

SOCIO-ECONOMIC IMPACT ASSESSMENT FOR THE VOLSPRUIT MINE IN LIMPOPO

SOCIO-ECONOMIC IMPACT STUDY

Update of Specialist Study
Impact Report

Submitted by:

URBAN-ECON DEVELOPMENT
ECONOMISTS

137 MUCKLENEUK STREET, BROOKLYN,
PRETORIA

TEL: 012 342 8686

EMAIL: marika@urban-econ.com

Website: www.urban-econ.com



SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

DOCUMENT INFORMATION

Document Title:	Socio-Economic Impact Assessment for the Volspruit Mine In Limpopo – Study Update
Prepared by:	Urban-Econ Development Economists
Contact Details: 	1 st Floor Lake View Office Park 137 Muckleneuk Street Brooklyn Pretoria 0075 Tel: 012 342 8686 Email: marika@urban-econ.com
Contact Person(s):	Marika Cook
Prepared for: 	EcoPartners San Oosthuizen
Contact Person(s):	Tel: 072 391 4679 Email: san@ecopartners.co.za



SPECIALISTS' DETAILS

Marika Cook

Cell: 082 8998 267

E-mail: marika@urban-econ.com

Position: Manager: Economic and Planning

Qualifications: BTRP, BComHons, MCom (Cum Laude), short course on strategic tourism destination marketing

Experience: 38 years

Brief profile: Marika Cook is a development economist who has been with Urban-Econ for more than 30 years. She serves as a director on the board and is also a shareholder of the firm. She joined the company after completing her degree in town and regional planning and has since completed an honours and a master's degree in development economics, focusing on the contribution of small business concerns and subcontractors to broadening the economic base.

She has wide-ranging experience in economic impact analysis, economic sectoral research, socioeconomic assessments and regional development evaluations. As project leader she successfully undertook studies and coordinated various projects of a multi-sectoral nature focusing on all dimensions of economic development planning. Because of her academic and theoretical interests, she has gained experience in applying economic models to address demand and supply inequalities in various markets. Experienced in the various fields of development consulting, she specialises in project facilitation and coordination and has specific expertise in interpreting economic problems in terms of practical project approaches and solutions.

She was asked by the University of Pretoria to assist with part-time lecturing in property economics and did so for a number of years. Marika has an affinity for tourism-related issues and has successfully undertaken and managed projects in this field.

Because of Marika's exposure to the full scope of management and project execution dimensions, she has also developed skills in the field of procurement and tendering. She was the Manager of the Business Development Unit of Urban-Econ and was responsible for all tendering and marketing aspects of the firm. She liaised with a wide range of clients, consultants, firms, and organisations in this capacity and had to ensure that relationships were forged to enhance successful procurement of projects over the long term.

Currently she manages the Economic Planning Unit, which focuses on economic development projects as well as socioeconomic and economic impact assessments. The unit has been appointed to formulate various government policy and strategy documents aimed at stimulating economic development and investment.

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

Nthabiseng Makhoali

Cell: 071 533 3572

Email: nthabiseng@urban-econ.com

Position: Development Economist: Economic Planning

Qualifications: BComHons (Transport Economics), BCom (Economics & International Trade)

Experience: 4 years

Brief profile: Nthabiseng Makhoali is a Senior Development Economist in the Economic Planning Unit at Urban-Econ. Having obtained her Honours in Transport Economics, she has a keen understanding of economic theory and the role it plays in the development of a country. She has a thorough understanding of data analytics, research, and consulting frameworks and has worked on several projects developing project-specific data models and solutions. Her extensive work experience has equipped her with sufficient background knowledge to conduct socioeconomic impact assessments for various development projects.

Declaration of Independence

I, Marika Cook, declare that:

- ☐ I act as the independent specialist in this application.
- ☐ I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant.
- ☐ I declare that there are no circumstances that may compromise my objectivity in performing such work.
- ☐ I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity.
- ☐ I will comply with the Act, regulations, and all other applicable legislation.
- ☐ I have no, and will not engage in, conflicting interests in the undertaking of the activity.
- ☐ I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan, or document to be prepared by myself for submission to the competent authority.
- ☐ All the particulars furnished by me in this form are true and correct.
- ☐ I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of section 24F of the Act.

Signature:  _____

Date: 14 May 2024

Declaration of Independence

I, Nthabiseng Makhoali, declare that:

- ☐ I act as the independent specialist in this application.
- ☐ I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant.
- ☐ I declare that there are no circumstances that may compromise my objectivity in performing such work.
- ☐ I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity.
- ☐ I will comply with the Act, regulations, and all other applicable legislation.
- ☐ I have no, and will not engage in, conflicting interests in the undertaking of the activity.
- ☐ I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan, or document to be prepared by myself for submission to the competent authority.
- ☐ All the particulars furnished by me in this form are true and correct.
- ☐ I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of section 24F of the Act.

Signature:  _____

Date: 14 May 2024

CONTENTS

1.	INTRODUCTION.....	10
1.1.	SCOPE OF STUDY.....	10
1.2.	PROJECT DESCRIPTION	11
1.3.	STUDY AREA DELINEATION	12
1.4.	UNDERSTANDING ECONOMIC IMPACTS	13
1.5.	METHODOLOGY	13
1.6.	DATA GATHERING AND CONSULTATION PROCESS.....	15
1.7.	PROJECT ASSUMPTIONS AND LIMITATIONS	16
1.8.	REPORT OUTLINE	16
2.	POLICY REVIEW	17
2.1.	POLICY ANALYSIS	18
2.2.	CONCLUDING REMARKS	23
3.	SITE-RELATED INFORMATION	25
3.1.	LAND-USE PROFILE.....	25
3.2.	RESOURCES AND LAND CAPABILITY.....	26
3.3.	MINING POTENTIAL.....	27
	TRANSPORT INFRASTRUCTURE	28
3.4.	SOCIAL INFRASTRUCTURE.....	29
3.5.	CONCLUSION	30
4.	BASELINE INFORMATION	31
4.1.	STUDY AREA’S COMPOSITION AND LOCATIONAL FACTORS.....	31
4.2.	SENSE OF PLACE, HISTORY AND CULTURAL ASPECTS.....	32
4.3.	DEMOGRAPHIC PROFILE	33
4.4.	INCOME AND EDUCATION LEVELS.....	36
4.5.	LABOUR FORCE AND EMPLOYMENT STRUCTURE	38
4.6.	ECONOMIC PROFILE	39
4.7.	ACCESS TO BASIC SERVICES	41
4.8.	STAKEHOLDER ENGAGEMENTS	42
4.8.1.	CASE STUDY: MINING IMPACTS ON AGRICULTURAL ACTIVITIES.....	47
4.9.	CONCLUDING REMARKS	48
5.	NEEDS AND DESIRABILITY ASSESSMENT	49
6.	SOCIO-ECONOMIC IMPACT ANALYSIS.....	53
	ASSESSMENT APPROACH.....	54
6.1.	ASSESSMENT OF IMPACTS – CONSTRUCTION PHASE.....	55
6.1.1.	TEMPORARY STIMULATION OF THE LOCAL AND NATIONAL ECONOMY	55

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

6.1.2.	CREATION OF TEMPORARY EMPLOYMENT OPPORTUNITIES AT A LOCAL AND NATIONAL LEVEL	57
6.1.3.	TEMPORARY INCREASE IN HOUSEHOLD INCOME DURING CONSTRUCTION	59
6.1.4.	SKILLS DEVELOPMENT DUE TO THE CREATION OF NEW EMPLOYMENT OPPORTUNITIES	60
6.1.5.	GOVERNMENT REVENUE INCREASE DUE TO CAPITAL EXPENDITURE	61
6.1.6.	CHANGE IN SENSE OF PLACE	62
6.1.7.	PRESSURE ON SOCIAL AND ECONOMIC INFRASTRUCTURE	63
6.1.8.	TEMPORARY INCREASE IN CRIME AND SOCIAL CONFLICTS ASSOCIATED WITH AN INFLUX OF PEOPLE	63
6.1.9.	IMPACT ON PROPERTY VALUES	64
6.1.10.	IMPACT ON AGRICULTURAL ACTIVITIES	65
6.2.	ASSESSMENT OF IMPACTS – OPERATIONAL PHASE	66
6.2.1.	SUSTAINABLE INCREASE IN PRODUCTION AND GDP-R IN THE NATIONAL AND LOCAL ECONOMIES	66
6.2.2.	CREATION OF SUSTAINABLE EMPLOYMENT OPPORTUNITIES NATIONALLY AND LOCALLY	67
6.2.3.	IMPROVED LIVING STANDARDS OF POSITIVELY AFFECTED HOUSEHOLDS.....	69
6.2.4.	SKILLS DEVELOPMENT OF PERMANENTLY EMPLOYED WORKERS	70
6.2.5.	SUSTAINABLE INCREASE IN GOVERNMENT REVENUE	70
6.2.6.	CHANGE IN SENSE OF PLACE	71
6.2.7.	PRESSURE ON SOCIAL AND ECONOMIC INFRASTRUCTURE	72
6.2.8.	INCREASED HEALTH AND SAFETY RISK	73
6.2.9.	IMPACT ON NEARBY AGRICULTURAL ACTIVITIES DURING OPERATIONS	73
6.3.	ASSESSMENT OF IMPACTS – DECOMMISSIONING PHASE	74
6.4.	NO-GO ALTERNATIVE	75
6.5.	CONCLUDING REMARKS	76
7.	CONCLUSION	78
8.	ANNEXURE A: IMPACT ASSESSMENT RATING METHODOLOGY	79
9.	ANNEXURE B: CHECKLIST	81
10.	ANNEXURE C: SOCIO-ECONOMIC, SOIL AND AGRICULTURAL QUESTIONNAIRE.....	83
11.	REFERENCES	85

LIST OF ABBREVIATIONS

BA	Basic Assessment
BIC	Bushveld Igneous Complex
DM	District Municipality
DTI	Department of Trade and Industry
EIA	Environmental Impact Assessment
FTE	Full-Time Equivalent
GDP	Gross domestic products
GDP-R	Gross domestic products – Regional
GVA	Gross-Value Added
IPAP	Industrial Policy Action Plan
Km	Kilometer
LDP	Limpopo Development Plan
LED	Local Economic Development
LM	Local Municipality
Mil	Million
NDP	National Development Plan
NDP	National Development Plan
NEA	Not Economically Active
NEMA	National Environmental Management Act
NGPF	New Growth Path Framework
PGMs	Platinum Group Metals
SA	South Africa
SDF	Spatial Development Framework
SEIA	Socio-Economic Impact Assessment
UNESCO	United Nations Educational, Scientific and Cultural Organisation
VAT	Value-added Tax
WAP	Working-age population

1. INTRODUCTION

Urban-Econ Development Economists was appointed by EcoPartners on behalf of Volspruit Mining Company (Pty) Ltd to undertake an economic impact assessment study for the proposed open cast mine near Mokopane in the Limpopo Province. The study forms part of the Environmental Impact Assessment (EIA) process as prescribed in the National Environmental Management Act (NEMA) of 1998 and its subsequent amendments.

The main objective of this document is to determine the current socio-economic baseline characteristics of the delineated study area and identify the potential impacts of the proposed project on the surrounding social and economic activities. The entire process undertaken is in terms of the National Environmental Management Act (NEMA), as amended.

1.1. SCOPE OF STUDY

The socio-economic assessment aims to determine the potential socio-economic implications of the proposed open cast mine to compare its possible effects with the "no go" alternative. The "no go" alternative assumes that the open cast mine and its supporting infrastructure will not be built. This implies that the "no go" alternative represents the current state of the environment, including the current socio-economic condition of the study area.

The socio-economic impact assessment contains information that, when combined with the input of other experts, allows for a sustainable development perspective on the project. It also aids in the identification of "the most practicable environmental option" that provides "the most benefit and causes the least damage to the environment, at a cost acceptable to society" in the long and short term. The goal of the socio-economic impact assessment, in accordance with the Environmental Impact Assessment Regulations of 2014 (Government Notice [GN] R982), is to guarantee that the project provides for justifiable social and economic development results.

Based on an understanding of the project objectives, the purpose of this socio-economic impact assessment is as follows:

- Undertake a **policy review** and assess the alignment of the proposed project with the national, provincial, and local socio-economic policies, with a focus on the compatibility of the project with the spatial planning, development objectives, and land use management plans of the respective authorities.
- Create a **socio-economic profile** of the potentially affected and benefiting environment, which would then represent a description of the existing impacts exerted on the zones of influence and could be used to assess the changes that might ensue from the proposed project.
- **Assess the sensitivities** of the identified sensitive receptors relative to the proposed development and analyse potential positive and negative social and economic effects of the proposed development on the local and regional economic activities.
- **Evaluate** potential positive and negative socio-economic effects that may ensue as a result of the change in the status quo of the affected and benefiting communities and economies.
- Develop a **mitigation plan** by proposing mitigation measures for negative effects and enhancement measures for positive impacts.

