for the labour market, particularly the youth. The respondents cited the unavailability of learning and training institutions in the area as a contributing factor. In contrast, a small number of respondents felt that some of the residents have skills, but there are few job opportunities in the area.

*“Even if the big mine goes, skills should be transferred to upcoming small miners and this will help with the sustainability of the town.”* (Interview 7, 2018)

*“The youth lack skills and proper education.”* (Focus Group 6, 2018).

There were also common views among the respondents about the lack of entrepreneurial spirit in Oranjemund and that this should be promoted and supported. The majority of respondents reported that not many efforts are being put into entrepreneurship development. The respondents felt that entrepreneurship and small and micro entrepreneurs great potential to contribute to the economy, thus there is a need to promote expansion of current businesses, while at the same time encouraging formation of new businesses in the area.

#### **4.7.1.7 Emergence of informal settlements**

A minority of the respondents expressed their concerns over the possible emergence and rise in informal settlements in the town. The respondents indicated that currently there are a few informal settlements, namely: Baghdad and Welwitchia. They fear that the decline in the economy will force people to seek alternative accommodation and housing solutions. The respondents believe that this will be a breeding ground for crime related activities and that the current informal settlements are overcrowded and have no proper sanitation facilities, which pose health hazards and safety issues.

*“The livelihoods of people and housing have not been prioritized in this situation. We will see the start of informal settlement and the situation at Baghdad will get worse.”* (Interview 1, 2018).

Interestingly, one respondent was of the view that informal settlements are an easy way out for low income earners, because this will enable them to construct alternative housing that they can afford and maintain compared to renting. To this, the respondent referred to Rosh Pinah, which is claimed to have more informal settlements compared to Oranjemund and is viewed as a progressive town in terms of social and economic development with a high population.

#### **4.7.2 Economic development prospects**

During the interviews, it was established that Oranjemund has great potential, which can be harnessed to grow and sustain the town’s economy.

*“Social and economy is dependent on mining but now has to move away from dependent to being independent.”* (Interview 8, 2018).

These opportunities were identified in different sectors and respondents explained how these can benefit the town. Even though some respondents were convinced that some opportunities are not feasible, given what they believe is a small population, the majority of the respondents believed that with good investment, these opportunities are practical and feasible and should be given consideration, as this could be what the town needs to drive the economy and grow its population size.

*“Strategy for future development needs to be done right in order to be successful and to also prevent further damage to the economy.”* (Interview 8, 2018).

Some respondents reported that some of the identified opportunities are short term and do not require huge capital, while at the same time, long term opportunities should be encouraged to support any investment made.

*“Studies are being done to investigate alternative social and economic opportunities to replace mining.”* (Interview 4, 2018).

#### **4.7.2.1 Infrastructure and housing**

It emerged that investment in infrastructure presents great potential in Oranjemund. The majority of the respondents felt that with the current limited health, education and accommodation facilities, it is a non-starter for development. The respondents believe that once infrastructure is expanded and that the pending selling of properties is finalised, this will kick-start the property and construction industry, as residents will begin to develop and renovate properties. One respondent noted that as soon as this happens, it opens doors for brick makers, hardware stores, create employment and the local authority will also benefit from revenue, which currently mainly comes from the mine.

*“Property sells is important in the future development of Oranjemund, for example the town can be like Henties Bay where people buy retirement properties.”* (Interview 11, 2018).

*“By building a school and general hospital to provide more services to the community will help.”* (Focus Group 1, 2018).

In addition, most respondents reported that Oranjemund is an ideal place for holiday makers and retirement villages and that it is home to a minority of the town’s current population who will not want to move out even if the mine ceases operations. A marginal number of the respondents reported that some mine workers have spent all their lives in Oranjemund and the opportunity to buy properties and the development of more infrastructures to support lifestyle living will encourage more people to stay in the town, while at the same time attract people from outside the town. The respondents maintained that the lack of accommodation infrastructure is a deterrent for visitors and tourists and this needs to be explored for further expansion and development.

#### **4.7.2.2 Agriculture and aquaculture**

Some respondents reminisced about how in the past they used to do agriculture at a small scale, which was supplying produce to the local supermarket. The respondents believed that agriculture will be Oranjemund’s main economic driver given the availability of land and water from the Oranje River.

*“There is potential in agriculture. Agriculture business needs to replace mining.”* (Focus Group 4, 2018).

Some respondents reported that agriculture is a mass employer and could be on the way to replace mining. Interestingly, one respondent claimed that agriculture alone is not sufficient, because for every one mining job, it requires three jobs from any industry to replace it. This was attributed to high salaries and wages offered by the mining industry in Namibia.

Another respondent was confident in the industrial infrastructure in Oranjemund, which could also be used to support the processing of agriculture produce from Oranjemund and even the neighbouring town of Rosh Pinah.

*“Rosh Pinah has more space by the river but agricultural produce can be processed in Oranjemund where some of the mine infrastructure can be used.”* (Interview 8, 2018).

A marginal number of the respondents were of the view that aqua-culture is also another venture that the town should consider. To this, the respondents cited that Oranjemund will benefit from the Oranje River which is in close proximity.

#### **4.7.2.3 Retail industry**

Of concern by the majority of the respondents was the lack of limited choices in the retail sector. The respondents felt that this sector has potential to expand to fill the gap in the market by providing easily available goods and services. The respondents also felt that this will also bring job opportunities and a generation of income for the residents, while at the same time reduce the amount of money that flows out of the area.

*“Bring shopping malls to contribute to employment creation and reduce the dependency on few shops for products to reduce prices of goods.”* (Focus Group 3, 2018).

#### **4.7.2.4 Diamond cutting and polishing**

The majority of the respondents reported that even though diamond mining takes place in Oranjemund, it is processed outside the town and this could be another source of income if pursued. They felt that it's about time there are activities on value addition on diamonds happening in Oranjemund. The respondents believed that this is feasible for Oranjemund, because the raw resources are produced in the area. The majority of the respondents were convinced that this will create an investment that will not only benefit the community through infrastructure development, but job creation and attraction of more investment and a possible influx of people to Oranjemund.

*“Government should add value and bring industries for diamond cutting and polishing to create more jobs which will attract more people.”* (Focus Group 1, 2018).

*“No value addition for diamonds in Oranjemund (polishing and cutting) which could be another income stream for residents.”* (Interview 5, 2018).

#### **4.7.2.5 Tourism and hospitality**

It was established that tourism was the most alternative economic activity proposed by most respondents as it was viewed to have the most potential in Oranjemund. The respondents attributed this to the unique environment and the town's location in the national park, which most respondents viewed as an advantage for Oranjemund in terms of economic development. A marginal number of the respondents were of the opinion that tourism is a self-sustaining sector, while some felt that tourism may not be sufficient to make a significant contribution to the economy of the town.

*"Tourism will increase population, permanently by attracting people and temporary through tourists who will visit the town."* (Interview 2, 2018).

*"If the Ministry of Environment and Tourism gives out concessions, the town can take advantage of tourism even though concessions require high capital."* (Interview 9, 2019)

On the other hand, the majority of the respondents felt that even though tourism presents a huge potential for the area, it is not being prioritised, pointing to the lack of tourism accommodation facilities and activities in the area, which needs consideration. One respondent stated that tourism could be strengthened by creating cooperation between the Karas Region and Northern Cape in South Africa. Photography and art was one of the tourism activities identified by a marginal number of respondents. The respondents were also of the view that the combination of the coastal scenic views, the Ramsar site and the flora and fauna found in Oranjemund, makes the town an ideal tourist destination. A marginal number of respondents reported that currently Oranjemund has little to offer tourists in terms of products produced in Oranjemund, which is another avenue that remains untapped.

*"Get a new shipwreck museum building to attract tourists and by this accommodation facilities will be expanded and improved at the same time."* (Interview 2, 2018).

#### **4.7.2.6 Industries and factories**

There was a general view from the majority of the respondents, supporting the expansion of industries such as brick making and repair works in the area. The respondents were convinced that this will promote entrepreneurship and export of locally produced goods and products.

*"Investors should come, this way jobs will be created."* (Focus Group 4, 2018).

*"Bring other industries to contribute to the economy."* (Focus Group 6, 2018).

To this, the majority of the respondents cited the location of the town as an advantage as it is located at the border between Namibia and South Africa. In addition, the respondents believe that if the current border is expanded and upgraded, the town will benefit from export activities. Furthermore, the respondents reported that development of a port is critical to the

manufacturing industry, as it will strengthen ease of access into the town, which will promote trade activities for the town.

#### **4.7.2.7 Learning institutions**

Some of the respondents were concerned about the lack of training facilities in Oranjemund and were of the view that training is critical to achieving development growth in the area. Lack of training and capacity building was identified as a hindering factor and the majority of the respondents maintained that most of the youth are not well equipped and lack skills for opportunities that may be brought to the town. One of the respondents made reference to the old mine equipment that could be donated by the mine to the community for training and skills transfer purposes, as a starting point.

*“A training centre is important and there is useful equipment owned by the mine which can be channelled into this. It’s a short term opportunity and requires less capital.”* (Interview 7, 2018).

The respondent went on to say that training is a short term investment opportunity and does not require a lot of capital. A marginal number of the respondents were also of the view that vocational training should be prioritised in the area.

*“There are no jobs for unskilled people. These people need training to be able to qualify for employment.”* (Focus Group 6, 2018).

On the other hand, some of the respondents reported that Oranjemund could be turned into a university town and they believe that this self-sustaining sector will activate the transport, retail and property sectors in the town, as these sectors are basic necessities for students.

#### **4.7.2.8 Renewable energy**

A marginal number of respondents reported that renewable energy is another industry that can be pursued. The respondents made reference to the wind power plant similar to the wind farm in Lüderitz, as a starting point.

*“The mine should be obligated to build a renewable wind and solar energy plant.”* (Interview 5, 2018).

Some of the respondents were convinced that this is an opportunity for the mine to invest and leave its landmark legacy for Oranjemund, which will contribute to the economic development of the town, even after the mine ceases operations. The respondents cited the strategic location of the town as an added advantage, because the town can export surplus generated power to other towns in the south central and north of Namibia and even to South African neighbouring towns.

#### **4.8 Local authority; the saving grace**

The respondents felt that as the mine declines, there is now more focus from stakeholders to accelerate alternative economic development activities led by the local authority. During the interviews, there were general views that if the decline in mining happened in the absence of a local authority, the situation could get worse. However, the existence of a local authority helps because part of its mandate is to ensure that there are more dynamic activities taking place to stimulate economic growth in the area.

*“With the existence of the local authority; helps to ensure that there is more dynamic economic activities happening in town and these are accelerated which stimulates economic growth”* (Interview 11, 2018).

The majority of the respondents felt that they don't see tangible developments by the local authority, but believe these will manifest with time. Apart from providing municipal services, serviced land, water, electricity and refuse removal, the local authority also has the responsibility of provision of education and health facilities, promotion of tourism, promotion of investment and stakeholder engagement. A small number of the respondents said there is more confidence in the future of Oranjemund now than ever, after making reference to the Tourism and Business Networking Conference, hosted by the Oranjemund Town Council in November 2018. The respondents were adamant that Oranjemund will not become a ghost town like Kolmanskop.

*“The town council needs to find solutions to the accommodation issues since it's the responsible local government in town.”* (Focus Group 5, 2018).

*“The town council should focus on bringing changes, the leadership needs to do something.”* (Focus Group 5, 2018).

#### **4.9 Conclusion**

This chapter described the analysis of the data collected during fieldwork. The findings gave an insight of the views obtained using semi-structured interviews held with local communities, business people and stakeholders who were represented by the mine leadership, mine union, government ministry and non-governmental organisations. Due to the dynamic nature of participants, divergent views were expressed and captured verbatim. The data analysis was presented in the form of themes which relate to the study objectives and questions. The findings presented in this chapter are presented in chapter five where they are discussed in alignment to the research objectives and questions.

## **5 CHAPTER FIVE: DISCUSSION OF THE RESULTS**

### **5.1 Introduction**

As the previous chapter presented the findings of the study, this chapter discusses the findings of the research while presenting them in line with the objectives of the study while at the same time linking the findings to existing literature in line with the topic under investigation. The categories of respondents is divided into community level, business or private sector and stakeholders which is made of representatives from the mine leadership, mine union, the local authority, government ministry and non-governmental organisations. The distinction between the groups was necessary to underscore the extreme degree of alienation of basic positions and experiences of the participants.

### **5.2 Mining and local development**

#### **5.2.1 Local community**

According to the data from local community respondents in Chapter 4, there is evidence that community members have high expectations of the mine's contribution to the local economy of the town. The data revealed that the majority of the respondents were not satisfied. The reasons for dissatisfaction are summarised as follows:

- Lack of significant infrastructure development - Even though there is basic infrastructure in the area, the majority of the respondents complained about health, accommodation and education infrastructure facilities, which are not adequate and have not been upgraded to match the size of the population. According to the Oranjemund Town Council ([OTC], 2018) the backlog of infrastructure in the town ranging from residential, tourism and business premises is of great concern and needs to be addressed by the local authority in collaboration with other stakeholders.
- Exclusion from development - The data also revealed that community members who do not work for the mine felt excluded from sharing in the economic development benefits in the area, as the development is only benefitting the mine employees. The respondents felt that they were not sufficiently compensated in terms of incentives by the local mine as they expected. This is confirmed by Schüller, et al., (2016) who state that many communities in mining areas experience huge negative social impacts from mining including loss of livelihoods emanating from the lack of community involvement.

Given the above, a small number of the respondents acknowledged efforts by the mine, aimed at improving social and economic development in the town. The following were the findings:

- Accommodation – The respondents here were referring to the time before the mine handed over the town to the local authority in the area. During that time, the mine was responsible for providing free basic services of accommodation, water and electricity, even though residents, who were not employed by the mine, still paid minimal affordable

rent. The respondents also maintained that accommodation during that time was easily accessible and available to everyone.

- Infrastructure – The respondents referred to the new road between Oranjemund and Rosh Pinah, which was not of a good standard for a long time and Oranjemund was difficult to access. Furthermore, the respondents referred to the existing private hospital, accommodation and other facilities in the area as being of good standard even though quantity is an issue.
- Employment – The respondents recognized the role of mining in creating employment in the area, which is seen as the main contributor to uplifting community livelihoods. However, the respondents complained that they compete for local jobs with people coming from outside the town. This finding reveals that a local procurement labor plan is important, which will demand specific attention and careful management of employment issues by employers in mining towns.
- Promotion of service sector and small and medium enterprises – What was referred to here is the creation for businesses that serve the population in the town and these services are privately owned and run in response to the demand of these services in the town.

These findings suggest that mining brings both negative and positive development to its host communities as Muntingh (2011, p.31) states that “mining can have both positive and negative consequences in and on local communities”. According to Muntingh (2011), mining companies provide infrastructure varying from schools, clinics, housing and roads. Mines are also known to be a source of major employment for local communities which in return improves standard of living for communities. In contrast, Muntingh (2011) again argues that even though government receives revenues from taxes and royalties from mining companies for development purposes, in many cases too little of this revenue is ploughed back into the host communities of such mining companies. Rawashdeh, et al., (2016) found that mining activities in Jordan seemed to generally fail to benefit local communities compared to the benefits of the same industry at the national level.

Also, benefits accruing from mining are interpreted different and experienced differently by communities based on the position of each individual community member in the community hierarchy structure. This view agrees with findings of the International Council on Mining & Metals' ([CMM], 2014) report, which found that a study in Sepon showed that when the mine arrived, there was high prevalence in inequality between and within the community that persisted and only declined over time. Even though the inequalities declined, these issues still persisted, much of which was observed livelihoods of the community. Fernandes (2014) found that only a small number of citizens benefitted from the extraction of mineral resources in terms of distribution of wealth. He further states that negative sentiment regarding the mining sector's

interest in making profit while leaving very little for locals, is evident. However, Fernandes (2014) shows that only a small residual share of the inherent value of the mining industry goes to profits. According to Marais, et al., (2018) more often, health and education services are commonly provided while social support and community building are often derelict.

### **5.2.2 Stakeholders**

The stakeholders presented here include the local authority, government ministry, non-governmental organisation, the mine leadership and mine union in the study area. The majority of the stakeholder respondents were positive about the role the mine is playing in the area. The findings reveal that job creation remains an important aspect in development of the town. In addition, the data revealed that the mine's corporate social investment arm is active in provision of sponsorship towards community health programmes, schools and community related projects. Another critical finding was the maintenance and management of infrastructure, parks and open spaces carried out by the mine. According to Kemp (2009), mining is likely to have potential to positively contribute to the development of a community or town. In support of this Schuler, et al., (2016) state that job creation and infrastructure development make up some of the major contributions by the mining towards socio-economic develop. These findings assert the notion that mine operations and possible mine closure contribute both negatively and positively to the social and economic development aspects of its locality.

### **5.2.3 Business community**

According to the findings from the business community in chapter 4, most businesses originated in Oranjemund by residents who have been living in the area for a long time. This shows that they understand the economic dynamics of the town and are well-aligned to the patterns of the market to better place their businesses. The data from the respondents also reveals that the majority of the businesses in Oranjemund are privately owned which signifies the importance placed in business ownership and entrepreneurship culture. The findings from the interviews also revealed that respondents are content with what is currently available in terms of infrastructure. From the data, one aspect was clear, the dependency of the businesses on mining operations and its activities as most tenders and contractors are still offered by the mine. However, according to the World Bank (2002) outsourcing is an important aspect for both size and sustainability of the economic impact resulting from mining operations. Outsourcing is seen as important because it is a key source for entrepreneurial development. Furthermore, the knock-on effects of outsourcing are much larger if there is substantial outsourcing. A marginal number of respondents registered their dissatisfaction in how the duration of tenders and contracts has been reduced which is seen as a strategy by the mine to reduce costs and not have long-term financial obligations.

### **5.3 Perceptions of community on mine downscaling**

#### **5.3.1 Views of the local community**

The data revealed that the majority of the respondents do not fully understand mine downscaling and what it means for the socio-economy of the community. The study revealed that there is confusion among community members due to lack of information and involvement in development matters of the town. The findings also show that even though the community does not fully understand the concept of downscaling and socio-economic development, the community perceives the ongoing downscaling to have a direct effect on the economic development of the town and loss of employment while viewing this as posing a risk to the future development of the town. Perceptions at the community level vary but mine closure is strikingly seen as an obstacle to the economic development that residents have enjoyed for several decades and is viewed as the making a ghost town. According to Muntingh (2011), unemployment and desperation among other issues brings the belief within communities that mining entities are viewed to have limitless resources and are not doing enough to better the lives of the local communities.

The community views are essential considering the negative publicity surrounding the downsizing of the mine operations in Oranjemund and the broader mining industry. Lack of understanding and knowledge of downscaling, with regard to socio-economic development, was evident. The findings also reveal that there is increased suspicion and mistrust among communities and the mine and stakeholders. Overall, the study findings show that there is a negative perception from the local community. According to Sheldon (2014), local communities worry because they feel mine closure is a severe blow to the economic development of a mine town.

#### **5.3.2 Views of the business community**

The findings show that there is a general understanding of mine downscaling at the level of business owners in the study. The research analysis also revealed that mine downscaling has negative consequences on the general population of Oranjemund particularly on business establishments. The main reason for this is the dependency of the economy and population on one source of income, which will affect businesses and the economy. The results also revealed that even though there are negative consequences experienced, the business community is confident in the future prospects of the town even with the ongoing downsizing of operations by the mine.

The data also revealed that the fewer people employed in the town, the less gross income and more people will not be able to pay municipal services. From the business community's point of view, all corners of the town will be negatively affected and citizens will need to device coping mechanisms to survive until the economy of the town improves. The majority findings show that

the process being undertaken by the mine to downsize mining operations was hastened without proper consideration for the short and mainly long-term consequences for the community.

### **5.3.3 Views of the stakeholders**

In order to address perceptions, the stakeholders referred to include the local authority, government ministry, mine union and mine leadership as well as non-governmental organisations. The presented data shows that the respondents were more concerned about the uncertainty of the sustainability of the town post mine closure. The data revealed that the mine and stakeholders do not have the required time to transform the town from mine driven economy to a diversified economy within the remaining three years life of the mine; closure is projected for 2022 based on current scale of operation. This is in resonance with OMD 2030 (2017), which states that transforming a town takes approximately 10-15 years. This shows that the mine will close operations before the economy becomes self-sustaining and presents a risky scenario for the survival of the town post mine closure. It was also found that the speed at which the mine withdraws from the area is likely to have huge negative social and economic repercussions. Another finding is that continuous support of the development of the town, even when the mine ceases operations, will ensure a stable economy until it is independent of mine activities. In their study, Stacey et al., (2010) state that there is an increasing ethic, which requires mines to leave behind communities that benefit from developmental opportunities beyond their closure.

Another interesting finding is how much the town will still depend on the mine during transformation until such a time that alternative source of income, which can drive the economy, are identified and at advanced development levels. This suggests that there is no guarantee in the sustainability of the town post mine closure, which brings the issue of sustainability in the space of downscaling of mine towns.

## **5.4 Socio-economic development and diversification**

### **5.4.1 Socio-economic development description**

Based on the presented data, the majorities of the respondents were not satisfied with the socio-economic development and saw potential in the study area. The majority of the respondents described the status of the socio-economy using words such as: *bad*, *negative*, *depressing* and *challenging*. According to these results, the social and economic aspects of the study area are unhealthy. These findings suggest that there is a high dependency in the study area on mining activities, as results show that the economy declines along with the reduction in mine operations. This is evident from OMD2030 (2017), which states that Oranjemund has survived solely on the mining of diamonds for over 80 years. The results further indicate that there is a high level of desperation and need for economic diversification in the area. This study also found that social infrastructure in the study area remains poor even though significant investment has, in this aspect, been made in the past. According to Marais, et al., (2018), the

most popular effects due to downscaling include ageing and depopulation, reduction in living standards and community instability.

Andrew-Speed, et al., (2003) states that decline in mine operations always have immediate and significant negative economic consequences in the community where the mine is operating. Putting it simple, the resulting negative economic effects take the form of removal of some or all of the positive contributions made by the mine during its life. These are likely to include employment in the mine, spin-off economic activity, physical infrastructure and social services among others. Any reduction in these services which form basic components of life will not only affect economic strength of a community but will pose substantial risk to the decline of social aspects of a community. The common symptoms of a decline in these components range from unemployment, deteriorating infrastructure, failing social services and an increase in crime. Andrew-Speed, et al., (2003) further states that during mine closure, three entities suffer economic loss; the mine company loses investment and future cash-flow, the local government loses tax revenue and workers lose their livelihood, be it residents or migrants. This trend shows that Oranjemund is not spared from immediate shocks that mining towns are faced with particularly during mine closure.