1.2. PROJECT DESCRIPTION

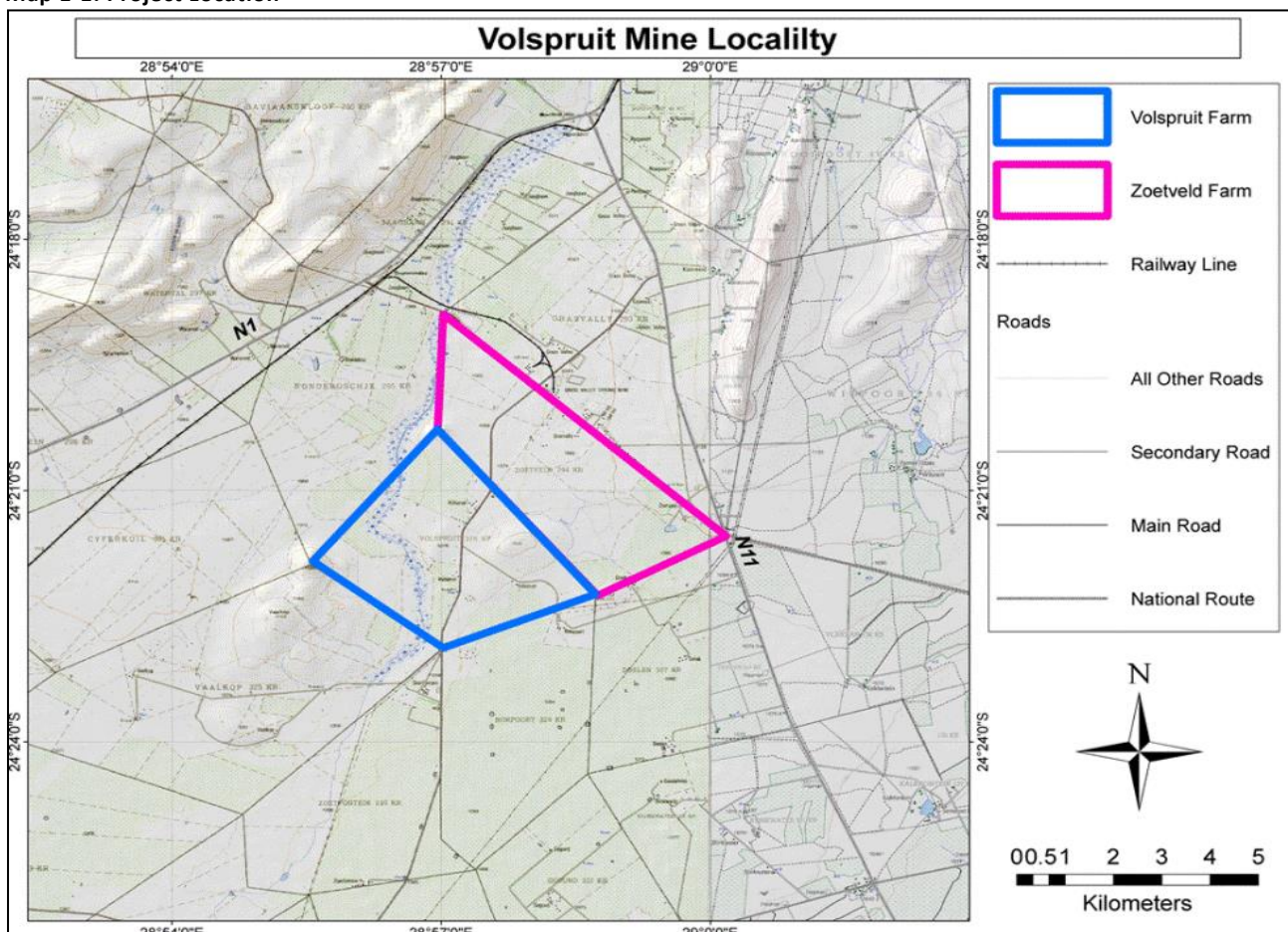
Volspruit Mining Company (Pty) Ltd (hereinafter referred to as 'Volspruit') holds a mining right for an open pit Platinum Group Metals (PGMs) mine near Mokopane in the Limpopo Province. Although mining operations have not commenced yet, plans are underway for the proposed activities.

Open pit mining is a surface mining technique whereby, rocks and minerals are extracted from the earth by their removal from a borrow or an open pit. Open pit mines are usually dug on benches. These benches vary in sizes depending on the size of the machinery that is being utilised (University of Moratuwa, 2022).

The open pit mining operations are planned exclusively on the farm Volspruit 326 KR. Additionally, surface structures and infrastructure supportive of the mining activities will be established on the farm Volspruit 326 KR, as well as on the farm Zoetveld 294 KR (refer to Map 1-1).

It is worth noting that the area designated for the mine, particularly where the North Pit is proposed to be located, is currently dedicated to intensive centre pivot irrigation agriculture. This agricultural practice yields high crop yields year-round, with many surrounding properties also engaging in similar intensive centre pivot irrigation agriculture.

Map 1-1: Project Location



Source: (EScience, 2014)

It was estimated that the ore reserves on site are about 28 million tonnes, which suggests that the mine will be in operation for approximately 20 years.

The mining right falls under Sylvania Platinum, a fast-growing PGMs producer with tailings retreatment operations and shallow mining exploration interests located on South Africa's PGM-rich Bushveld Igneous Complex (BIC) (Sylvania Platinum Limited, 2011). Sylvania's success has been founded on the fact that South Africa possesses the largest PGM reserves in the world and is, therefore, the largest producer of PGM's (SA Yearbook, 2020). According to the South African Yearbook 2019/2020, South Africa accounts for over 80% of known global reserves of the PGMs.

The proposed facility is served by many provincial roads and has direct access to the N1 and N11 national roads thus, providing good accessibility to the facility. The area around the proposed project site is predominantly rural. Furthermore, the site is located just over 55 kilometres south of Polokwane. Other towns within a 50-kilometre radius of the site are Mokopane (17 km) to the northeast, Sterkrivier (46 km) to the northwest, Roedtan (39 km). Another significant settlement is Moletlane (35 km) which comprise of multiple townships namely Matshelane, Magoto, Moletlane and Mamaileng, thus, forming one large settlement.

When further investigating the immediate location, it is noted that the proposed project is located 30 km south of an existing open pit mine. The proposed project is situated close to two small businesses being Kanniedood Guest Lodge and La Pumba Hunting Safaris. Apart from the aforementioned businesses, the surrounding area is mainly used for agricultural purposes.

1.3. STUDY AREA DELINEATION

In order to delineate the study area, it is important to understand the concept of socio-economic impacts. Socio-economic impacts refer to, is related to, or is concerned with the interaction of social and economic factors.

Socio-economic impacts can differ depending on the spatial extent, the type of activity and the structure and composition of the analysed project. Furthermore, the more diverse the immediate location is of where the proposed activity is located, in terms of its socio-economic variables, the more concentrated the impact will be in that area. However, it is rare to find a case where the demands of the proposed activity can be fully satisfied within the immediate location of the proposed project. Therefore, more often than not, the economic impact stretches throughout various sectors making it important to distinguish between the primary impact, secondary impact and the tertiary impacted zones.

The primary or direct impact zone refers to the immediate location of where the proposed project is located (40 km radius). The secondary impact zone refers to the district/province as a whole, and the tertiary impact refers to the country as a whole. Therefore, the assessment will evaluate various factors within these zones to determine the socio-economic impact. Assessing the potential economic impact on these zones is crucial in determining the magnitude and significance of the socio-economic impact.

1.4. UNDERSTANDING ECONOMIC IMPACTS

The purpose of this subsection is to provide an overview of economic models that will be used in this report, which include economic models designed for the South African economy and the Limpopo Province, to assess the economic implications of the proposed project. These economic models shall be compiled based on the Social Accounting Matrices (SAM) that illustrate the linkages between various economic agents. The models can be used to identify industry-specific multipliers on output, capital formation, Gross Domestic Product (GDP), employment, and income. These multipliers can also be split down into the numerous effects that can be noticed as a result of changing events introduced into the economy, such as a capital investment or an operating expense.

Three types of impacts are distinguished as follows:

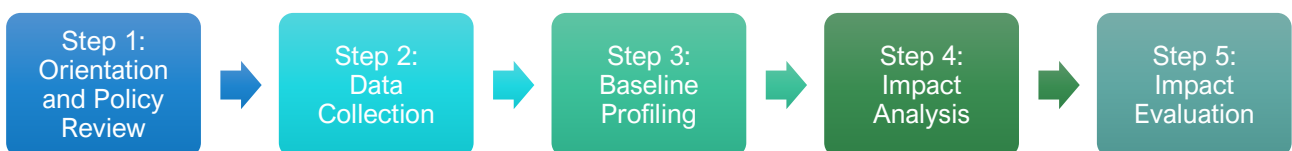
- **Direct** – these represent the original purchases for the project’s establishment or operations.
- **Indirect** – these are effects that spill over the industries that supply goods and services required for the implementation of the project or its operation, whether directly to the contractor or operator or through their suppliers.
- **Induced** – these are the effects that are stimulated by the change in income levels of households that would directly or indirectly be affected by the project and businesses.

Data for the assessment was sourced from the project environmental specialist based on data obtained from the client and are assumed to reflect the capital and operational expenditure on the project broken down in terms of economic sectors or project cost items.

1.5. METHODOLOGY

This subsection aims to highlight the methodology used to compile this report. The purpose of a research methodology is to explain the steps which will be taken when compiling the report, as well as to describe the activities undertaken during each step. The methodology employed in conducting the study comprise of the steps illustrated in Figure 1-1.

Figure 1-1: Methodology



Source: Urban-Econ

The following paragraphs briefly describe each step:

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

- **Step 1 - Orientation and Policy Review:** The purpose of this activity was to obtain all background information on the study area and the proposed project. Discussions with the project team were held to understand the potential zone of influence associated with each component of the project, which is defined by the extent of visual, noise and other envisaged environmental, social, and economic impacts. Relevant government policies and other strategic documents were also gathered and reviewed and the implications thereof on the project were documented; potential sensitive receptors and beneficiaries in the zones of influence were identified.
- **Step 2 - Data Collection:** The purpose of this step was to collect primary and secondary data to describe the interests and needs of the local communities as well as the socio-economic environment related to the zones of influence, within which the proposed project is to be established. Secondary data was collected by making use of Stats SA Census 2011 & 2023, StatsSA Labour Force Survey, Quantec Research database, Integrated Development Plans (IDP), Spatial Development Frameworks, and Provincial strategic documents.
- **Step 3 - Baseline Profiling:** Upon the collection of primary and secondary information, the study area's socio-economic profile was developed. It comprises the description of the study area's composition, demographic profile and income levels, economy and labour force, access to services, and land uses surrounding the project site.
- **Step 4 – Impact Analysis:** During this step, the potential impacts to be exerted by the proposed project were identified and assessed. The assessed impacts covered the effects of the project on numerous capitals, such as natural capital, human capital, social capital, cultural and spiritual capital, physical capital, financial capital, and institutional and political capital. The analysis also focused on determining the demographic impacts, economic impacts as well as social impacts of the proposed project.
- **Step 5 - Impact Evaluation:** All socio-economic impacts identified were assessed and categorised in line with the rating provided by the environmental specialist. Special attention was paid to the identification and analysis of the cumulative effects of the project, as required by the EIA Regulations. Possible mitigations were formulated whereby recommendations to reduce or eliminate the potential negative effects on the affected parties and enhance positive impacts were provided.

This socio-economic impact assessment was undertaken in accordance with the EIA Regulations, 2014 (Government Notice (GN) R982). The details of the regulation, and how this report complies, are outlined in further detail in Annexure B of this report.

1.6. DATA GATHERING AND CONSULTATION PROCESS

To provide an accurate representation of the study area's socio-economic environment, both primary and secondary data were consulted and analysed.

Secondary Data Gathering

The secondary data was sourced from the following databases and documents:

- Stats SA Census, 2011
- Quantec Research Standardised Regional Data, 1993–2019.
- Stats SA Quarterly Labour Force Survey, Q1 2021
- Community Survey, 2019
- National:
 - Beneficiation Strategy for the Minerals Industry of South Africa, 2011
 - Broad-based Socio-economic Empowerment Charter for the Mining and Minerals Industry (2018) (The Mining Charter)
 - Industrial Policy Action Plan (IPAP2), 2018/19-2020/21
 - Minerals and Petroleum Resources Development Regulations (GN R527 of 2004 – as amended from time to time)
 - National Environmental Management Act (No. 107 of 1998) (NEMA)
 - National Development Plan (NDP) 2011–2030
 - New Growth Path Framework (NGPF) 2010
 - National Spatial Development Perspective (2006)
 - National Infrastructure Plan (2012)
 - The Constitution of South Africa (Act 108 of 1996)
- Provincial:
 - Limpopo Strategic Plan 2020-2025
 - Limpopo Development Plan 2015-2019
 - Limpopo Provincial Spatial Development Framework (PSDF) (2015)
- Local:
 - Waterberg Mining Strategy of 2006
 - Waterberg District Municipality Spatial Development Framework (SDF) (2009)
 - Mogalakwena Local Municipality Integrated Development Plan 2022/23-2026/27.