#### **5.4.2 Alternative income sources**

Even though the respondents listed additional sources of income besides mining, the findings indicate that the mine was the majority employer in the area and the most favored employer due to perceived high salaries and wages offered. These assertions are in line with the study by Abrahamsson et al., (2014), who in their study found that mining companies often employ a large number of the local labor force. The alternative sources of income listed by the respondents were both formal and informal sources, which include: government institutions; retail; hospitals; schools; lodges; cashshops (vendors and shebeens) and domestic work.

The research analysis revealed that job opportunities in the study area are diminishing, due to the downscaling of the operations of the mine. According to Marais, et al., (2018), due to the fact that mining settlements tend to be isolated and situated in remote locations, this has negative implications on economic diversification of these areas. Marais, et al., (2018) states that having a diverse economy goes a long way in mitigating the effects of decline in mining resources. Mining settlements more than often do not possess skills that are employable outside the mining industry therefore employment after being retrenched is difficult. In support, Marais and Atkinson (2006) confirm that majority of mine workers specialise specifically in mine operations therefore making job seeking for them outside the mine sector difficult.

## **5.5 Mine downscaling and socio-economic development**

The consequences of downscaling were assessed per category of respondents, grouped into local community, business community and other stakeholders comprising of the mine leadership, local authority, mine union and the ministry.

### **5.5.1 Local community**

As it is commonly known, production and expenditure when a mine goes into the last stage of its life cycle is reduced among other things. The research data presented in Chapter 4 draw attention to several common negative effects of downscaling on the social and economic development on the local community in the study area. According to the findings, loss of employment both in the formal and informal sectors was identified as a challenge faced due to the ongoing downscaling in the area. This was also linked to loss of income and consequently the inability to pay for accommodation and municipal services as it was revealed. As such, it was found that the living standard of community members was declining in the community and required adjustment. In Marais 2013b, it is shown that employees of mines usually struggle to pay municipal services because such communities are used to receiving subsidized or free services by mining companies which leads to a drop in the standard of living for such communities. As can be seen from the story of the town of Rooiberg by Godsell (2011), the town was not integrated into local government where a local authority would be responsible for the provision and maintenance of infrastructure of the town, instead this was done by the mine cheaply as such the town's dependency on the mine was big.

Analysis of the findings also reveals that there is an observed increase in criminal activities in the community. This is in line with Marais (2014) who states that community problems that result from mine downscaling include escalation in crime levels for mine communities. Another finding reveals that the competition for jobs in the community is making it difficult for job seekers, particularly unskilled job seekers to find employment. This is in resonance with Marais (2014) who reports that as a mine systematically continues to lay off workers during downscaling of operations beginning with temporary and unskilled workers, the reduction in fixed term workers together with out-migration of laid off workers leads to competition for the limited number of skilled jobs that may still be available.

### **5.5.2 Business community**

The findings from the business community respondents indicate that the negative consequences have not spared this sector. According to the majority of the respondents, increased out migration of the population and loss of skills and potential income are just some of the consequences the business community has observed in the face of the ongoing mine downscaling. As a result the market has shrunk and businesses are not expanding. What's more, it was also found that some of the businesses are affected by the introduction of municipal bills which is something new for them. Marais et al (2017) confirms this by stating that

in most cases, failure in sustaining an economy once mine operations stop always leads to population out migration among other effects. Adding to this, Marais, et al., (2018) state that small non-mining businesses face challenges during downscaling because the population that is not directly involved in mining gets displaced. Some of the findings of the study show that there has been a reduction in income which consequently influences the buying power of the community negatively and loss of clients and income. Marais and Atkinson (2006) suggest that it is important to recognise the effects of mine downscaling on local businesses and refer to the example of Virginia in the Free States in South Africa which showed that businesses suffered the consequences of mine downscaling until they were not able to function anymore. Industries that give services such as transport for mine workers and the community at large are bound to completely die. In addition, small and micro-enterprises are negatively affected because of the loss of steady income and out-migration which translates into a reduced consumer base and at the same time reduced buying power from the community. This is likely to lead to downsizing of businesses in the town.

### **5.5.3 Stakeholders**

The majority of the respondents in this category identified several effects as a result of mine downscaling which included loss of potential income and loss of skilled people which was attributed to out-migration of people from the town. According to Marais and Atkinson (2006) community members with capacity and knowledge to mobilise community action and to promote local development are likely to relocate to a different area once a mine closes. This scenario is also in agreement with Abrahamsson et al., (2014) who found that smaller and isolated communities experience demographic changes both during mine 'boom' and mine decline. Furthermore, a study by Sheldon (2008) revealed that once mineral resources are depleted, the closure of a mine is likely to cause distress to a community and even the social and economic collapse throughout an area. The findings reveal that there is less focus on short term interventions in the area to cushion the effects of the ongoing downscaling even though outmigration is becoming evident while more focus is on long-term solutions to the possible impacts of mine downscaling as seen with the OMD 2030 which focuses on the long-term strategies.

## **5.6 Risks, threats and opportunities for future development**

### **5.6.1 Risks and threats for development**

The majority of the respondents showed uncertainty in the future of Oranjemund post mine closure, given the current condition of the socio-economic development and identified the following potential threats to the future development of the area:

- Rising unemployment – The respondents were worried that the observed loss of employment in the study area will worsen the situation of the economy. According to Marais and Atkinson (2006) the quantity of available jobs is reduced drastically during

mine closure. For example in Russia and Romania unemployment resulted in general reduction of living standards, expansion of the informal sector which is known for lower wages and lack of social security of mining communities among other issues. Furthermore, CDS (2006) states that lack of employment presents to be one of the most critical effects resulting from mine closure which can be felt even five or more years after the downsizing in the workforce of local mines. According to Marais and Atkinson (2006) the chronic under and unemployment experienced in Ukraine and Romania led to a general deterioration in living standards.

- Lack of infrastructure – The mining community complained about the lack of adequate infrastructure, which is believed to be a contributing factor to repelling people. The respondents also referred to the imminent pending sell of properties by the mine which is causing the delay in people owning properties. As such, residents are not obligated to stay in Oranjemund once they lose their jobs.
- Low number of retail in the study area – The respondents expressed concern over the lack of investment into the retail sector, which makes the provision of goods and services to be unaffordable for the residents. In order to understand how this impacts future development, Marais, et al., (2005) are of the opinion that the decline in mining resources could cause infrastructure like shops to eventually close and this can slow down development of any possible alternative form of cash economy. In the case of Oranjemund, the closure of the few retail shops available could worsen the economy situation of the town as it is.
- Lack of investment and market size – The argument here was around the fact that the outmigration of people is reducing the population size and consequently the market and buying power of the community. Furthermore, a small population means the market will not be able to support businesses and will not attract investors as the market size may not be viable for them.
- Location of the town - This potential threat specifically referred to the fact that the town is seen as isolated from other towns and given the small sized population; investors may not be attracted to the area for investment.
- Lack of skills development institutions – It was argued that mining communities need relevant skills in order to be employed in the mining industry, and at the same time have skills that prepare communities for work outside the mining industry so they could be employable in other job markets when the mine ceases operations.
- Emergence of informal settlements – The sentiments by the respondents were that there is a high possibility of mushrooming of informal settlements due to loss of income coupled with the existing issue of lack of accommodation and housing. This was cited because the respondents from the community groups felt that informal settlements provided a solution for low income earners as they are not favored by the persistent lack

of housing. The mining communities have approached the local authority regarding purchasing of erven for development of housing, but the process is cumbersome. According to Thwala, et al., (2010) the lack of provision for housing is likely to result in development of informal settlements.

### **5.6.2 Prospects for economic diversification**

Among the factors that would promote economic development in the study area as identified by the majority of the respondents included in the study, are the following; development and expansion of infrastructure and housing. This proposal is in agreement with Abrahamsson et al., (2014) who state that attractive housing opportunities and the built environment are essential material factors for social sustainability; value addition by establishing diamond cutting and polishing industry. To support this, Marais, et al., (2018) link the staple theory in analysing the role of mining and development. This theory incorporates what is termed as the 'the physical geography of natural features with the theory of economic linkages to explain the spatial pattern and institutional structure of the development and growth in regions'. This means that economic development and growth is supported from the export of staple products. According to Marais, et al., (2018) staples are natural products which require value addition before they are exported. As such, economic growth will result from direct investment in the mining sector and consequently spatial distribution of development connected with resource abstraction.

The findings show that in order for Oranjemund to survive beyond mine closure, the following sectors need to be investigated and harnessed, namely investment in agriculture and aquaculture sector, expansion of the retail sector and manufacturing and industries, promotion and expansion of tourism and hospitality sector. In terms of tourism SPC (2015) reports that Oranjemund stands to benefit positively from tourism due to its close proximity to three major tourism/conservation attractions which are namely the Sperrgebiet National Park, the Richtersveld Transfrontier Park and the Orange River Ramsar site. The findings also reveal that the establishment of vocational training and learning institutions are critical to the future development of the town as well as implementation of renewable energy projects. In agreement with the community aspirations, OMD 2030 (2014) reports that Oranjemund is to eventually replace mining with several small and medium sized sectors which include tourism, manufacturing and agriculture among others. In support, Marais and Atkinson (2006) report that the re-use of mine infrastructure post-mine closure is a popular trend. They further describe the successful case of Koffiefontein which captures one of the many examples where mine infrastructure was re-used for military purposes and construction of a dam for agricultural purposes.

It is evident that work has been started to diversify the economy of Oranjemund post mine closure. "We are starting now, growing these enterprises organically to become independent of

the mining operations so that the enterprises and the town can be sustainable beyond mining” (OMD 2030, 2017, p.9).

## **5.7 Conclusion**

Using thematic data analysis, the data was categorised into five themes. The first theme provided a picture where mining plays both a positive and negative role towards development. The second theme gave an overview of how the community role players, comprised of the private sector (business community), government ministry, local authority, non-governmental organisation, mining company and mine union representatives, perceived the ongoing downscaling in comparison to socio-economic development in the study area. This was followed by the third theme which dealt with socio-economic development in the study area while the fourth theme focused on mine downscaling and socio-economic development. The last theme focused on risks and opportunities which form an enabling environment for the success or failure of the mine town post mine closure.

## **6 CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS**

### **6.1 Introduction**

The research’s aim was to analyse and understand the socio-economic effects of mine downscaling and closure for local communities in Oranjemund. The main objective was to gain understanding of the influence of mining operations on the social and economic aspects of the study area. The significance of the research was based on the notion that mining operations are the key economic drivers in their localities, while at the same time considerably improving the social aspects of their host communities during active operations of the mine. However, what becomes of the socio-economic development of these communities during mine downscaling and post mine closure, remains a serious concern and there is evidence that socio-economic conditions of mining dependent economies are significantly affected by mine downscaling in Oranjemund.

The following objectives guided the research study:

- a) Build an understanding of the role played by the mine sector with regards to socio-economic development in the study area.
- b) Assess the potential socio-economic opportunities and risks posed by mining downscaling in Oranjemund.
- c) Determine the legislative frameworks on mining and mining closure in Namibia.
- d) Investigate the current climate of social and economic development in Oranjemund in the face of mine closure/downscaling.
- e) Understand community perceptions on socio-economic development and mine downscaling in Oranjemund.

## **6.2 Conclusions and recommendations**

This study drew its conclusions from the responses obtained from the mining communities in Oranjemund.

### **6.2.1 Mining and local economic development**

Based on the findings presented in Section 5.2 of Chapter 5, an overall picture emerges of the role of the local mine in the development of Oranjemund. This study highlights and acknowledges that the mine contributed positively to the social aspects and economy of the area. However, the research data reveals that its contribution remains low, given the period (1936-date) the mine has been operational in the study area. The trend from this study is that, the mine plays a significant role; however this role has declined over the years particularly since the establishment of the local authority in the area and projected mine closure. In the course of the discussions, it is demonstrated that the general members of the community are not involved and not informed about the role the mine plays in uplifting the status of the standard of life in their area, hence creating unmet expectations. This state of affairs has left most locals feeling that they are not benefitting from their natural resources.

It can also be concluded that even though considerable contribution has been made by the local mine towards socio-economic development in Oranjemund, it does not fully meet the notion that mines are the drivers of local economies in their areas of operations because apart from the mining industry, the mine has not fostered significant economic drivers in the area to sustain the economy even post mine closure. Another critical aspect that also arises from the respondents' view of the benefits of a mine in their locality is one that relates to social responsibility of mines. Community members are of the view that the mine has the responsibility to give back to the host community, because the operations of the mine take place within their community jurisdiction. The identified means of giving back to the community include through investment in infrastructure, provision of better health and education facilities, creation of job opportunities, and financing local small and medium enterprises.

A comprehensive literature review showed that mining contributes both positively and negatively on the livelihoods of communities within which they operate. Mining plays a positive role through job creation, infrastructure development, such as roads, schools and health facilities. Mining in turn further induces the establishment of other industries and small businesses, such as retail and taxi businesses. The mining sector further contributes to the national foreign exchange income of countries and brings technological advances and development of skills transfers.

The lengthy custom of mining in Namibia has powered a growth of prosperity in the country's economy. This undeniably has remained and remains to be the sole most significant role quarrying plays in the economic development of the country. There is a need to strengthen social responsibilities of mining entities and promotion of direct capital investment into infrastructure and capacity building of local communities. Mining communities should be allowed

to benefit directly from mineral extraction in their areas by participating in mining activities from implementation of policies that prioritize host communities for employment and tenders among other initiatives. This is one way that the community's economic livelihoods could be improved. It is imperative for the extractive industry to align their development roles to the expectations and needs of communities and involve the community in development processes.

### **6.2.2 Mine downscaling community perceptions**

Based on the evidence presented in section 5.3 of chapter 5, it is clear that the community has a negative perception towards mining downscaling in general, because they feel it is negatively affecting the socio-economic condition of the community. It is imperative to pay attention to the response by the local community respondents who are likely to be the most affected by the downscaling, because they are in a very critical situation. This hostile attitude is understandable, because these local respondents form a group of those whose livelihoods will severely be affected due to their lack of resources to cope with the negative consequences to bounce back. The respondents' general understanding and knowledge of the impact of mining on the socio-economic development was not high.

The main concerns highlighted by the community have to do with the fear for the future sustainability of the town. Community respondents fear that the downscaling of the mine and subsequent closure will have considerable negative effects on the economy and that this compromises living standards and conditions of the community. Another important aspect that emerged from the respondents relates to the short time remaining before the mine closes down. It is recommended that mining companies should start actively engaging community members to create awareness of planned downscaling and closure of mines before any job losses take place. This would give the community and especially mine workers time to prepare ahead of time while at the same reduces social shock to the community.

The community members feel that the timing of the downsizing of the mine operations is not happening at the right time, because the mine is projected to close in 2022 whereas town transformation takes at least 15-20 years. This response is significant in that the town has since relied on mining for social and economic growth. In order to address negative views of the community towards downscaling, communities should be involved in the development and implementation of mine closure plans and from time to time be engaged in any changes and improvements to plans. In addition, the mining industry should strengthen communication and information dissemination to engage communities and create awareness.

### **6.2.3 Conditions of socio-economic development in Oranjemund**

As seen from the evidence presented in section 5.4 of Chapter 5, in terms of socio-economic development in Oranjemund, respondents described the status of the economy as negative. The majority of the population work directly or indirectly for the mine. Access to housing and health care is limited in the area. The conditions of social and economic development showed

that the level of development in the area is not progressive. The state of the economy is declining at the same time of the downscaling of the mine operations. The social infrastructure is generally poor and inadequate and much needs to be done to expand and improve the infrastructure and the provision of basic services such as health care and education.

The results from the interviews from the focus groups and individual key informant interviews confirmed the above with respondents indicating that there is a desperate need for development within the community. They also emphasised that one of their greatest concerns is the lack of investment from the mining company observed, which could lead to more dependency on mining operations which are downsizing. It was established that the level of economic development in the study area does not guarantee a broad-based socio-economic development. Inadequate diversification of the economy was identified as a major drawback in the way of gainful economic transformation from mine driven to other sectors. This calls for a need to create a favourable environment for development, coupled with strengthened investment into other sectors of the economy.

There is also a need to develop and promote entrepreneurial skills for micro and macro businesses, which can help grow the economy and reduce dependency on mining. In addition, there is a need for stakeholder collaboration to identify and act on identified opportunities that will contribute to economic growth and development of a favourable environment for investors. The mining industry should make efforts to uplift social and economic development in their host communities by ensuring access to quality education, health and housing, as well as safe sanitation hygiene. The study further recommends the need for the local authority in the area to ensure that any developments led by the mining industry in the community is anchored through partnerships with other actors, even from the private sector to ensure sustainability of development. In addition, different stakeholder sectors should also build better relations to be able to develop the area without the mining investments in town.

#### **6.2.4 Mine downscaling and socio-economic development**

According to the findings in section 5.5 of Chapter 5, the main concerns raised by the community members relate to loss of income, inability to afford services and the shrinking buying power. The loss of skills is furthermore highlighted as one of the main fears that respondents have. Community members, specifically the business community, fear that the continuous loss of income will significantly compromise their security and stability. Respondents were also of the general view that the downscaling is accelerating out-migration of the population from the area, which in turn reduces the size of the population. It can be concluded that even though mining can bring about some degree of local economic development, operations and particularly closure, is likely to impose burdens on communities.

### **6.2.5 Risks and opportunities for economic growth**

Based on findings in section 5.6 of Chapter 5 it is evident that there are various opportunities that if introduced into the area, could considerably contribute not only to economic development, but sustainability of the economy as well. It is almost urgent for these opportunities to be developed and implemented. If well implemented, these initiatives will attract investment in the town and increase population size. The opportunities include undertaking value addition of products produced locally in the form of diamond cutting and polishing industries. Furthermore, due to the strategic location of the town, the area stands to benefit from tourism and hospitality industries, which could benefit from both Namibians and South Africans, as well as international travellers. Even though these opportunities exist, it is imperative to be mindful that they need to be implemented as per priority to avoid failure. The lack of stakeholder collaborations could impede the progress of these initiatives, thus it is suggested that key stakeholders in the area form special project vehicles and partnerships with local and international private partnerships, under which to implement the initiatives as they require large capital investment. Furthermore, feasibility studies need to be conducted to prove viability in order to avoid creating white elephants.

### **6.3 Main recommendations**

Base on the findings of the study, it is important to give recommendations which are grouped according to the stakeholder category targeted. It is recommended that:

- The business community or private sector needs to provide support for upcoming and existing businesses through provision of technical support, financial and capacity building through training. When laid off workers receive lump sum amounts of money, training programmes can assist them to invest in businesses.
- Mining companies need to strengthen their communication strategies and create awareness of issues that affect the community. This can be done through periodic community meetings, seminars on the status quo and progress of mining operations and downscaling.
- Mining companies need to work in partnership with local government, private sector and the local community to have a direct impact on communities in which they operate. The roles of the stakeholders such as local community, OTC, NCCI, NGOs and ministries need to be clearly defined in the economic development scope of the town. After an assessment of partnerships formed between local municipalities and mines, Rogerson (2012) found that 81% of the assessed cases showed improvement in terms of skills development, small business development and communication.
- National and local government need to form a suitable institutional mechanism to drive a post-mine closure economy while at the same time provision of institutional and technical capacity is strengthened at the local government within the three years' time frame remaining for the mine to close. Government involvement in policy-making is

essential in ensuring that mining wealth is retained in the country's mining communities to advance the social and economic development of communities where mining takes place. This policy would ensure that the majority of outsourced contracts are allocated to local businesses among other actions.

- The key stakeholders which are OTC, NCCI, NGOs and ministries should formulate and adopt measures which attract investment and the working population to other sectors of economic development in an effort to diversify the economy. In support, Marais, et al., (2005) are of the opinion that a key aspect of successful mine closure planning is the involvement of all stakeholders.
- The key stakeholders which are OTC, NCCI, NGOs and ministries should formulate a concise short and long term local economic development strategy which will guide development. At the same time, government and business must jointly upscale their support for development in the area. According to Marais, et al., (2016) local stakeholders are better placed to respond more effectively to development obstacles faced by declining mining settlements.
- Capacity building for community level should be prioritized during the period remaining for the mine to close. Mine closures leave communities at a disadvantage because of their limited capacity and skills and they therefore find it hard to integrate in other sectors of the economy.
- The key stakeholders which are OTC, NCCI, NGOs and ministries should formulate strategies aimed at integrating Oranjemund into the Karas Region and Namibia as a whole. At the same time, agreements should be formed with nearby towns of South Africa as a way to open up the economy of the town and attract investment while at the same time expanding the population. As emphasized by Marais, et al., (2005) planning a single-resource town should be centered on economic needs that incorporate the economic needs and interests of the broader region as well.
- The local authority and the mine should prioritize the sale of property in Oranjemund within the coming six months of which ownership will generate revenue for the local authority and attract investors and population.
- The local authority also needs to prioritize the need for upgrading and expanding infrastructure both residential and business.

#### **6.4 Limitations and scope for future research**

The study looked at the effects of mine downscaling on socio-economic development of a mining town, Oranjemund in this case. The study was limited because of lack of literature and data on mine downscaling and closure in Namibia, more so on socio-economic development. This study was limited to the mining operations in Oranjemund however; a broader analysis extending to other mining localities in the Region of Karas could build a better understanding of the dynamics of indicators for measuring welfare improvement, among others. The following are

the areas for further potential research; there is a need to carry out an economic interrogation, using key performance indicators on a quantitative assessment. Without a quantitative study, it is not possible to create a complete image of the socio-economic effects, resulting from mine downscaling and contribution of mining operations to the improvement of community livelihoods, particularly in mining communities. This study is not an architect study in the area, but has somewhat contributed to the existing body of empirical work, associated with the effects of mine downscaling and closure on socio-economic development. Even though the findings of this research cannot be generalised to other communities, it gives an insight into the issues that the industry is battling with.

## **6.5 Conclusions**

The study investigated the socio-economic effects of mine downscaling on Oranjemund, a mine town which was proclaimed a local authority in 2012. As such, the study explored the effects that result from mine downscaling in a mining industry led economy by investigating perceptions, mine contribution to development, socio-economic development risks and threats of mine downscaling in the area. Furthermore, the study also explored risks and threats resulting from the mine downscaling that can hinder the development efforts in Oranjemund. It is clear that with the current decline in mining operations, there are risks that threaten the future survival of Oranjemund post mine closure. Findings show that the ongoing mine downscaling and the ultimate mine closure will have negative consequences on Oranjemund. However, with the right policies and instruments in place, the economy is likely to improve but requires a lot of work and commitment with high renewed interest from the community to join other sectors of the economy other than the mining industry.