Primary Data Gathering

A site visit was conducted to the proposed project and its surrounding area in November 2021. Subsequently, a stakeholder engagement process was conducted, involving consultations with local farmers in May 2024.

1.7. PROJECT ASSUMPTIONS AND LIMITATIONS

This section highlights the key assumptions that form the basis of the assessment and discussions of the study. These assumptions are in line with known gaps in the knowledge as well as limitations present within the study and are as follows:

- Secondary data sources used to compile the socio-economic baseline, including demographics and the economy, are intended to indicate broad trends within the study area and are by no means exhaustive.
- The study was conducted with the information available to the specialist within the time frames and budget specified.
- Possible impacts and stakeholder responses to these impacts cannot be predicted with complete accuracy, even when circumstances are similar, and these predictions are based on research and years of experience, taking the specific set of circumstances into account.
- It is assumed that the motivation and ensuing planning and feasibility studies for the proposed project were done with integrity and that all information provided to the specialist by the proposed project proponent and its consultants to date is accurate.

1.8. REPORT OUTLINE

The report consists of the following chapters, which can be disaggregated as follows:

- **Chapter 1: Introduction** - This chapter provides an introduction that contains the background and purpose of the study.
- **Chapter 2: Policy Review** – This chapter reviews all national, provincial, and regional policy documents and aims to ascertain whether the proposed developments align with the objectives of these policies.
- **Chapter 3: Baseline Information** - This chapter provides a baseline analysis which includes a status quo analysis of the study area's local economic development climate as well as the study area's composition and site-related information.
- **Chapter 4: Stakeholder engagement outputs** – This chapter summarises the key findings from the stakeholder engagement process conducted with the businesses/farms in proximity to the proposed development.
- **Chapter 4: Need and desirability assessment** – This chapter depicts aspects that support the need for and desirability of the Volspruit open pit mine development, as well as red flags that should be considered in the planned location.

- **Chapter 5: Impact Evaluation** – This chapter presents the study's high-level basic socio-economic impact assessment, which includes impacts that are presumptively expected to occur during Volspruit open pit mines' construction and operation.
- **Chapter 6: Conclusion** - This chapter summarises and consolidates the key findings of the study, as well as relevant concluding remarks and recommendations.
- **Annexure A: Impact Assessment Methodology** - This chapter presents the study's impact assessment methodology and a comprehensive impact assessment matrix.
- **Annexure B: Checklist** - Annexure A provides a checklist as per the EIA Regulations, 2014 (Government Notice (GN) R982) as amended to ensure that the assessment has been undertaken to meet the requirements.

2. POLICY REVIEW

A policy review plays an integral role in the early stages of a development. The review establishes whether the development is aligned with the goals and aspirations of the developmental policies of a country. This chapter provides a policy review to highlight issues that could jeopardise the development of the Volspruit open pit mine in accordance with the relevant policies. The chapter provides a discussion on the policies and strategic documents that were identified as applicable to the study areas from various spheres of government.

The following policies and strategic documents were identified as applying to the study areas:

- National:
 - Beneficiation Strategy for the Minerals Industry of South Africa, 2011
 - Broad-based Socio-economic Empowerment Charter for the Mining and Minerals Industry (2018) (The Mining Charter)
 - Industrial Policy Action Plan (IPAP2), 2018/19-2020/21
 - Minerals and Petroleum Resources Development Regulations (GN R527 of 2004 – as amended from time to time)
 - National Environmental Management Act (No. 107 of 1998) (NEMA)
 - National Development Plan (NDP) 2011–2030
 - New Growth Path Framework (NGPF) 2010
 - National Spatial Development Perspective (2006)
 - National Infrastructure Plan (2012)
 - The Constitution of South Africa (Act 108 of 1996)
- Provincial:
 - Limpopo Strategic Plan 2020-2025

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

- Limpopo Development Plan 2015-2019
- Limpopo Provincial Spatial Development Framework (PSDF) (2015)
- Local:
 - Waterberg Mining Strategy of 2006
 - Waterberg District Municipality Spatial Development Framework (SDF) (2009)
 - Mogalakwena Local Municipality Integrated Development Plan 2022/23-2026/27.

2.1. POLICY ANALYSIS

A summary of each policy is provided in Table 2-1, indicating the objectives of each policy as well as which objectives align with Volspruit open pit mine.

Table 2-1: Policy Summary

NATIONAL POLICIES	
BENEFICIATION STRATEGY FOR THE MINERALS INDUSTRY OF SOUTH AFRICA, 2011	<p>The 2011 Beneficiation Strategy for the Minerals Industry of South Africa intends to offer a framework that will allow the country's mineral value chains to develop in an orderly manner. The strategy seeks to:</p> <ul style="list-style-type: none"> • advance development through the optimisation of linkages in the mineral value chain, facilitation of economic diversification, promote job creation, and promote industrialisation. <p>The development of the Volspruit open pit mine is expected to increase employment opportunities and promote economic growth in the local economy. Therefore, the proposed Volspruit open pit mine is in line with the Beneficiation Strategy for the Mineral Industry.</p> <p>(Department of Mineral Resources, 2011)</p>
BROAD-BASED SOCIO-ECONOMIC EMPOWERMENT CHARTER FOR THE MINING AND MINERALS INDUSTRY (2018) (THE MINING CHARTER)	<p>The Mining Charter III is intended to be a tool for accelerating the mining and minerals sector's transformation while fostering policy certainty. The Mining Charter's vision is to "facilitate sustainable transformation, growth and development of the mining industry" (Republic of South Africa, 2018). To achieve its vision, it uses a scorecard to support transformation while providing policy certainty, which includes the following elements:</p> <ul style="list-style-type: none"> • Ownership: To enable effective mineral resource ownership. • Mine Community Development (MCD): To make a meaningful contribution towards Mine Community Development with bias towards the mine's communities. • Employment Equity (EE): To attain fairness in the workplace by promoting equal opportunity. • Human Resource Development (HRD): To play an important role in developing mine employees and communities. • Inclusive Procurement, Supplier and Enterprise Development: To promote the development of local empowered businesses through targeted procurement. • Housing and Living Conditions: To provide decent housing and living conditions intended to improve employee wellness through ensuring good living standards.

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

<p>INDUSTRIAL POLICY ACTION PLAN (IPAP2), 2018/19 – 2020/21</p>	<p>The proposed Volspruit open pit mine has the potential to empower the community through employment opportunities, local procurement, and local development.</p> <p>(The Mining Charter, 2018)</p> <p>The Industrial Policy Action Plan (IPAP2) aims to increase the economy's capacity for production. It strives to boost economy-wide production levels while more effectively producing complex, high-value products. IPAP2 envisions achieving these objectives through:</p> <ul style="list-style-type: none"> • Infrastructure-driven industrialisation aimed at sustaining and building public and economic infrastructure. • Strengthening the localisation of public procurement • Resource-driven industrialisation enables the leveraging of the green industries. • Stronger alignment of industrial policies and programmes with investment and export-promotion programmes focused on increasing aggregate domestic demand. • A strong commitment to supporting emerging black industrial entrepreneurs. • Promoting more competitive exports. • Minimising regulatory and red tape measures. • Meeting the challenges of technological change. <p>It is important to note that this policy places emphasis on “promotion of beneficiation and value-addition to the country’s minerals”. Therefore, it can be concluded that the proposed Volspruit open pit mine aligns with the Industrial Policy Action Plan through its potential to strengthen local procurement and promote sustainable infrastructure development.</p>
<p>MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT (ACT 28 OF 2002).</p>	<p>(Department of Trade and Industry, 2018)</p> <p>The Mineral and Petroleum Resources Development Act (MPRDA) provides a regulatory framework governing the acquisition of mining and exploration rights, which is framed by the requirements of the Broad-based Socio-economic Empowerment Charter for the Mining and Minerals Industry. Its main goal is to:</p> <ul style="list-style-type: none"> • to make provisions for fair access and sustainable development of the country's mineral and petroleum resources. • make provisions for matters such as creating and putting into effect a Social and Labour Plan and a Local Economic Development Plan that are in line with the LMs IDP. <p>The proposed Volspruit open pit mine is in alignment with the MPRDA as it is expected to contribute to local economic development by creating jobs and ensuring that the communities surrounding the mine will be the main beneficiaries.</p>
<p>NATIONAL ENVIRONMENTAL MANAGEMENT ACT (NO. 107 OF 1998) (NEMA)</p>	<p>(Republic of South Africa, 2015)</p> <p>NEMA is a legal framework to implement Section 24 of the Constitution of the Republic of South Africa. It is intended to promote cooperative governance, safeguard public health and the environment, and guarantee the protection of human rights while also acknowledging the need for economic development. The aim is to:</p> <ul style="list-style-type: none"> • Prevent pollution and ecological degradation. • Ensure sustainable development by providing for quality measures, standards, and management. <p>The proposed Volspruit open pit mine could potentially not fully align with the NEMA as the mine could cause air pollution and the value of properties in the affected communities</p>

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

	<p>might depreciate. Nevertheless, there are individuals who may prefer residing in proximity to the mine due to the perceived safety and convenience of being near economic opportunities and their workplaces. Additionally, concerns regarding property value may be less significant for residents in the vicinity.</p> <p>In addition, mine activities and contamination could cause loss of biodiversity and contamination of ground, air and surface water. In order to regulate air quality and other related pollution impacts, adequate mitigations have been put in place and the mine should continue to do so.</p> <p>(Republic of South Africa, 2022)</p>
NATIONAL DEVELOPMENT PLAN (NDP) 2030, 2012	<p>The National Development Plan (NDP) 2030 aims to address South Africa's developmental challenges of poverty and inequality by 2030. Key aspects deemed necessary to enhance social cohesion, reduce poverty and raise living standards include:</p> <ul style="list-style-type: none"> • Creating jobs and livelihoods. • Expanding infrastructure. • Transforming urban and rural spaces. • Transitioning to a low-carbon economy. • Improving education and training. • Providing quality health care. • Building a capable state. • Fighting corruption and enhancing accountability. • Transforming society and uniting the nation. <p>The proposed project is mostly in alignment with the National Development Plan through its potential to create employment, providing training and expanding infrastructure (access roads etc).</p> <p>(National Planning Commission, 2012)</p>
NEW GROWTH PATH FRAMEWORK (NGPF), 2010	<p>The New Growth Path Framework (NGPF) aims to ensure that jobs and decent work are at the centre of economic policy. The NGPF has identified several job drivers and priority sectors that should be focused on over the coming years. These include:</p> <ul style="list-style-type: none"> • Infrastructure investment. • Prioritising efforts to support employment in the main economic sectors. • Seizing the potential of new economies. • Investing in social capital and public services. • Spatial development. • Fostering rural development and regional integration. <p>The proposed project shows alignment to the New Growth Path regarding its aim to invest in infrastructure and its potential to increase employment.</p> <p>(Department of Economic Development, 2010)</p>
NATIONAL SPATIAL DEVELOPMENT PERSPECTIVE (2006)	<p>The NSDP (2006) provides a framework by the State for a focussed intervention in equitable and sustainable development. It represents the State's initiative towards ensuring greater economic growth, eradication of poverty and sustained job creation. It provides:</p> <ul style="list-style-type: none"> • The implications for government intervention and an interpretation of the spatial realities. • A set of guides and mechanisms for leading infrastructure, investment and development decisions.

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

	<ul style="list-style-type: none"> A description of the spatial manifestations of the main economic, social and environmental trends that should form the basis for a shared understanding of the national space economy. <p>The proposed project shows alignment to the National Spatial Development Perspective by meeting the objective of a better life for all by eradicating poverty in the respective communities and investing in infrastructure.</p> <p>(Republic Of South Africa, 2006)</p>
THE NATIONAL INFRASTRUCTURE PLAN (2012)	<p>The South African Government adopted a NIP in 2012. This plan aims to transform SA's economic landscape by creating significant number of new jobs and better the delivery of basic services. This plan aims to promote:</p> <ul style="list-style-type: none"> Skills development aimed at critical sectors. Empowerment. Greening the economy. Re-industrialisation through the manufacturing of machinery, inputs and components. <p>The Proposed project shows alignment with the National Infrastructure Plan by empowering people through skills development and unlocking mineral resources which will in turn create employment opportunities.</p> <p>(Republic of South Africa, 2012)</p>
PROVINCIAL POLICIES	
LIMPOPO STRATEGIC PLAN 2020-2025	<p>The Limpopo Strategic Plan seeks to outline the provincial priorities for social and economic development for a 5-year period. The plan aims to achieve through the implementation of social and economic programs that result in the achievement of development outcomes, which are outlined as follows:</p> <ul style="list-style-type: none"> Create decent employment through inclusive economic growth and sustainable livelihoods Ensure sustainable development Raise the effectiveness and efficiency of a developmental public service Improve the quality of life of citizens Prioritise social protection and social investment Promote vibrant and equitable sustainable rural communities. <p>The proposed project is in alignment with the Limpopo Strategic Plan through its role in creating employment opportunities through inclusive economic growth, which will result in vibrant and productive communities. By creating employment opportunities, there is a possibility of decreasing unemployment and crime due to the development of the Mine.</p> <p>(Limpopo Provincial Government, 2020)</p>
LIMPOPO DEVELOPMENT PLAN 2015-2019	<p>Mining is the predominant sector in Limpopo, contributing 29% to the value of total production. This shows the province's dependence on the mining and agricultural sectors. The Limpopo Development Plan shows the provinces' provisions towards socio-economic development through the reduction of poverty, reduction of inequality and the improvement of the citizens quality of life as required by the National Development Plan (NDP) (Provincial Policy Agenda, 2015-2019).</p> <p>The proposed development is in alignment with the Limpopo Development Plan as it highlights the importance and significance of mining in Limpopo in creating a better</p>

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

standard of living for all. However, the proposed project may have some adverse effects on the agricultural sector, which necessitates further investigation.

(Limpopo Provincial Government, 2015)

LIMPOPO PROVINCIAL SPATIAL DEVELOPMENT FRAMEWORK (PSDF) (2015)

The Limpopo Provincial Spatial Development Framework's (PSDF) vision is to create a sustainable urban and rural spatial development pattern focussed on a modern, ecologically sustainable economy, supported by a suitably skilled labour force and providing for quality of living (Limpopo Provincial Government, 2015). In order to realise its vision, it has set out strategic goals which include:

- International Cooperation to Accelerate Sustainable Development in Developing Countries and Related Domestic Policies (Trade).
- Changing consumption patterns in energy and transport.
- Environmentally sound management of biotechnology and transfer of environmentally sound technology, cooperation, and capacity building.
- Demographic dynamics and sustainability.
- Protecting and promoting human health.
- Promoting sustainable human settlement development.
- Integrating environment and development in decision making.
- Protection of the atmosphere.
- Integrated approach to the planning and management of land resources.
- Combating deforestation.
- Managing Fragile Ecosystems: Combating Desertification and drought.
- Managing fragile ecosystems: Sustainable Mountain development.
- Promoting sustainable agriculture and rural development.
- Conservation of biological diversity.
- Protection of the quality and supply of freshwater resources.

The proposed development is somewhat in alignment with the Limpopo PSDF by optimising land utilisation, encouraging investments and promoting economic growth. However, the proposed project may have some adverse effects on the agricultural sector, which necessitates further investigation.

(Limpopo Provincial Government, 2015)

LOCAL POLICIES

WATERBERG MINING STRATEGY OF 2006

The Waterberg Mining strategy of 2006 is part of a broader intervention that aims to accelerate economic development in Waterberg district. It is still very much relevant although it may appear as outdated. The strategy's objectives include:

- Promoting the capacity of Black economic empowered companies from within the Waterberg region to meet the procurement needs of the mines in terms of supply.
- Creating and promoting a conducive environment for new mine developments, mine expansions and infrastructure.
- Enhancing the capacity of local municipalities, communities and traditional leaders to maximise the benefits of mining developments within their vicinities.

The proposed project aligns with the Waterberg Mining Strategy of 2006 as mining is the largest economic contributor of the municipality and recognised as the driving force to accelerate development and growth in the area. The establishment of this mine will create jobs and encourage competitiveness in the local business industry.

(Republic of South Africa, 2006)

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

WATERBERG DISTRICT MUNICIPALITY SPATIAL DEVELOPMENT FRAMEWORK (SDF) (2009)

The Waterberg District Municipality Spatial Development Framework (SDF) aims to provide guidelines for the land use management system as well as organising development activities and the built form, whilst protecting the natural environment and how services are provided. Objectives include:

- Creation of economic and social activities.
- Stimulation of growth and development.
- Improving business confidence in the area.

The proposed project aligns with the Waterberg District Municipality Spatial Development Framework as this mine will attract investments. The increase of investments in the mine will lead to an increase in business confidence in the area, thus resulting in other businesses opening which will stimulate economic growth and development.

(Waterberg District Municipality, 2009)

MOGALAKWENA LOCAL MUNICIPALITY INTEGRATED DEVELOPMENT PLAN 2022/23- 2026/27

The Mogalakwena local Municipality Integrated Development Plan (IDP) vision is “to be the leading, sustainable and diversified economic hub focused on community needs” (Mogalakwena Local Municipality, 2022). This vision aligns with the states vision for 2030. The IDP seeks to achieve the following:

- Providing affordable and quality basic services.
- Being responsive, accountable and consultive.
- Creating a sustainable and conducive environment for social and economic development

Mining is the major economic activity of the local municipality. The main mining commodities include coal, platinum, clay and granite.

This policy acknowledges that mining causes biodiversity losses and high pollution levels. However, the local municipality has prioritised road and stormwater infrastructure development in recognition of the potential growth of the area due to the future influx of mining companies and the associated activities.

The proposed project aligns with the IDP goals as the municipality is making provision for the construction of new mines. This mine will create jobs which will address the unemployment issues in this municipality and therefore leading to sustainable economic development. However, the proposed project may have some adverse effects on the agricultural sector, which necessitates further investigation.

(Mogalakwena Local Municipality, 2022)

2.2. CONCLUDING REMARKS

The preceding analysis of national policies and objectives underscores their central focus on economic advancement, poverty alleviation, sustainability, and job creation. These visions harmonise seamlessly with Limpopo Provincial and local policies. The above national documents show that there is alignment between the proposed Volspruit open pit mine with the government's strategic goals of job creation, infrastructure enhancement, and sustainable economic expansion. Furthermore, these policies advocate that mining, tourism, and agriculture can catalyse the development of rural communities.

The mine offers several benefits to communities through successful implementation of social and labour plans. These include upgrading roads in the affected communities, creation of jobs and developing the skills of their employees. This will inherently lead to local economic development growth. Nevertheless, negative externalities are always present in mining.

From the perspective of the National Environment Management Act (No. 107), the mining project could potentially contribute to some air pollution. The blasting activities need to be highly regulated and appropriate measure to be put in place to ensure this will not be an issue for the community. Blasting is especially a threat to the neighbouring farms, which focus on agricultural activities.

At a provincial level, the Limpopo Provincial Government strives to reduce poverty levels, reduce unemployment by the creation of jobs and increase economic development. As a result, the proposed Volspruit open pit mine aligns with provincial policies as it will create employment opportunities which will lead to an increase in income levels in the respective communities, which will in turn increase consumption levels that will create a positive impact on the economy. However, the mining facilities will impact current farming activities on the property and may also impact farming activities in proximity to the mine, necessitating additional investigation.

Both Provincial and Local Municipal strategic documents outline the need for increased job opportunities, local economic development as well as diversification of the economy to avoid risks linked with the closure of mines. The analysed documents show that South Africa should take advantage of the fact that it is rich in a wide variety of natural resources and minerals.

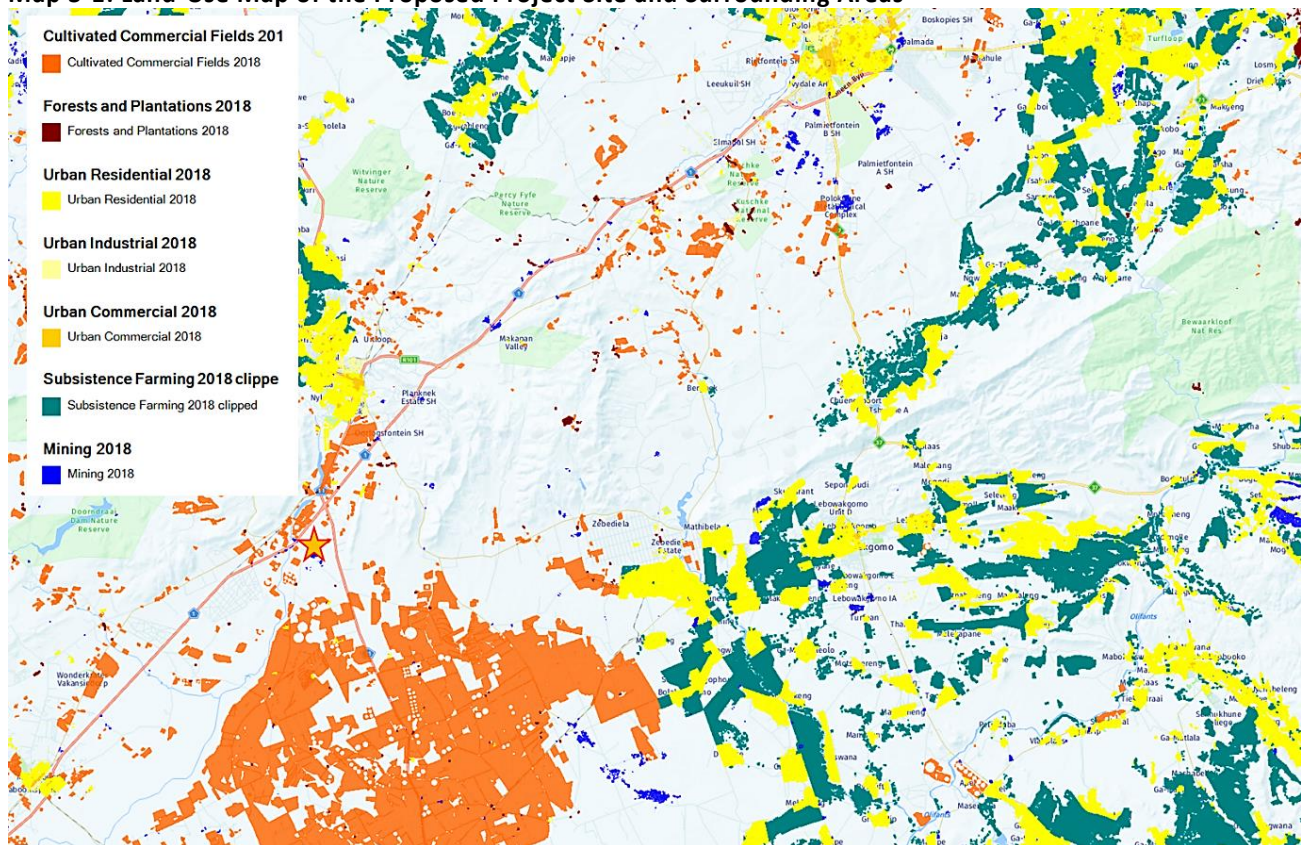
3. SITE-RELATED INFORMATION

This chapter investigates the various dynamics of the proposed project site, which investigates various maps to provide the spatial context for the study. The maps investigate the surrounding areas of the site, with an analysis of the potential alignment of the envisioned project with the land use and capability maps.

3.1. LAND-USE PROFILE

Map 3-1 below illustrates the current land use of the proposed project site and its surroundings. The map includes various land uses that spatially illustrate various types of developments near the proposed project site marked by the yellow star.

Map 3-1: Land-Use Map of the Proposed Project Site and Surrounding Areas



Source: (MapAble®, 2021)

From **Map 3-1**, it is evident that the proposed site is not situated in the immediate vicinity of any urban developments. However, the proposed site is located near cultivated commercial fields, as indicated by the orange shading. The site is also within a region designated for mining, as shown by the blue shading. Therefore, the proposed site aligns with the intended land use, acknowledging that the surrounding activities are predominantly agricultural.