The study concludes by stating that mine downscaling is detrimental to the future development and diversification of mining economy dependent settlements. It can also be concluded that mining contributes both positively and negatively to local economies even though these are interpreted differently by different people and sectors. Furthermore, downscaling is majorly viewed negatively particularly by local communities who view it as synonymous to 'ghost town'. According to Haney and Shkaratan (2003), mining towns, and those settlements dominated by a single industry are most of the time described as "dying towns" following the closure or significant downsizing of the dominant sector in the local economy.

## REFERENCES

- Abrahamsson, L. et al., 2014. *Gender, diversity and working conditions in mining*, Luleå: Luleå University of Technology.
- Ackermann, M., Botha, D. & van der Waldt, G., 2005. Potential socio-economic consequences of mine closure. *The Journal for Transdisciplinary Research in Southern Africa*, 14(1), pp. 1-11.
- Andrew-Speed, P., Ma, G., Shi, X. & Shao, B., 2003. The impact of, and response to, the closure of small-scale coal mines in China: A preliminary account. In: G. Hilson, ed. *The socio-economics impacts of artisanal and small-scale mining in developing countries*. Rotterdam: Balkema, pp. 511-530.
- Awolusi, O., 2016. *Mining sector and economic growth in Southern African economies: A panel data analysis*, Durban: University of KwaZulu-Natal.
- Bartasová, T., 2013. *Zlín and Ybor City: A comparison of two company towns*, Zlín: Tomas Bata University.
- Bernard, H. & Gery, R., 2010. *Analyzing qualitative data: Systematic approaches*. 1st ed. California: Sage Publications.
- Bhattacharjee, A., 2012. *Social science research: Principles, methods and practices*, Florida: University of South Florida.
- Boaduo, N., 2011. Systematic analysis and interpretation of collected data for a research study: A practical methodological framework for writing research report. *Educational Research and Review*, 6(2), pp. 140-146.
- Braun, V. & Clarke, V., 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), pp. 77-101.
- Breen, R., 2006. A practical guide to focus-group research. *Journal of Geography in Higher Education*, 30(3), pp. 463-475.
- Bryman, A., 2012. *Social research methods*. 4th ed. New York: Oxford University Press Inc.
- Castro, M., de Lima, H. & Flôres, J., 2011. *Overview of mine closure in Minas Gerais, Brazil*, Minas Gerais: s.n.
- Centre for Development Support, 2006. *Towards a post-mining economy in a small town: Challenges, obstacles and lessons from South Africa*, Bloemfontein: Centre for Development Support.
- Centre for Science and Environment, 2018. *Namibia: Improving the environmental and social aspects of mining sector*, Windhoek: CSE.

- Cheraghi, M. et al., 2014. Ethical challenges of researchers in qualitative studies: The necessity to develop a specific guideline. *Journal of Medical Ethics and History of Medicine*, 7(14), pp. 2-6.
- Clark, A. & Clark, J., 1999. *An international overview of legal frameworks for mine closure*, Honolulu: East-West Centre.
- Coakley, G., 2000. *The mineral industry of Namibia*, Washington, D.C: U.S. Geological Survey Minerals.
- Coakley, G., 2003. *The mineral industry of Namibia*, Washington D.C: US Geological Survey Minerals.
- Creswell, J., 2003. *Research design: qualitative, quantitative and mixed methods approaches*. 2nd ed. California: Sage Publications, Inc.
- Creswell, J., 2014. *Research design: Qualitative, quantitative, and mixed methods approaches*. 4th ed. California: Sage Publications Ltd.
- CSIR: Environmentek, 2005. *Environmental impact assessment proposed KUDU CCGT power plant at Uubvlei, near Oranjemund, Republic of Namibia*, Windhoek: CSIR: Environmentek.
- David, O., Noah, O. & Agbalajobi, S., 2016. An empirical analysis of the contribution of mining sector to economic development in Nigeria. *Khazar Journal of Humanities and Social Sciences*, 19(1), pp. 88-106.
- Davis, G. & Tilton, J., 2002. *Should developing countries renounce mining? A perspective on the debate*, Perth: Curtin University.
- De Haas, R. & Poelhekke, S., 2016. *Mining matters: Natural resource extraction and local business constraints*, Amsterdam: De Nederlandsche Bank NV.
- Deller, S., 2014. Does mining influence rural economic growth. *The Journal of Regional Analysis & Policy*, 44(1), pp. 36-48.
- Dickson, J. & Bryan, M., 2015. *Responsible mine closure and reclamation*, Vancouver: Teck Resources Limited.
- Dilshad, R. & Latif, M., 2013. Focus group interview as a tool for qualitative research: An analysis. *Pakistan Journal of Social Sciences*, 33(1), pp. 191-198.
- Dubey, K., 2017. *Socio economic impact study of mining and mining policies on the livelihoods of local population in the Vindhyany region of Uttar Pradesh*, Dehradun: Indian council of Forestry Research and Education.

- Elmendorf, W. & Lullof, A., 2006. Attitudes of key informants about open space conversation. *International society of arboriculture*, 32(2), pp. 54-61.
- Elmendorf, W. & Lullof, A., 2006. Attitudes of key informants about open soace conservation. *International Society of Arboriculture*, 32(2), pp. 54-61.
- Enviro Dynamics, 2010. *Environmental impact assessment for the Elizabeth Bay optimization study*, Windhoek: Enviro Dynamics.
- Fernandes, W., 2014. *The role of mining in economic development in Namibia post-2008 global economic crisis*, Johannesburg: University of the Witwatersrand.
- Gibsons, G. & O'Faircheallaigh, C., 2010. *IBA community toolkit: Negotiation and implementation of impact and benefit agreements*, Toronto: Walter & Duncan Gordon Foundation.
- Godsell, S., 2011. Rooiberg: The little town that lived. *South African Historical Journal*, 63(1), pp. 61-77.
- Grbich, C., 2013. *Qualitative data analysis: An introduction*. 2nd ed. London: SAGE Publications.
- Gümüş, N. & Adanalı, R., 2014. The changes in the socio-cultural and economic characteristics of mining cities due to termination of mineral extraction in Turkey: A case study of Keciborlu. *Procedia - Social and Behavioral Sciences*, 120(1), pp. 694-703.
- Halai, A., 2006. *Ethics in qualitative research: Issues and challenges*, Pakistan: The Aga Khan University.
- Haney, M. & Shkaratan, M., 2003. *Mine closure and its impact on the community: Five years after mine closure in Romania, Russia and Ukraine*, Washington D.C: World Bank.
- Heikkinen, P., Noras, P. & Salminen, R., 2008. *Mine closre handbook: Environmental techniques for the extractive industries*. 1st ed. Helsinki: Geological Society of Finland.
- Helmuth, A., 2009. *Economic diversification of a mining town: A case study of Oranjemund*, Rhodes: Rhodes University .
- Herwitt-Taylor, J., 2001. Use of constant comparative analysis in qualitative research. *Nursing Standard*, 15(42), pp. 39-42.
- Hoadley, M., 2009. *Socio-Economic Component of the social and environmental impact assessment report for the Rio Tinto Rossing Uranium Limited Mine expansion project: Socio-economic baseline study*, Arandis: Rio Tinto.

- Institute for Public Policy Research, 2013. *Namibi's new frontiers: Transparency and accountability in extractive industry exploration*, Windhoek: IPPR.
- Institute for Public Policy Research, 2017. *Beneficiation in Namibia: Impacts, constraints and options*, Windhoek: Institute for Public Policy Research.
- International Council on Mining & Metals, 2014. *The role of mining in national economies (2nd edition)*, London: ICMM.
- International Institute for Environment and Development, 2002. *Mining for the future - Appendix B: Mine closure working paper*, England: IIED.
- Ishak, N. & Bakar, A., 2014. Developing sampling frame for case study: challenges and conditions. *World Journal of Education*, 4(3), pp. 29-35.
- Kemp, D., 2009. Mining and community development: problems and possibilities of local-level practice. *Community Development Journal*, 45(2), pp. 198-218.
- Lange, G., 2003. *The contribution of minerals to sustainable economic development: Mineral resource accounts in Namibia*, Windhoek: Ministry of Environment and Tourism.
- Lei, Y., Cui, N. & Pan, D., 2013. Economic and social effects analysis of mineral development in China and policy implications. *Resources Policy*, Volume 38, pp. 448-457.
- Limpitlaw, D., 2004. *Mine closure as a framework for sustainable development*, Johannesburg: University of the Witwatersrand.
- Littlewood, D., 2014. 'Cursed' communities? Corporate Social Responsibility (CSR), company towns and the mining industry in Namibia. *Journal of Business Ethics*, 120(1), pp. 39-63.
- Littlewood, D., 2015. Corporate social responsibility, mining and sustainable development in Namibia: Critical reflections through a relational lens. *Development Southern Africa*, 3(2), pp. 240-257.
- Luborsky, M. & Rubinstein, R., 1995. Sampling in qualitative research: Rationale, issues and methods. *Res Aging*, 17(1), pp. 89-113.
- Lupalezwi, S., 2014. *A legal overview of Namibia's mining industry*, Pretoria: University of Pretoria.
- Mabudafhasi, R., 2002. *The role of knowledge management and information sharing in capacity building for sustainable development: An example from South Africa*, Pretoria: South African Department of Environmental Affairs and Tourism.

- Madushani, H., 2016. Ethical issues in social science research: A review. *Journal of Social Statistics*, 3(1), pp. 26-33.
- Marais, L., 2013. *The impact of mine downscaling on the Free State Goldfields*, Bloemfontein: University of the Free States.
- Marais, L., 2014. The impact of mine downscaling on the Free State goldfields. *Urban Forum*, 24(1), pp. 503-521.
- Marais, L. & Atkinson, D., 2006. *Towards a post-mining economy in a small town: challenges, obstacles and lessons from South Africa*, Bloemfontein: University of the Free States.
- Marais, L., Burger, P. & van Rooyen, D., 2018. *Mining and community in South Africa: From small town to iron town*. 1st ed. Bloemfontein: Routledge.
- Marais, L. & Cloete, J., 2013. Labour migration, settlement and mine closure in South Africa. *Geography*, 98(2), pp. 77-84.
- Marais, L. et al., 2005. *Public finances, service delivery, and mine closure in Koffiefontein (Free State, South Africa): From the stepping stone to stumbling block*, Bloemfontein: s.n.
- Marais, L., van Rooyen, D., Nel, E. & Lenka, M., 2016. *Mine closure, the resource curse and Marikana flu: responses to mine downscaling in Matlosana and Matjhabeng*, Bloemfontein: University of the Free States.
- Marais, L., van Rooyen, D., Nel, E. & Lenka, M., 2017. Responses to mine downscaling: Evidence from secondary cities in the South African Goldfields. *The Extractive Industries and Society*, 4(1), pp. 163-171.
- Maree, K., 2016. *First steps in research 2*. 2nd ed. Pretoria: Van Schaik Publishers.
- Mathers, N., Fox, N. & Hunn, A., 1998. *Trent Focus Group: Using interviews in a research project*, Sheffield: Trent Focus Group.
- Mbwale, L., 2010. *Analysis of Namdeb's turnaround strategy to improve its financial performance in view of declining carats profile*, Windhoek: University of Namibia.
- Mcmahon, G. & Remy, F., 2001. *Large mine and community: Socioeconomic and environmental effects in Latin America, Canada, and Spain*. 1st ed. Ottawa: International Development Research Centre.
- Minerals Intelligence Capacity Analysis, 2017. *Factsheet: Mine closure process (overview of different phases and actions)*, s.l.: MICA.

- Muntingh, J., 2011. *Community perceptions of mining: The rural South African experience*, Potchefstroom: North-West University.
- Nakale, S., 2016. *Determinants of economic growth in Namibia*, Windhoek: National Planning Commission.
- Namibia Statistics Agency, 2011. *Namibia 2011 population & housing census main report*, Windhoek: NSA.
- Namibia Statistics Agency, 2015. *Namibia 2011 census: Migration report*, Windhoek: NSA.
- Nel, E., Hill, T., Aitchison, K. & Buthelezi, S., 2003. The closure of coal mines and local development responses in Coal-Rim Cluster, northern KwaZulu-Natal, South Africa. *Development Southern Africa*, 20(3), pp. 369-385.
- Nowell, L., Norris, J., White, D. & Moules, N., 2017. Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, Volume 16, pp. 1-3.
- Nyakiri, D., 2009. Household data collection for socio-economic research in agriculture: Approaches and challenges in developing countries. *Journal of Social Science*, 19(2), pp. 91-99.
- OMD 2030, 2017. *Unique possibilities*, Oranjemund: OMD 2030.
- Oranjemund Town Council, 2018. *Local economic development strategy: 2018-2022*, Oranjemund: Oranjemund Town Council.
- Osang, E. et al., 2013. Methods of gathering data for research purpose and applications using IJSER acceptance rate of monthly paper publication (March 2012 Edition - May 2013 Edition). *IOSR Journal of Computer Engineering*, 15(2), pp. 59-65.
- Pepena, P. & Wanjik, J., 2003. *Women's participation in mine closure planning for sustainability in Papua New Guinea*, Madang: PNG Department of Mining.
- Pham, T., Bailey, G. & SPurr, R., 2013. *The positive and negative effects of the mining boom – A technical paper*, Sydney: Tourism Research Australia.
- Pietrzela, M., 2013. *Mining and sustainability? Systems and stakeholder analyses of uranium mining in Namibia*, Uppsala: Uppsala University.
- Punch, K., 2006. *Developing effective research proposals*. 2nd ed. Great Britain: Sage Publications.
- Rawashdeh, R., Campbell, G. & Titi, A., 2016. The socio-economic impacts of mining on local communities: The case of Jordan. *The Extractive Industries and Society*, 3(2), pp. 494-507.

- Reiter, B., 2013. The epistemology and methodology of exploratory social science research: crossing Popper with Marcuse. *Scholar Commons*, 4(1), pp. 1-17.
- Rixen, A. & Blangy, S., 2016. Life after Meadowbank: Exploring gold mine closure scenarios with the residents of Qamini'tuaq (Baker Lake), Nunavut. *The Extractive Industries and Society*, 3(1), pp. 297-312.
- Rogerson, M., 2011. Mining enterprise and partnerships for socio-economic development. *African Journal of Business Management*, 4(14), pp. 5405-5417.
- Rogerson, M., 2012. Minind-dependent localities in South Africa: The state of partnerships for small town local development. *Urban Forum*, 23(2), pp. 107-132.
- Schüler, D., Brunn, C., Gsell, M. & Manhart, A., 2016. *Outlining socio-economic challenges in the non-fuel mining sector*, Freiburg: Strategic Dialogue on Sustainable Raw Materials for Europe (STRADE).
- Sharma, J., 2010. The impact of mining on women: Lessons from the coal mining Bowen Basin of Queensland, Australia. *Impact Assessment and Project Appraisal*, 28(3), pp. 201-215.
- Sheldon, C., 2008. *SDN ESW Results Story*, Washington D.C: World Bank.
- Simonis Storm Securities, 2006. *Namibian mining: The economic stronghold*, Windhoek: Simonis Storm Securities.
- Singh, S., 2017. *A comparative analysis of financial guarantee instruments for mine closure relating to the interest of medium sized mines*, Pretoria: University of Pretoria.
- Skeard, J., 2015. Come hell or high water: Identity and resilience in a mining town. *London Journal of Canadian Studies*, 30(1), pp. 90-109.
- Sleuwaegen, L., Coucke, K. & Pennings, E., 2007. *Employee lay-off under different modes of downsizing: Exit, downscale or relocate*, Rotterdam: Erasmus University.
- Stacey, A., Naude, A., Hermanus, M. & Frankel, P., 2010. The socio-economic aspects of mine closure and sustainable development: literature overview and lessons for the socio-economic aspects of closure-Report 1. *The Journal of The Southern African Institute of Mining and Metallurgy*, 110(1), pp. 379-394.
- Stankevica, V., 2015. *Development of mining settlements in Namibia: An investigation into prospects for Rosh Pinah, Klein Aub and Tsumeb*, Windhoek: University of Namibia.
- Struwig, W. & Stead, B., 2001. *Planning, designing and reporting research*. Cape Town: Hnali Venterq1st.

Stubenrauch Planning Consultants, 2015. *Oranjemund structure plan 2015-2030*, Windhoek: SPC.

Sutton, J. & Austin, Z., 2015. Qualitative research: Data collection, analysis, and management. *Canadian Journal of Hospital Pharmacy*, 68(3), pp. 226-231.

World Bank, 2002. *Large mines and local communities: Forging partnerships, building and sustainability*, Washington, D.C: World Bank.

Xavier, A., Veiga, M. & van Zyl, D., 2015. Introduction and assessment of a socio-economic mine closure framework. *Journal of Management and Sustainability*, 5(1), pp. 38-49.

Zobrist, J. et al., 2009. Environmental and socioeconomic assessment of impacts by mining activities—a case study in the Certej River catchment, Western Carpathians, Romania. *Environment Science Pollution Res*, 16(1), pp. S14-S26.

## **ADDENDUMS**

1. Addendum 1: Questions for business
2. Addendum 2: Questions for stakeholders
3. Addendum 3: Interview guide for focus groups
4. Addendum 4: Informed consent for focus groups
5. Addendum 5: Informed consent for business and stakeholders
6. Addendum 6: Ethical clearance letter
7. Addendum 7: Letter from language editor.

## **ADDENDUM 1: SEMI-STRUCTURED INTERVIEWS – FOR LOCAL BUSINESSES**

1. How long have you been operating your business in Oranjemund?
2. What were your reasons for opening a business in Oranjemund?
3. What is your view of the socio-economic development in Oranjemund?
4. What is your view of the current mine downscaling and its impact on socio-economic development?
5. How do you view the on-going mine downscaling in your area?
6. How has the happenings in the economy of town affected your business?
7. How has the changes in Oranjemund (mining downscaling, LA etc.) over time influenced doing business in Oranjemund?
8. What are the observed contributions of the mine to socio-economic development of Oranjemund?
9. What risks and opportunities emerged with the ongoing downscaling of the mining company?

## **ADDENDUM 2: SEMI-STRUCTURED INTERVIEWS – STAKEHOLDERS**

1. How long has this institution been in Oranjemund?
2. What are the aims of OMD 2030?
3. What is your view of the socio-economic development in Oranjemund?
4. How would you describe the status of socio-economic development in Oranjemund?
5. What are the observed contributions of the mine to socio-economic development of Oranjemund?
6. What are the other current contributors to the economy of Oranjemund?
7. What is your view of the current mine downscaling and its impact on socio-economic development?
8. What risks emerged from the ongoing downscaling?
9. How will the risks impact social and economic development in Oranjemund?
10. What opportunities exist for Oranjemund given the current situation?
11. What are the suitable alternative socio-economic growth opportunities for diversification in Oranjemund?
12. Where in your opinion does the strength for social and economic growth in Oranjemund lie?
13. Where do you see Oranjemund 5 years from now in terms of socio-economic development?

### **ADDENDUM 3: FOCUS GROUP INTERVIEW GUIDE – ENGLISH VERSION**

1. How long have you lived in Oranjemund?
2. What is your idea of social and economic development?
3. How do you think development could be achieved?
4. Did you expect that the mine would downscale/close?
5. What is the main role of the mine in terms of socio-economic development?
6. How has your community changed over the years from when mining was full operation and now that the mine is downscaling?
7. How beneficial is the mine to the overall development of Oranjemund?
8. What are the other sources of socio-economic growth do you currently know?
9. What is the first need experienced during this process of downscaling?
10. How is the mine downscaling affecting you and your community in terms of social and economic growth?
11. What social and economic related risks emerged from the ongoing mine downscaling?
12. What are the social and economic opportunities that came from mine downscaling?
13. What have you done to lessen the negative impacts experienced from the downscaling (coping measures)?
14. How would you describe the socio-economic development status in your area?
15. What significant change in social and economic development did you observe over the years?
16. What caused the significant change in social and economic development observed?
17. What economic opportunities exist in Oranjemund to reduce the dependency on mining driven economy?
18. How do you think the new economic drivers in Oranjemund will improve the socio-economic development of Oranjemund?

### **ADDENDUM 3: FOCUS GROUP INTERVIEW GUIDE – OSHIWAMBO VERSION**

1. MoOranjemund owakalamo ethimbo lithike peni?
2. Omadhilaadhilo goye kombinga yoma pendulepo gomakwatathano niikwaliko ogeni?
3. Omapendulepo otaga adhikwa ngiini pamadhilaadhilo goye?
4. Owali weshitegelela kusha otashipeya ooMina dhipate?
5. oMina otayi dhana onkandangala ngiini ngele tashiya komapendulepo gomakwatathano niikwaliko?
6. Akalimo oyalunduluka ngiini oomvula noomvula okuza sho oMina yali hayi longo nawa nasigo nangashiingeyi sho tayi tata?
7. oMina oyina uuwanawa washike komapendulepo agehe gaOranjemund?
8. Inima yini ishewe yagwedhewapo mbyoka wushi tayi vulu oku gwedha komapendulepo gomakwatathano niikwaliko moRanje?

9. Oshike shamonikwa ompumbwe yomeendelelo pethimbo ndika yoMina tayi pata?
10. Epato loMina oleku guma ngiini naakalimo yomoShitopolwa ngele tashiya ngel e tashiya komapendulopo gomakwatathano niikwaliko?
11. Kombinga yomakwatathano niikwaliko iiponga yini yaholokapo pethimbo shoo Mina tayi pata?
12. Oompito dhino dha holokapo dhiikwaliko nomakwatathano shoo Mina yali tayi pata?
13. Owakala nokwiidhidhimika ngiini/ omikalo dhini walongitha oku nkankameka oonkalo oombwiineyi dhali noku taalelwa pethimbo shoo Mina yali tayi pata?
14. Ngele otashiya komakwatathano niikwaliko moshitoplwa sheni iinima mbyoka iyali oya thika mapo ngiini?
15. Omalunduluko geni wamono omvula noomvula kombinga yomakwatathano niikwaliko moShitopolwa sheni?
16. Oshike sha etitha omalunduluko ngaaka?
17. Ompito dhini dhilipo dhiikwaliko moRanjemund tashi vulu oku yambulapo aantu opo kaa yiikwa telele owala kuuwanawa womooMina?
18. Pamadhilaadhilo goye ongiini omikalo oompe dhiikwaliko tadhi vulu oku yambulapo omakwatathano niikwaliko moOranjemund?