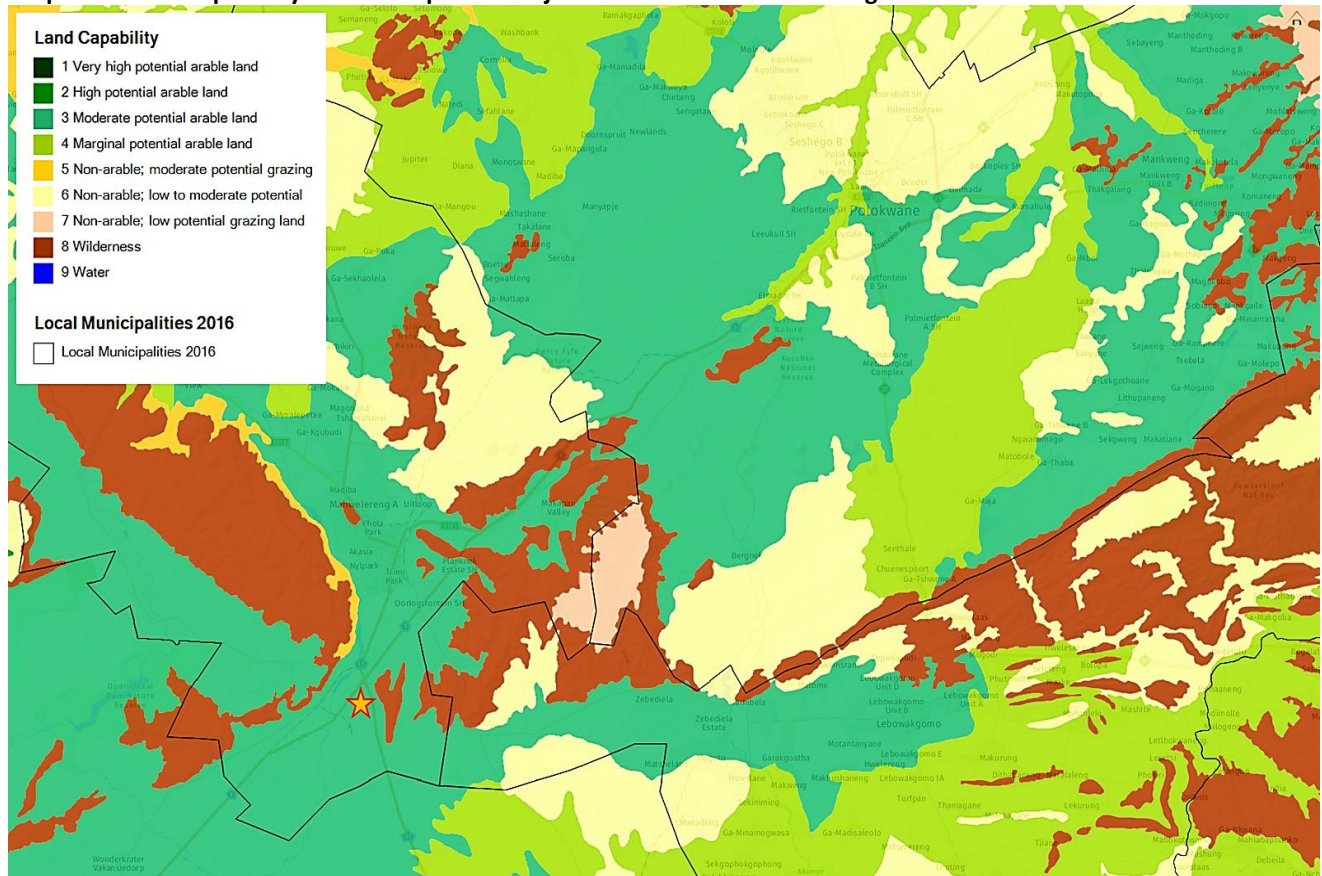
3.2. RESOURCES AND LAND CAPABILITY

This sub-section will serve as an overview of the resources and land capability within proximity of the proposed project site. Land capability can be described as the ability of the land to support plant growth or artificial plant growth and wildlife habitat without causing any damage. Land capability looks at the following factors:

- Production potential.
- Risk of damage from erosion and other causes.
- The difficulties in land use caused by physical factors such as climate.

Map 3-2 below shows the land capability of the proposed project site and its surroundings. The map focuses on the level to which the land is potentially arable for agricultural purposes.

Map 3-2: Land Capability of the Proposed Project Site and its Surroundings



Source: (MapAble®, 2021)

Map 3-2 illustrates that the proposed project site (marked with a yellow star) is suggested within an area that is moderate potential arable land demarked by the darker green shading. The observation is in line with the land-use profile as the region where the site is proposed is largely surrounded by farmland as noted in the previous sub-section.

For farmers, this means that the establishment of the proposed mining project in an area of moderate arable potential could have several implications:

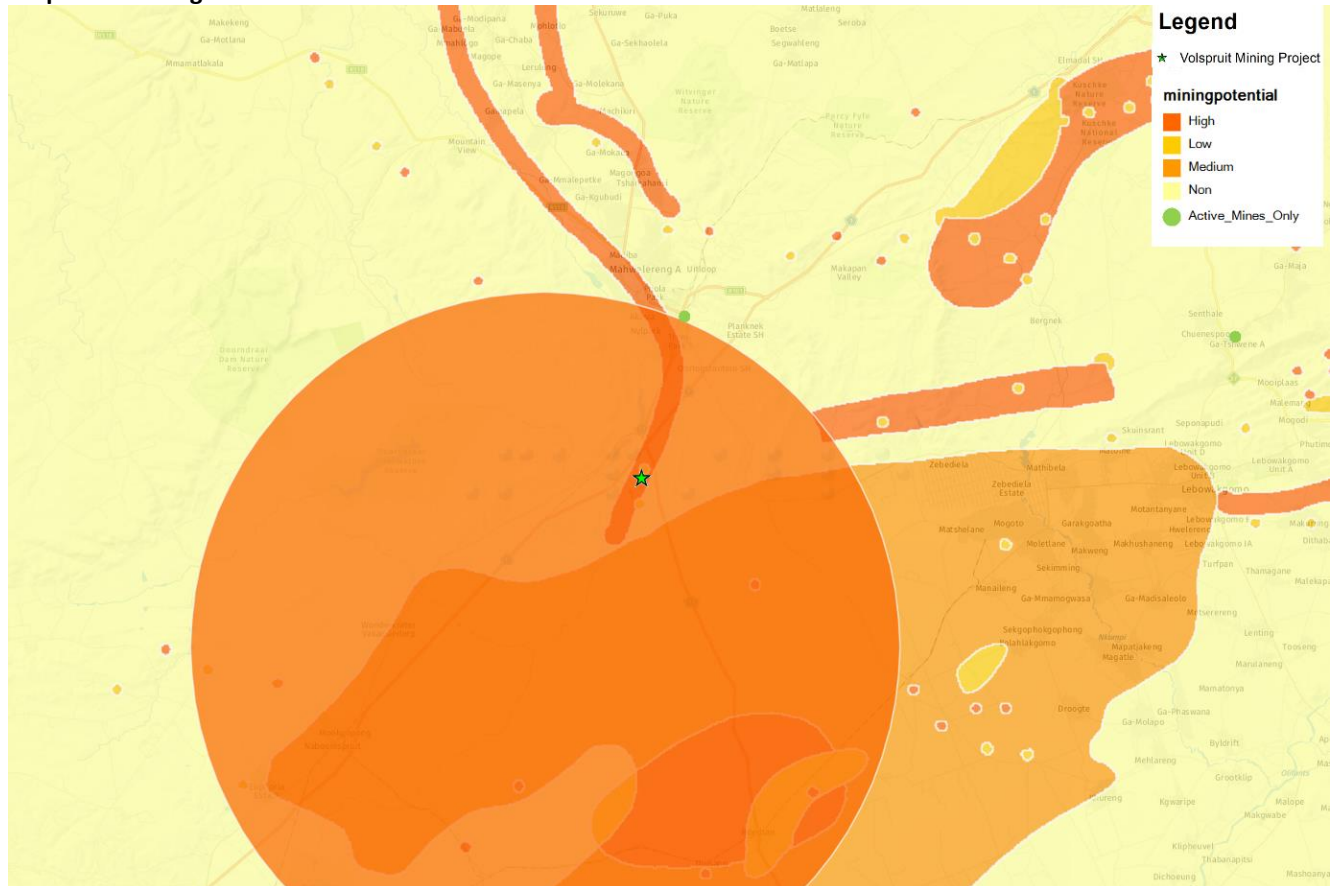
- **Reduction in Arable Land:** The conversion of farmland to a mining site will reduce the amount of arable land available for agricultural activities, potentially impacting local food production and farmers' livelihoods.
- **Disruption of Agricultural Activities:** Mining operations could disrupt existing farming activities through noise, dust, and vibrations, which can affect crop yields and the overall productivity of the land.
- **Environmental Concerns:** The introduction of mining activities in an agricultural region may raise concerns about soil degradation, water contamination, and air pollution. These environmental issues could adversely affect crop quality and health, thereby impacting farmers' income and sustainability.
- **Economic Shifts:** While the mining project may create new employment opportunities and contribute to economic development, it may also lead to a shift in the local economy from agriculture to mining. This shift could impact the economic stability of farmers who rely on agriculture as their primary source of income.
- **Community Dynamics:** The influx of workers and changes in land use may alter the social and economic dynamics of the local community, leading to potential conflicts between agricultural and mining interests.

Overall, while the proposed mining project aligns with regional land-use designations, it necessitates careful consideration and management to balance the interests of agricultural stakeholders and the mining sector. This will be further investigated within the following chapters of this report.

3.3. MINING POTENTIAL

Map 3-3 below illustrates the mining potential around the proposed site, highlighting both the medium to high mining potential of the area and the existing mining activities observed in the surrounding regions. This map provides a comprehensive overview of the local mining landscape, helping to contextualise the proposed mining project's impact on the area.

Map 3-3: Mining Potential



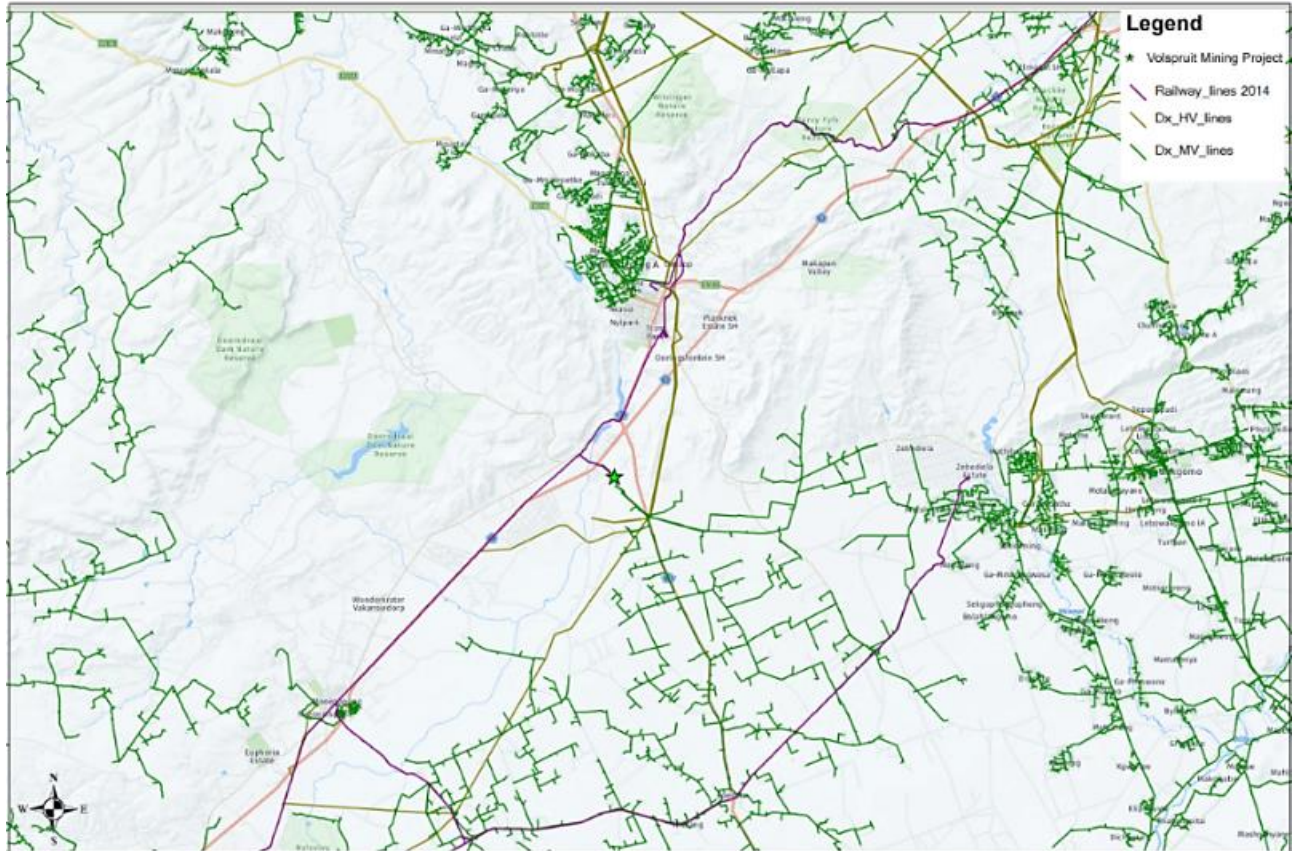
Source: (MapAble®, 2021)

Map 3-3 illustrates that the proposed site is located in an area of medium to high mining potential. This observation indicates that the region has significant mineral resources that can be economically extracted, making it an attractive site for mining operations. The establishment of mining operations often leads to the development of infrastructure such as roads, which can benefit local communities. However, the increased traffic and industrial activity might also pose challenges for farming operations.

TRANSPORT INFRASTRUCTURE

The Mogalakwena LM is mainly accessible via national and provincial roads however, the most common modes of transport include buses and taxis, private cars, donkey carts, bicycles & walking. Since residential areas are separated from places of work, people tend to travel long distances to employment areas. Moreover, some of the roads are not suitable for formal transport due to their poor condition (Mogalakwena Local Municipality, 2019).

Map 3-4 illustrates the existing road infrastructure found around the proposed project.

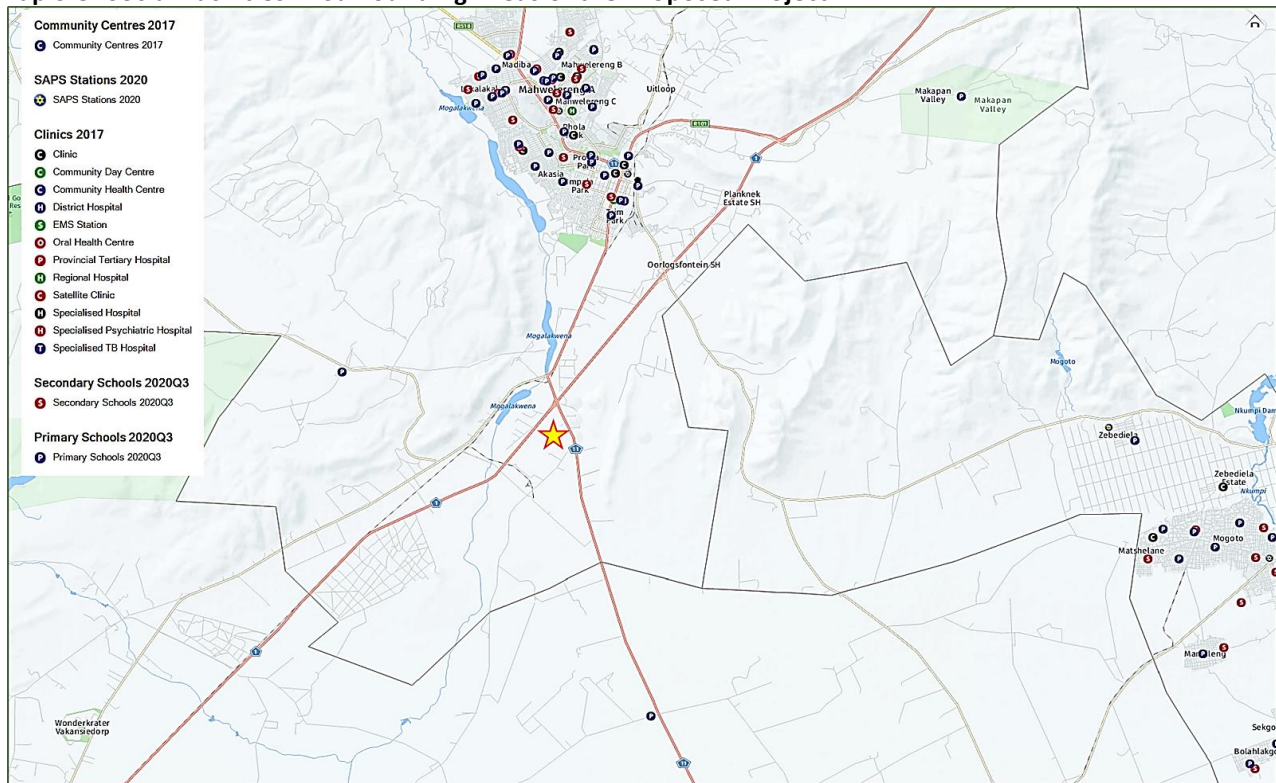
Map 3-4: Transport Infrastructure surrounding the Proposed Project Site

SOURCE: (MapAble®, 2021)

In terms of the proposed project, marked with a green star in the middle of the map, it can be noted that the proposed mine has relatively good access to national and provincial roads connecting it to the rest of the country and surrounding settlements. This strategic location ensures that the mine can efficiently transport materials and goods, facilitating smooth logistical operations. Additionally, the proximity to major road networks enhances the potential for economic integration with nearby communities and markets, further supporting the project's feasibility and anticipated positive economic impact.

3.4. SOCIAL INFRASTRUCTURE

Understanding the availability and proximity of social facilities is crucial when assessing the potential impact of the proposed Volspruit open pit mine. Access to essential services such as education, healthcare, and security plays a significant role in the well-being of local communities. This subsection examines the location of social facilities relative to the proposed project site, providing a comprehensive overview of how these services are distributed in the surrounding areas. **Map 3-5** indicates where hospitals, clinics, secondary schools, primary schools and police stations are located relative to the proposed project site.

Map 3-5: Social Facilities in Surrounding Areas of the Proposed Project

SOURCE: (MapAble®, 2021)

As illustrated in **Map 3-4**, the proposed project site is not in the direct vicinity of any social facilities. However, the closest facilities to the site are primary and secondary schools. Additionally, clinics, district hospitals, provincial tertiary hospitals, and police stations can be found in the nearby areas of Mokopane, Zebediela, and Molelane. This distribution of social facilities indicates that while immediate access to essential services may be limited, the surrounding areas are adequately equipped to support the community's needs.

3.5. CONCLUSION

This chapter provides a comprehensive overview of the site-related characteristics and potential impacts of the proposed project. The analysis reveals that while the surrounding area primarily consists of farmland, indicating agriculture as the predominant economic activity, there exists medium to high mining potential in the region. Additionally, the land capabilities map indicates that the proposed project site is situated within an area of moderate arable land, aligning with the prevalent land-use profile. Considering these findings, it is evident that the proposed project holds promise in terms of its mining potential, while also acknowledging the moderate land capability for agriculture in the area.

4. BASELINE INFORMATION

This chapter addresses the study area's existing socio-economic environment. A baseline profile is necessary to provide both qualitative and quantitative data on the people and economies under study and thus serves as a benchmark against which the project effects may be measured. Given the limited data available, this section primarily focuses on providing baseline information for the secondary study area. It is assumed that the secondary study area will serve as a representative sample of the primary study area. This section will analyse the following key indicators:

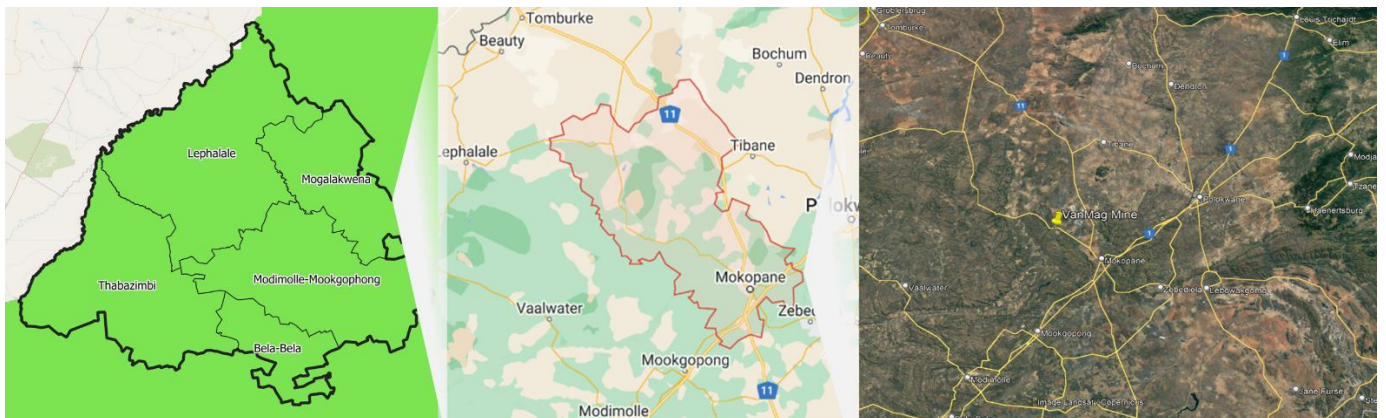
- The study area's composition and locational factors
- Sense of place, history, and cultural aspects
- Demographics, and crime
- Income and education
- Economy
- Labour force and employment structure.

4.1. STUDY AREA'S COMPOSITION AND LOCATIONAL FACTORS

The proposed development is situated in Mogalakwena LM which is one of the six local municipalities forming part of the Waterberg District namely, Thabazimbi, Bela-Bela, Lephalale, Modimolle and Mookgophong. Mogalakwena consists of small rural settlements such as Rebone, Gilead, Limburg, Baltimore and Mahwelereng.

Mogalakwena LM was established on the 5th of December 2000 and is a Category B municipality. Category B municipalities are defined as municipalities that share their power and functions with a Category C municipality (Constitution of the Republic of South Africa, 1996).

Map 4-1: Representation of study area



Source: Profile: Waterberg District and Google Earth, Adapted by Urban Econ (2023)

The Waterberg DM is a Category C municipality which is defined as municipalities that have municipal executive and legislative authority in an area that includes more than one municipality (Constitution of the Republic of South Africa, 1996). The Waterberg DM is one of the most mineralised areas in the world and several towns form part of the Bushveld Igneous Complex, a 50000km² precious metals trove producing huge amounts of minerals such as platinum, nickel, chromium, and vanadium. The Waterberg District is the ideal tourist destination and getaway, offering a bit of both worlds, an opportunity to experience the African wilderness and an infrastructure of great facilities (Limpopo Provincial Government, 2023).

4.2. SENSE OF PLACE, HISTORY AND CULTURAL ASPECTS

The Mogalakwena Local Municipality is located in the western part of the Limpopo Province, within the western district of the Waterberg Municipality. The N11 and N1 run through this area, which links the municipality to the rest of the Limpopo province as well as southern Gauteng. The R518 also runs through this area, which links Lephalale with Zebediela via Mokopane.

Mokopane is the only town in the Mogalakwena Municipality, surrounded by Lephalale to the north, Aganang to the east and Mookgophong to the south. Mogalakwena is mostly rural and consists of agricultural land with small and fragmented settlements throughout the region (Mogalakwena Local Municipality, 2010). Mogalakwena Local Municipality's main economic activities are mining and agriculture. These industries generate significant revenue for the Limpopo province, but the benefits reaped by the affected communities in the mining sector are minimal (Mogalakwena Mine Social Audit Report (2022). Mogalakwena can be described as a multi-cultural community that is rich in history. Mogalakwena is a Northern Sotho name that means 'a place where crocodiles cry'.

The LM is largely situated in a bushveld environment and a multi-cultural community (Mogalakwena Local Municipality, 2019). The town of Mokopane, as with the towns of Lephalale and Thabazimbi in Limpopo, was founded as the result of mining activities found in these areas.

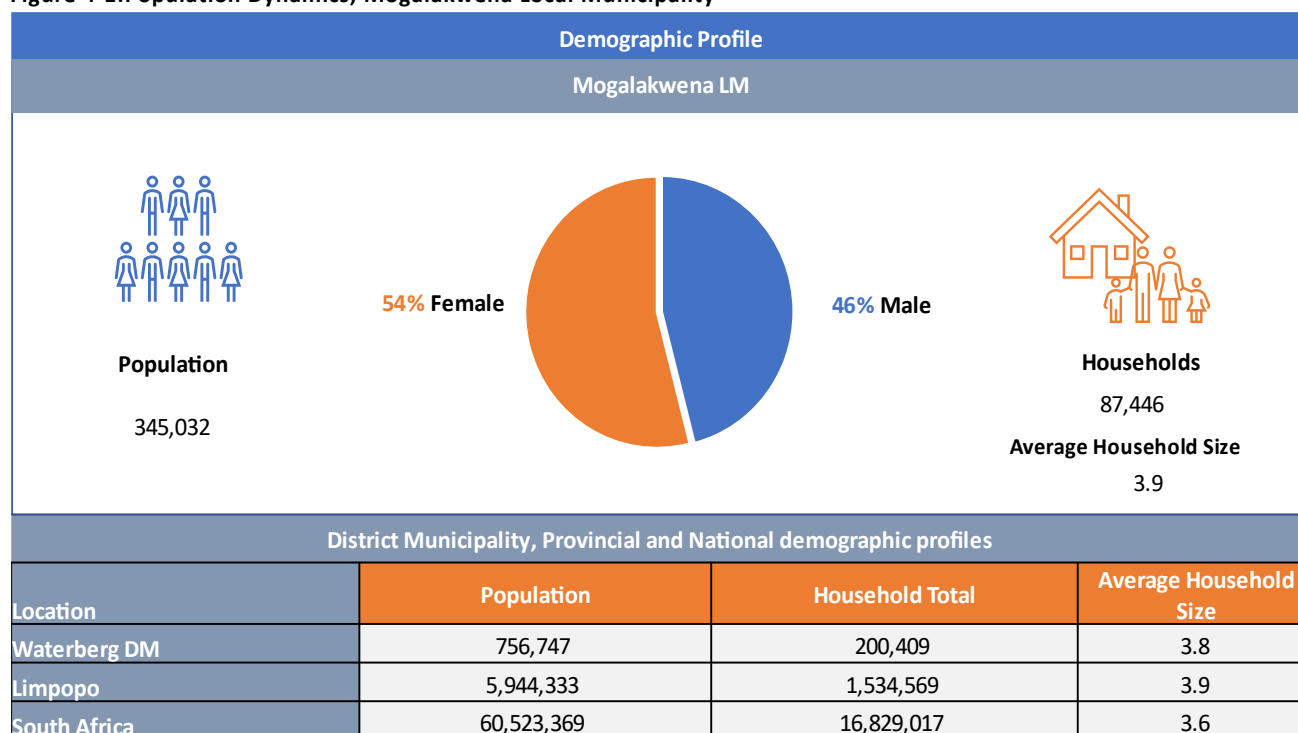
The area also boasts various tourism sites. These include Makapan Valley, a United Nations Educational, Scientific and Cultural Organization (UNESCO) Heritage Site, located 15 km east of Mokopane. In the caves of Makapan Valley, notable sediments, fossils, bones, and artefacts were found and are persevered as a unique record of hominid habitation and evolution, which dates to 3.3 million years ago (Mogalakwena Local Municipality, 2019). Additionally, a museum and various game and nature reserves are present in the area, offering outdoor activities ranging from hiking, fishing, water sports, game viewing, camping, and birdwatching.