#### **ADDENDUME 4: INFORMED CONSENT FOR FOCUS GROUPS**

##### **ENGLISH VERSION AND OSHIWAMBO VERSION**

##### **RESEARCH STUDY INFORMATION LEAFLET AND CONSENT FORM**

##### **DATE**

*December 2018*

##### **TITLE OF THE RESEARCH PROJECT**

*THE EFFECTS OF MINE DOWNSCALING (AND CLOSURE) ON THE SOCIO-ECONOMIC DEVELOPMENT OF MINING COMMUNITIES: THE CASE OF ORANJEMUND*

##### **PRINCIPLE INVESTIGATOR / RESEARCHER(S) NAME(S) AND CONTACT NUMBER(S):**

*Christerline Ndeleki*

*2015180603*

*00264856416130*

[chrisndeleki@gmail.com](mailto:chrisndeleki@gmail.com)

##### **FACULTY AND DEPARTMENT:**

*Economic and Management Sciences*

*Centre for Development Support*

##### **STUDYLEADER(S) NAME AND CONTACT NUMBER:**

*Dr. Deidre Van Rooyen*

## **WHAT IS THE AIM / PURPOSE OF THE STUDY?**

*The aim of the study is to analyse and understand the effects of mine downscaling or closure on the socio-economic development of Oranjemund, Namibia. The reason for conducting this study is because of a gap identified in terms of literature and documentation of mining towns in Namibia and their impacts on social and economic development when they are closing.*

## **WHO IS DOING THE RESEARCH?**

*Christerline Ndeleki, a student doing a Master's Degree in Development Studies at the University of the Free States. This research is a requirement to complete my Master's Degree. If you would like further information regarding any aspect of this project, you are encouraged to contact the researchers via the phone numbers or email addresses listed above.*

## **HAS THE STUDY RECEIVED ETHICAL APPROVAL? Yes**

**Approval number: UFS-HSD2018/1349**

## **WHY ARE YOU INVITED TO TAKE PART IN THIS RESEARCH PROJECT?**

*In my search for perceptions of effects of mine downscaling on social and economic development in a mining town, Oranjemund presented a unique case to better understand the risks and opportunities associated with mine closure and downscaling as well as constraints. You are invited to participate in this research study because of your experience as a resident and or a former employee of the mine or company contracted by the mine in Oranjemund. Your experience will provide this research with a better account of real first-hand experiences by communities and measures put in place to minimize the negative impacts. Your contacts were obtained from the Regional Constituency Office in Oranjemund.*

## **WHAT IS THE NATURE OF PARTICIPATION IN THIS STUDY?**

*The approach of the study entails you participating in a group interview that focuses in the issue pertaining to effects of mine downscaling and closure on socio-economic development. The activity will last approximately 1hour 30mins and will involve a minimum of eight participants from former employees of the mine company or its contractor and community members of Oranjemund. Even though the discussions will be recorded, your identity will remain anonymous. If you wish, you may request a copy of the transcribed interview script to be provided to you for confirmation before being included in the research findings. The interviews will be carried out in a specific location of your convenience.*

## **CAN THE PARTICIPANT WITHDRAW FROM THE STUDY?**

*Your participation in this study is voluntary and you are under no obligation to consent to participation. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a written consent form. You are under no obligation to answer questions which you are not comfortable with. If you choose not to participate, you can withdraw at any time and it will not affect you or your family, your current or future relations in the community. There is no penalty or any charges to you for not participating or for withdrawing from the research study early.*

## **WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?**

*There are no direct benefits to you for participating in this study but it is hoped that information obtained from this study would indirectly inform policy making.*

#### **WHAT IS THE ANTICIPATED INCONVENIENCE OF TAKING PART IN THIS STUDY?**

*There are not foreseeable inconveniences associated with the study.*

#### **WILL WHAT I SAY BE KEPT CONFIDENTIAL?**

*All aspects of this research, including results, will be completely confidential. All reference to the respondents in the transcribed interview notes will be anonymous. No findings will identify any individual. The records of the study will be kept private. Your answers may be reviewed by people responsible for making sure that research is done properly, including the transcriber, external coder, and members of the Research Ethics Committee. Otherwise, records that identify you will be available only to people working on the study, unless you give permission for other people to see the records. Data generated from this research may be used for purposes like research report, journals or conference presentations. However, all information given will be coded and will be recorded in such a way that it does not identify any participant. A report of the study may be submitted for publication, but individual participants will not be identifiable in such a report. While every effort will be made by the researcher to ensure that you will not be connected to the information that you share during the focus group, I cannot guarantee that other participants in the focus group will treat information confidentially. I shall, however, encourage all participants to do so. For this reason, I advise you not to disclose personally sensitive information in the focus group.*

#### **HOW WILL THE INFORMATION BE STORED AND ULTIMATELY DESTROYED?**

*The records of this study will be kept strictly confidential. Research records will be stored in accordance with the UFS regulations, kept in a locked file at the UFS premises for a period of five years for future or academic purposes. All electronic information will be coded and secured using a password protected file on a password protected computer. Future use of the stored data will be subject to further Research Ethics Review and approval if applicable. A report of the study will be submitted for publication; however, individual participants will not be identifiable in such a report.*

#### **WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICIPATING IN THIS STUDY?**

*You will not receive any incentive for your participation in this study in whatsoever kind.*

#### **HOW WILL THE PARTICIPANT BE INFORMED OF THE FINDINGS / RESULTS OF THE STUDY?**

*If you would like to be informed of the final research findings, please contact Christerline Ndeleki on 00264856416130 or fax [chrisndeleki@gmail.com](mailto:chrisndeleki@gmail.com) or fax 0026463233501. The findings are accessible for 5 years. Please do not use home telephone numbers. Departmental and/or mobile phone numbers are acceptable. Should you require any further information or want to contact the researcher about any aspect of this study, please contact Christerline Ndeleki on 00264856416130 or fax [chrisndeleki@gmail.com](mailto:chrisndeleki@gmail.com) or fax 0026463233501. Should you have concerns about the way in which the research has been conducted, you may contact Dr. Deidre Van Rooyen on 0027 51 4017059, [griesd@ufs.ac.za](mailto:griesd@ufs.ac.za).*

**Thank you for taking time to read this information sheet and for participating in this study.**

**CONSENT TO PARTICIPATE IN THIS STUDY**

I, \_\_\_\_\_ (participant name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet. I have had sufficient opportunity to ask questions and am prepared to participate in the study. I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable). I am aware that the findings of this study will be anonymously processed into a research report, journal publications and/or conference proceedings.

I agree to the recording of the *insert specific data collection method*.

I have received a signed copy of the informed consent agreement.

Full Name of Participant:

\_\_\_\_\_

Signature of Participant: \_\_\_\_\_ Date:

\_\_\_\_\_

Full Name(s) of Researcher(s):

\_\_\_\_\_

Signature of Researcher: \_\_\_\_\_ Date:

\_\_\_\_\_

**Oshipalanyolo shoma pekaapeko goProyeka**

Nkene aantu yaGumwa keshonopalo/epato loMina komapenduleopo gomakwatathano niikwaliko kaaKalimo yoMina. Omapekaapeko koShitoplwa shaOranjemund.

**Elalakano lomapekaapeko olini?**

Elalakano lomapekaapeko oku pekaapeka noku mona ewuveko la nkene aantu ya gumwa kepato loMina ngele tashiya komapendulepo gomakwatathano niikwaliko ko shitopolwa shaOranjemund, muNamibia. Elala kano loku pekaapeka omolo ombululu ndjoka ya dhidhilikwa

pokati komambo gashangwa nooDocumente dhaningwa kombings yoo Mina moNamibia nankeen tayi gumu omapendulepo gomakwatathano niikwaliko sho tadhi pata.

### **Ole tangingi omapekaapeko?**

Christerline Ndeleki, Omunasikola ndoka tatsyikile eyilongo lye moMaster Degree in Development Studies koshiputudhilo shoFree States. Omapekaapeko ngaka ogena okuningwa oshoka otaga kwathandje opo ndi mane oMaster Degree yandje. Nangele owa hala uyelele kombinga yomapekaapeko goProyeka yandje, oto indilwa wudhengelendje kongodhi yandje nenge ko email mbyoka yagandjwa pombanda.

### **Omapekaapeko oga pewa ngaa uuthemba nogataambwako?**

Opo geli mondjila yoku pewa uuthemba no kutaa mbwako.

Onomola yuuthemba: Opo tandiyipewa.

### **Omolwashike wiindilwa opo wukuthe ombinga momapekaapeko go Proyeka ndjika?**

Moma pekaapeko gandje momadhilaadhilo nkene aantu yagumwa kepato lomina ngele tashiya koma pendulopo gonkalathano niikwaliko mokaDooropa koMina kaOranjemund oshali sha pendje ompito yina uutsya kunkene ndina oku uvako uudhigu noompito ngele tashi ya kepato loMina. Ondali nda ithanwa ndikuthe ombinga moma pekaapeko omolo oshoka ngame omukalimo goshitopolwa, ihe natango ondalongele moMina yaoOranjemund woo kohi yoContraka. Otsyeyo yandje yoShitopolwa sha Oranjemund otayi gandja uyelele womo ndjila wopetameko oshoka ondina otseyo yoShitopolwa niinima mbyoka ya tulwa pomahala oku hwehwemeka uuwinayi wagumu aakalimo. Otseyo yandje oyali yamonika koRegional Constituency Office yaOranjemund.

### **Omukalo guni gwaLongithwa opo wu kuthe ombinga momapekaapeko goProyeka?**

Omukalo ngono wakutha oku longitha omapekaapeko ogo tagu kupe ompito yoku kutha ombinga moma pulo taga pulwa muungundu muudhigu wuukilila ku nkene aantu nenge aakalimo yagumwa kepato loMina kombinga yoma pendulepo gomakwatathano niikwaliko. Tashi kwata nee ethimbo lithike poWili neTata notashikwa telemo aantu yaadha pu ya hetatu mboka ya longele nale moMina naakalimo ya Oranjemund. Nonande oonkundathana otadhi dhidhilikwa, uukwashike kookantu koye itawu popiwamo. Oto vulu oku indila oCopy yaashoka sha dhidhilikwa moonkundathana noonkunda thana otadhi ningilwa pehala mpoka waha la mwene.

### **Ngoka akutha ombinga ota vulu ayi kuthemo momapekaapeko?**

Ekutho mbinga momapekaapeko oloshali, ngele owa tokola oku kutha ombinga oto oewa oFoolooma wu Shine, tashi ti owategelelwa wuyamukule omapulo ogehe. Ihe ngele owa hala oku zamo mekutho mbinga, Oto vulu natango owala kaapena uudhigu kehe ethimbo.

### **Uuwanawa washike tomono mokukutha ombinga momapekaapeki ngaaka?**

Kamuna lela uuwanawa moku kutha ombinga, Ihe uyelele togandja otawu vulu oku longithwa kunkene aanambelewa haaningi omatokolo moShilongo.

### **Uudhigu wuni omukuthi mbinga tavulu oku taalela momapekaapeki?**

Kamunasha nando uudhigu momapekaapeki.

### **Kwashoka tandi kapopya oshike tashi kala onge sha thitikinimwa?**

Ashihe shoka toka popya otashi thitikinimwa, kapena nando oshimwe tashi popiwamo. Ashihe shoka tashi ka pulwa omukuthi mbinga otashi kala owala pokati komupuli nomuyamukuli opuwo. Shoka shadhilikwa otashi kala mehala lagamenwa, omayya mukulo goye ota endululwa opo ku kamonikwe kusha ayihe oya yela. Uyelele wamonikwa momapekaapeki ota wukalongithwa moRoporta, miiFo ndundana ano uuJournals oshowo poma thimbo goPresentations ihe kapena shoka tashi ka ulika omukuthi mbinga.