4.3. DEMOGRAPHIC PROFILE

This subsection aims to provide an overview of the demographics, health and crime profiles within the study area. It is important to analyse these profiles to determine the extent if any, to which the communities will be impacted by the proposed project.

Figure 4-1 illustrates the population dynamics of Mogalakwena Local Municipality. Population dynamics help in understanding how a population grows, decreases or adapts to its environment. Factors that impact population dynamics include birth rate, death rate, population density, education and social and cultural factors.

Figure 4-1: Population Dynamics, Mogalakwena Local Municipality



Source: (Quantec, 2023)

The Mogalakwena LM recorded an annual population growth rate of 1,05% per year between 2011 and 2022 (Quantec, 2022). In 2022, the Mogalakwena LM had a population of approximately 345,032 people with a total of 87,446 households, as illustrated in the figure above (Quantec, 2022). The population in Mogalakwena constitutes about 45,59% of Waterberg's population. This illustrates that Mogalakwena LM has the highest population in the Waterberg district (Mogalakwena Local Municipality, 2022). The increase in population and the number of households can possibly be explained by migration (in search of better economic opportunities) and an increase in fertility rates. Figure 4-2 also illustrates that a large portion of the population are mostly females (54%). Figure 4-2 also illustrates that Mogalakwena Local Municipality's average household size is 3.9 which is higher than

Waterberg district municipality's household size which is approximately 3.8. This further suggests that Mogalakwena Local Municipality has the highest population in the district.

Table 4-1 illustrates the demographic profile for the respective regions, including an overview of the nation and the Limpopo province.

Table 4-1: Demographic profile (2022)

Location	Area (km ²)	Population density per km ²	Household density per km ²
South Africa	1,220,812.603	49.6	13,8
Limpopo	125,753.886	47.3	12,2
Waterberg DM	44,913,379	16.8	4,5
Mogalakwena LM	6,166.052	56.0	14,2

Source: (Quantec, 2023)

Table 4-1 shows that Mogalakwena LM has a significantly higher population density (56.0) than its district municipality (16.8), as well as a higher population density than Limpopo (47.3) and South Africa (49.6). Furthermore, the table also illustrates that Mogalakwena LM has a significantly higher household density per km² (14,2) than its district municipality (4,5), as well as a higher household density per km² than Limpopo (12,2) and South Africa (13,8). These insights underscore the municipality's unique demographic landscape, highlighting its pivotal role in the broader socio-economic fabric of the district, province, and nation.

Health:

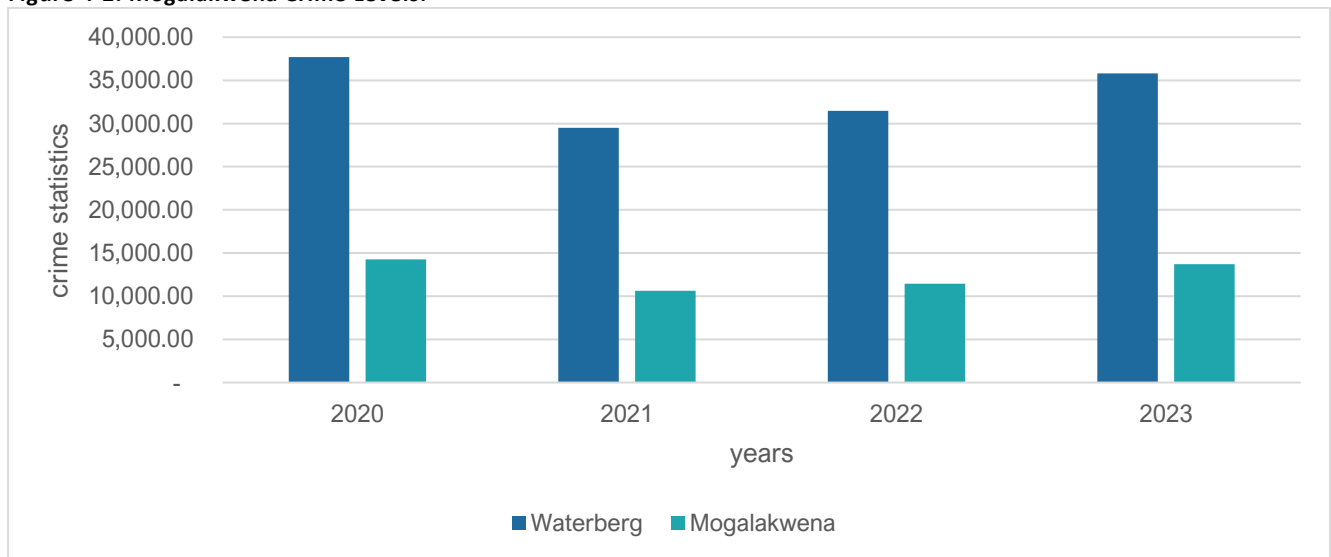
Access to social facilities is among the municipality's priorities of the local government. The Mogalakwena LM has 3 hospitals, 1 health centre, 12 mobile clinics and 29 clinics. More than 80% of the population is within 120 minutes from health facilities (Mogalakwena Municipality, 2021). It is important to note that this proposed project is an open pit mine and may have long-term adverse impacts on the affected communities' health and the overall environment. This will be further discussed in chapter 6 of the report.

Crime Profiles:

According to the Mogalakwena LM Integrated Development Plan, the crime categories with the highest crime level include community-reported serious crime, assault, theft, drug-related crimes, and burglaries. Crime prevention, security and safety are among the municipality's priorities of the local government as outlined in the local strategic documents. Planned improvements to the provision of basic services and infrastructure such as street lighting are envisaged to assist with crime reduction in

the area (Mogalakwena Local Municipality, 2019). Figure 4-3 illustrates the serious crime levels of the Mogalakwena Local Municipality and Waterberg District Municipality.

Figure 4-2: Mogalakwena Crime Levels:



Source: (Quantec, 2023)

As illustrated in **Figure 4-2** both Mogalakwena LM and Waterberg DM experienced an increase in crime rates in 2020 and a decrease in crime rates in 2021. The increase in crime rates in 2020 may be due to people taking advantage of the COVID-19 lockdown restrictions and seeing it as an advantage to commit crime. It is also important to note that during that lockdown period, many businesses had to shut down, resulting in people losing their source of income and jobs, this may have contributed to the crime levels in 2020. The decrease in crime rates in 2021, may be due to the lingering effects of the Covid-19 pandemic on the economy. According to Stats SA, an upward trend was seen between 2016/17 to 2019/20 for experience of murder, housebreaking and theft of motor vehicles, but there was also a decline observed in the experience of these three types of crime between 2019/20 and 2020/21. Although, crime levels decreased in both Mogalakwena LM and Waterberg DM, domestic violence cases however, went up (Stats, SA 2022). In 2023, the crime levels went back to previously observed levels.

This proposed project could lead to an influx of people coming to the area, in search of new employment opportunities that the mining activities present. The influx of an outside workforce and potential job seekers could lead to an increase in informal settlements being built in the surrounding communities and this can impact the crime levels in the area and/or opportunist criminals make use of the presence of these workers to undertake criminal activities. Potentially increased crime in the area could result in people leaving their homes and relocating somewhere else.

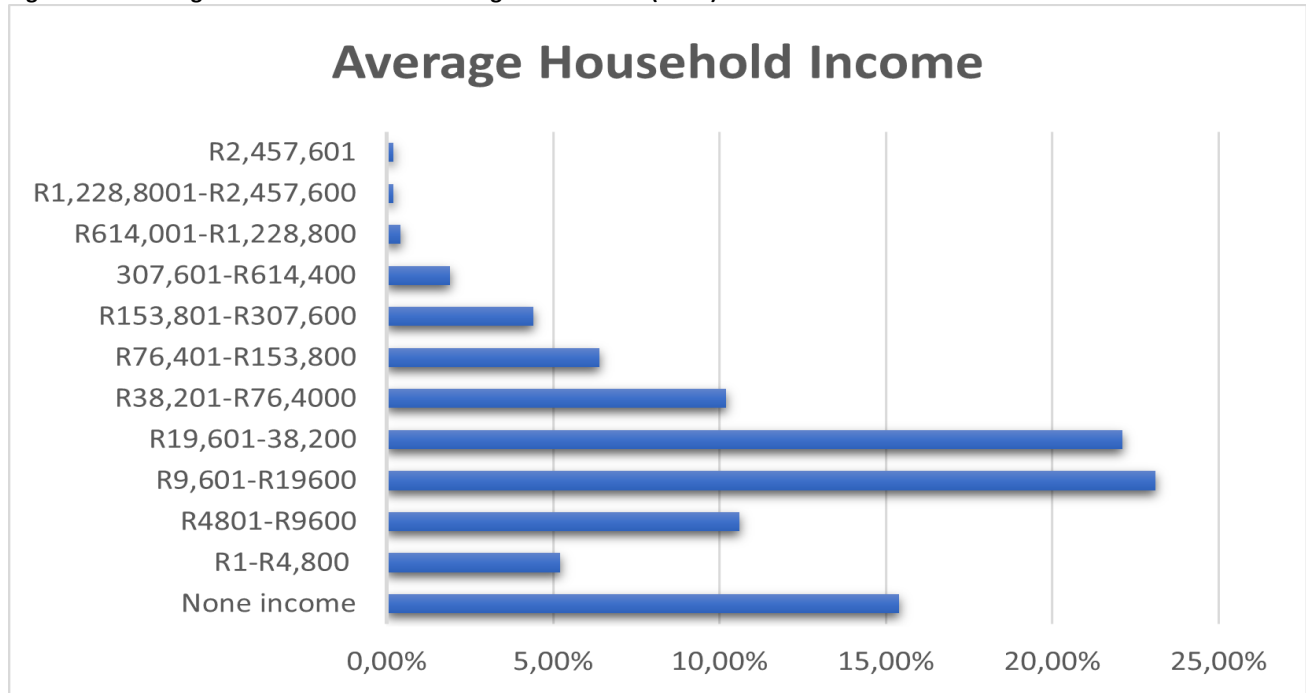
However, several positive outcomes related to crime are anticipated. Volspruit open pit mine will be mandated to establish and uphold a secure environment through the implementation of security measures, inherently enhancing overall security in the area. Additionally, the creation of job opportunities is expected to uplift individuals from poverty, a factor often linked to criminal activity.

4.4. INCOME AND EDUCATION LEVELS

Household income levels provide a synopsis of the standard of living of the various households. The higher the income levels, the less people who are living below the poverty line. Standard of living can be described as the level of wealth, comfort, necessities and material goods that are available to a certain socio-economic class or a certain geographic region. Standard of living depends on income levels, thus there is a correlation between standard of living and income.

Figure 4-3 illustrates the average monthly household income of Mogalakwena LM in 2011 as per the StatsSA census. This will give an indication of the standard of living in Mogalakwena LM. It will also give an indication of how many people are living off low salaries and how many people are living off high salaries.

The average monthly household income of Mogalakwena LM in 2011 was approximately R14600 per month, which was round about the same amount as the average monthly household income in the Limpopo province but about half the amount of average monthly household income in the Waterberg District. The low average household income of Mogalakwena can be explained by the fact that a large number of people did not earn any source of income in 2011. This is illustrated in **Figure 4-3**.