### **Uyelele awuhe otawu ka holekwa ngiini opo wukale wagamwenwa?**

Uyelele awuhe mboka wadhilikwa otawu kala wathitikinimwa, tashiti owala omukuthimbinga nomupuli gwe taakala yeshi uyelele mbuka. Uyelele awuhe wadhilikwa ota wuka holekwa kombinga nkee yomilandu dhoShi putudhilo shaUFS, tawu kala noku patelwa muuloka koShi putudhilo oomvula dhaadha pu 5. Uyelele mboka tawu wuli mooComputer otawu holekwa mooComputer dhina ooPasswords.

### **Otandi ka pewa ofuto sho tandi kutha ombinga momapekaapeki ngaaka?**

Ito mono nando ofuto yasha sho to kutha ombinga momapekaapeki ngaaka.

### **Ongiini omupekaapeki taka pewa iizemo ye yomapekaapeki?**

Oto vulu oku kwata thana na Christerline Ndeleki kongodhi 00264856416130, nenge ko emaila ye [chrisndeleki@gmail.com](mailto:chrisndeleki@gmail.com) nenge ko Fax 0026463233501 nenge wukwatathane na Dr. Deidre Van Rooyen ko nomola 002751401759 nenge ko emaila ye [griesd@ufs.za](mailto:griesd@ufs.za).

### **Oshipalanyolo shoma pekaapeko goProyeka**

Ngame----- (edhina lomu kuthi mbinga) ondiitaala kungoka ayi nekelendje ndikuthe ombinga momapekaapeko go projeka ndjika, kusha ayihe alombwelendje oya ukilila oProyeka ndika, omilandu, uudhigu, uuwanawa oshowo ashihe shoka ta ndika tsyakaneka.

Onda lesa ne wuveko uuyeleele awuke nondewu uvako kombinga yomapekaapeko ngaashi sha shangwa. Ondina ompito ya gwana oku pula omapulo nonda tokola oku ku tha ombinga momapekaapeko ngaaka. Onduuvako kusha ekutho mbinga landje olo shali notandi vulu oku zamo ethimbo kehe. Nondi shishi kusha uuyeleele awuhe otawu ka thiti kininwa nonando otawu ka longithwa woo miifo, moPresantations oshowo moRoporta nonando edhina landje itali ka longithwa.

Onda itaala komulandu ngoka ta gukalongithwa oku kutha omawuyeleele.

Nondapewa oCopy yaSignwa yo Fooloma yekutho ombinga.

**Edhina liihwapo lomukuthimbinga.....**

**Osignature yoMukuthimbinga.....**

**Edhina liihwapo loMupekaapeki.....Esiku.....**

**Osignature yoMupekaapeki.....Esiku.....**

## **ADDENDUM 5: INFORMED CONSENT FOR BUSINESS AND STAKEHOLDERS**

### **RESEARCH STUDY INFORMATION LEAFLET AND CONSENT FORM**

#### **DATE**

*December 2018*

#### **TITLE OF THE RESEARCH PROJECT**

*THE EFFECTS OF MINE DOWNSCALING (AND CLOSURE) ON THE SOCIO-ECONOMIC DEVELOPMENT OF MINING COMMUNITIES: THE CASE OF ORANJEMUND*

#### **PRINCIPLE INVESTIGATOR / RESEARCHER(S) NAME(S) AND CONTACT NUMBER(S):**

*Christerline Ndeleki*

*2015180603*

*00264856416130*

#### **FACULTY AND DEPARTMENT:**

*Economic and Management Sciences*

**STUDYLEADER(S) NAME AND CONTACT NUMBER:**

*Dr. Deidre Van Rooyen*

0027 51 4017059

**WHAT IS THE AIM / PURPOSE OF THE STUDY?**

*The aim of the study is to analyse and understand the effects of mine downscaling or closure on the socio-economic development of Oranjemund, Namibia. The reason for conducting this study is because of a gap identified in terms of literature and documentation of mining towns in Namibia and their impacts on social and economic development when they are closing.*

**WHO IS DOING THE RESEARCH?**

*Christerline Ndeleki, a student doing a Master's Degree in Development Studies at the University of the Free States. This research is a requirement to complete my Master's Degree. If you would like further information regarding any aspect of this project, you are encouraged to contact the researchers via the phone numbers or email addresses listed above...*

**HAS THE STUDY RECEIVED ETHICAL APPROVAL?**

Yes

**Approval number: UFS-HSD2018/1349**

**WHY ARE YOU INVITED TO TAKE PART IN THIS RESEARCH PROJECT?**

*In my search for perceptions of effects of mine downscaling on social and economic development in a mining town, Oranjemund presented a unique case to better understand the risks and opportunities associated with mine closure and downscaling as well as constraints. You are invited to participate in this research study because of your experience as a local government department employee and or business owner in Oranjemund. You are invited to participate in this study because of your influence on implementation of policies on the ground who represent government and because you possess first-hand information on the real issues of social and economic development in your community. Your contacts were obtained from the Regional Constituency Office in Oranjemund.*

**WHAT IS THE NATURE OF PARTICIPATION IN THIS STUDY?**

*The approach of the study entails you participating in an interview that focuses in the issue pertaining to effects of mine downscaling and closure on socio-economic development. The activity will last approximately 1 hour and will only involve you and the researcher. Even though the discussions will be recorded, your identity will remain anonymous. If you wish, you may request a copy of the transcribed interview script to be provided to you for confirmation before being included in the research findings. The interviews will be carried out in a specific location of your convenience.*

**CAN THE PARTICIPANT WITHDRAW FROM THE STUDY?**

*Your participation in this study is voluntary and you are under no obligation to consent to participation. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a written consent form. You are under no obligation to answer questions which you are not comfortable with. If you choose not to participate, you can withdraw at any time and it will not affect you or your family, your current or future relations in the community. There is no penalty or any charges to you for not participating or for withdrawing from the research study early.*

#### **WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?**

*There are no direct benefits to you for participating in this study but it is hoped that information obtained from this study would indirectly inform policy making.*

#### **WHAT IS THE ANTICIPATED INCONVENIENCE OF TAKING PART IN THIS STUDY?**

*There are not foreseeable inconveniences associated with the study.*

#### **WILL WHAT I SAY BE KEPT CONFIDENTIAL?**

*All aspects of this research, including results, will be completely confidential. All reference to the respondents in the transcribed interview notes will be anonymous. No findings will identify any individual. The records of the study will be kept private. Your answers may be reviewed by people responsible for making sure that research is done properly, including the transcriber, external coder, and members of the Research Ethics Committee. Otherwise, records that identify you will be available only to people working on the study, unless you give permission for other people to see the records. Data generated from this research may be used for purposes like research report, journals or conference presentations. However, all information given will be coded and will be recorded in such a way that it does not identify any participant. A report of the study may be submitted for publication, but individual participants will not be identifiable in such a report. While every effort will be made by the researcher to ensure that you will not be connected to the information that you share during the focus group, I cannot guarantee that other participants in the focus group will treat information confidentially. I shall, however, encourage all participants to do so. For this reason, I advise you not to disclose personally sensitive information in the focus group.*

#### **HOW WILL THE INFORMATION BE STORED AND ULTIMATELY DESTROYED?**

*The records of this study will be kept strictly confidential. Research records will be stored in accordance with the UFS regulations, kept in a locked file at the UFS premises for a period of five years for future or academic purposes. All electronic information will be coded and secured using a password protected file on a password protected computer. Future use of the stored data will be subject to further Research Ethics Review and approval if applicable. A report of the study will be submitted for publication; however, individual participants will not be identifiable in such a report.*

#### **WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICIPATING IN THIS STUDY?**

*You will not receive any incentive for your participation in this study in whatsoever kind.*

#### **HOW WILL THE PARTICIPANT BE INFORMED OF THE FINDINGS / RESULTS OF THE STUDY?**

If you would like to be informed of the final research findings, please contact Christerline Ndeleki on 00264856416130 or fax [chrisndeleki@gmail.com](mailto:chrisndeleki@gmail.com) or fax 0026463233501. The findings are accessible for 5 years. Please do not use home telephone numbers. Departmental and/or mobile phone numbers are acceptable. Should you require any further information or want to contact the researcher about any aspect of this study, please contact Christerline Ndeleki on 00264856416130 or fax [chrisndeleki@gmail.com](mailto:chrisndeleki@gmail.com) or fax 0026463233501. Should you have concerns about the way in which the research has been conducted, you may contact Dr. Deidre Van Rooyen on 0027 51 4017059, [griesd@ufs.ac.za](mailto:griesd@ufs.ac.za).

**Thank you for taking time to read this information sheet and for participating in this study.**

### CONSENT TO PARTICIPATE IN THIS STUDY

I, \_\_\_\_\_ (participant name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet. I have had sufficient opportunity to ask questions and am prepared to participate in the study. I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable). I am aware that the findings of this study will be anonymously processed into a research report, journal publications and/or conference proceedings.

I agree to the recording of the *insert specific data collection method*.

I have received a signed copy of the informed consent agreement.

Full Name of Participant:

\_\_\_\_\_

Signature of Participant: \_\_\_\_\_ Date:

\_\_\_\_\_

Full Name(s) of Researcher(s):

\_\_\_\_\_

Signature of Researcher: \_\_\_\_\_ Date:

\_\_\_\_\_



## ADDENDUM 6: ETHICAL CLEARANCE LETTER



Faculty of Economic and Management Sciences

22-Nov-2018

Dear **Miss Christerline Ndeleki**

Ethics Clearance: **THE EFFECTS OF MINE DOWNSCALING (AND CLOSURE) ON THE SOCIO-ECONOMIC DEVELOPMENT OF MINING COMMUNITIES: THE CASE OF ORANJEMUND - NAMIBIA**

Principal Investigator: **Miss Christerline Ndeleki**

Department: **Centre for Development Support Department (Bloemfontein Campus)**

### APPLICATION APPROVED

With reference to your application for ethical clearance with the Faculty of Economic & Management Sciences, I am pleased to inform you on behalf of the Ethics Committee of the faculty that you have been granted ethical clearance for your research.

Your ethical clearance number, to be used in all correspondence is: **UFS-HSD2018/1349**

This ethical clearance number is valid from to . Should you require more time to complete this research, please apply for an extension.

We request that any changes that may take place during the course of your research project be submitted to the ethics office to ensure we are kept up to date with your progress and any ethical implications that may arise.

Thank you for submitting this proposal for ethical clearance and we wish you every success with your research.

Yours Sincerely

Dr. Petrus Nel

Chairperson: Ethics Committee Faculty of Economic & Management Sciences

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#### Economics Ethics Committee

Office of the Dean: Economic and Management Sciences

T: +27 (0)51 401 2310 | T: +27(0)51 401 9111 | F: +27(0)51 444 5465

205 Nelson Mandela Drive/Rytlaan, Park West/Parkweg, Bloemfontein 9301, South Africa/Suid Afrika

P.O. Box/Posbus 339, Bloemfontein 9300, South Africa/Soud Afrika

www.ufs.ac.za



## ADDENDUM 7: LANGUAGE EDITOR LETTER

Michelle Woolley

WRITER EDITOR PROOFREADER TRANSLATOR

Articles • Direct Mailing • Newsletters • Web Content/blogs • Brochure

### **CERTIFICATE OF EDITING**

This letter certifies that I have edited the dissertation detailed below.

Dissertation Title:

THE EFFECTS OF MINE DOWNSCALING (AND CLOSURE) ON THE SOCIO-ECONOMIC DEVELOPMENT OF MINING COMMUNITIES: THE CASE OF ORANJEMUND

Dissertation Author:

CHRISTERLINE N. NDELEKI

2015180603

Regards  
Michelle Woolley

Date: 3/2/2019

michellewoolley12@gmail.com  
083 298 2077