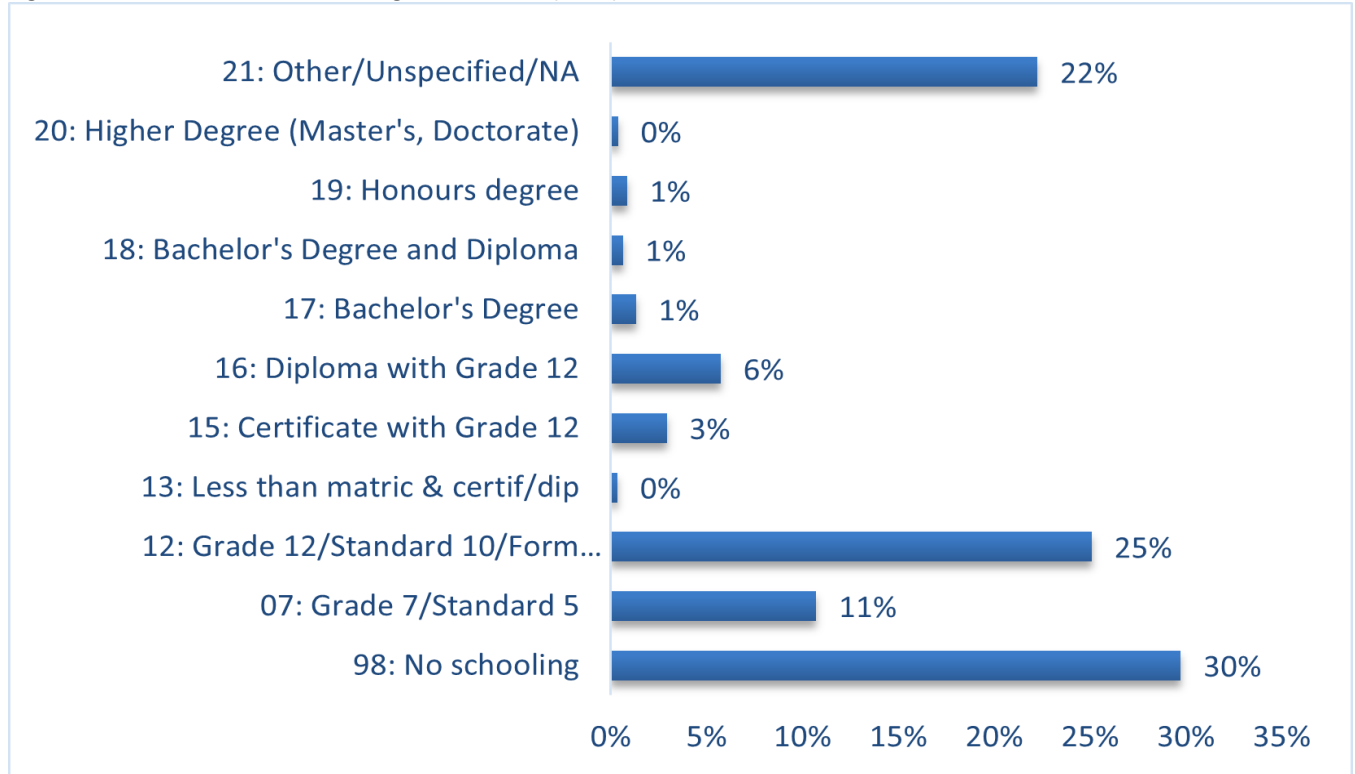
Figure 4-3: Average Household Income of Mogalakwena LM (2011)

Source: (Stats SA, 2011)

Figure 4-3 illustrates the high unemployment in Mogalakwena LM, with about 15,4% of the population not earning an income. This indicates the probability of a large portion of the population being dependent on social grants or being dependent on their relatives that have migrated to other areas for better work opportunities, to send them money. It is also evident that a large portion of the population about 23,1% earn between R9,601 to R19,600. According to recent data presented by Quantec 2023, the Mogalakwena LM has an average disposable income of R14,278,65. The mining activities could lead to the creation of jobs and could have a positive effect on eradicating unemployment.

Looking at the education dynamics of the area, it can be deduced that education plays a significant role in income levels of the local municipality. **Figure 4-4** thus illustrates the educational levels of Mogalakwena Local Municipality. Educational levels are used as a proxy to measure literacy levels in the municipality. Analysis of the educational levels will help in gauging the skillset available in the municipality.

Figure 4-4: Educational levels of Mogalakwena LM (2022)

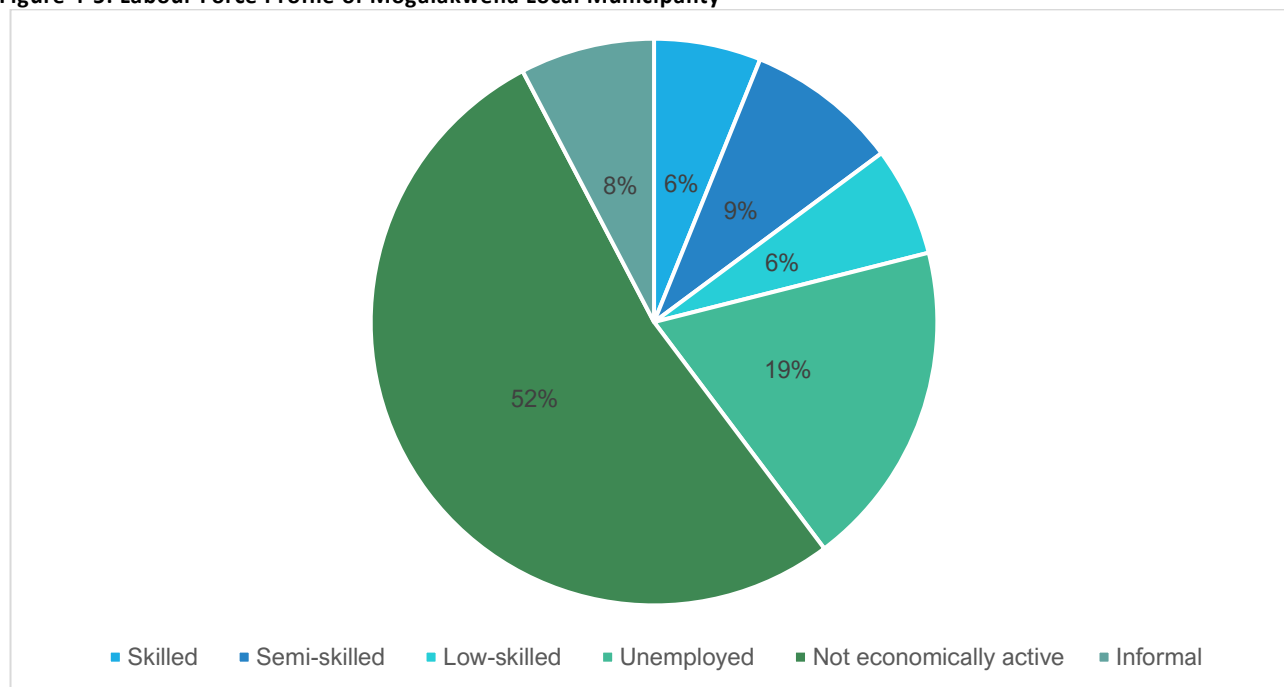


Source: (Quantec 2023)

Figure 4-4 shows that a large proportion of the population have a matric qualification or less, this shows that a small portion of the population is highly skilled. It is also evident that a large proportion of the population have unspecified qualifications. This could possibly be explained by short courses that do not have NQF credits or on the job training. Education is often seen as an investment in human capital. Those with higher education levels have a higher chance of earning a high salary, hence there is a positive correlation between education and income. Based on the educational dynamics, there is a high probability that most of the available workforce will be low-skilled. Poverty and other inequalities contribute to the educational dynamics of the local municipality. Low-skilled workers are likely to benefit the most from the employment opportunities that will arise from the proposed project as mining is one of the industries that has a substantial demand for low-skilled workers. Volspruit open pit mine is committed, as per its Social and Labour Plan (SLP), to providing comprehensive training across various levels. This commitment extends to both employees and community members.

4.5. LABOUR FORCE AND EMPLOYMENT STRUCTURE

Employment is the most common way for people of working age to generate money that will allow them to meet their basic needs and enhance their standard of living. As a result, employment and unemployment rates are important indicators of socio-economic status. **Figure 4-5** illustrates the labour force profile in Mogalakwena Local Municipality.

Figure 4-5: Labour Force Profile of Mogalakwena Local Municipality

Source: (Quantec, 2023)

As of 2022, the working age population (WAP) constituted 56,38% of the Mogalakwena Local Municipality's population, which translates to approximately 194,542 people (Quantec, 2022). **Figure 4-5** shows that 52% of the population is not economically active while just under a third of the WAP is employed. Mogalakwena LM has an estimated unemployment rate of 41,20%. About 19% (37,110 people) of the WAP is unemployed and 8% (15,255 people) is employed in informal sectors. Only a certain percentage of the population works at jobs that require high-skills (6%) whilst the rest of the population works at low-skilled jobs and semi-skilled jobs. The labour profile of the local municipality explains why the income levels in that region are low as majority of the population is not economically active and work in informal sectors that require low-skilled to semi-skilled individuals.

4.6. ECONOMIC PROFILE

The creation, distribution, and consumption of products and services are the defining characteristics of an economy. The value of goods and services generated in a certain location, industry, or sector of the economy is measured by Gross Value Added (GVA). This sub-section aims to look at the economic profile of the primary study area by specifically looking at the GVA and SVA contributions, as shown in **Table 4-2** below.

Table 4-2: Municipality Contributions

Area/economy 2020	GVA	GVA Contribution	
	R (millions)	Limpopo	Waterberg DM
Limpopo	350 311.38	100%	
Waterberg DM	90 583.08	25,86%	100%

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

Thabazimbi LM	49 385.60	14,10%	54,52%
Lephalale LM	12 571.33	3,59%	13,88%
Mookgopong LM	2 551.08	0,73%	2,82%
Modimolle LM	5 507.66	1,57%	6,08%
Bela-Bela LM	5 447.24	1,55%	6,01%
Mogalakwena LM	15 120.16	4,32%	16,69%

Source: (Quantec, 2023)

Table 4-2 illustrates that the Gross value Added (GVA) of the Mogalakwena Local Municipality was valued at R15 120.16 million at constant prices for 2020. This approximately constitutes 4,32% of the total GVA for the Limpopo province and 16,69% for Waterberg District Municipality. This can be seen as a concern as Mogalakwena LM accounts for almost half of the Waterberg DM's population and houses Polokwane which is the province's capital. Mogalakwena Local Municipality is the second largest contributor to the District Municipality followed by Lephalale Local Municipality being the third highest contributor to the District Municipality. Mogalakwena being the second highest contributor can be explained by mining, wholesale and retail trade and business services which are the LM's main economic activities.

Table 4-3 illustrates that the economic profile of Mogalakwena Local Municipality is dominated by the tertiary sector, with the highest contributing sectors being government services, finance and business services and wholesale and retail services as shown in the table below.

Table 4-3: Sector Contributions to LM

Mogalakwena LM Economic Sectors	GVA (R millions)	Contribution
Agriculture, forestry, and fishing	163.2	1.8%
Mining and quarrying	651.3	7.4%
Manufacturing	337.6	3.8%
Electricity, gas, and water	152.3	1.7%
Construction	353.3	4.0%
Wholesale and retail trade, catering, and accommodation	2 011.9	22.7%
Transport, storage, and communication	560.3	6.3%
Finance, insurance, real estate, and business services	1 847.0	20.9%
General government	2 277.9	25.7%
Community, social and personal services	500.4	5.7%
Total	8 855.3	100.0%

Source: (Quantec, 2023)

The primary sector is the second highest contributor with mining and agriculture leading in this regard. Although, these sectors contribute significantly to the economy, minimal effects/benefits are seen when it comes to the affected communities. Mines tend to employ people from other regions instead of the locals (Cronje et al. 2009). This can be possibly explained by mines wanting to cut costs as migrant workers tend to accept lower salaries than what the local workers would accept. This thus leads to increased population in the area and culture clashes. The lowest contributing sector in the local

Municipality is electricity, gas and water. This highlights that new developments are needed in this region. Based on these statistics, it can deduce that the proposed project will contribute to the Local Municipality's GVA.

4.7. ACCESS TO BASIC SERVICES

Shelter, water, power, sanitation, and other services are indicators that help establish the people's standard of living in the proposed location. Other factors to consider with standard of living include infrastructure and state of the local infrastructure. The availability of social and economic infrastructure, such as roads, educational institutions, and health facilities, further reflects the nature of the study region, which is important in constructing a comprehensive picture of the conditions in which communities live. This sub-section aims to briefly describe the municipality's access to basic services as illustrated in **Figure 4-6** below.

Figure 4-6: Access to basic services

Water			Energy		
	Inside dwelling	19.41%		Electricity	89.54%
	Inside yard	41.48%		Candles	7.30%
	Community stand	28.78%		Gas	0.13%
	Other	5.57%		Paraffin	0.18%
Sanitation			Refuse Removal		
Pit toilet	65.49%		Own refuse removal	62.09%	
Flush toilet	27.72%		Weekly removal by LM	25.87%	
Bucket toilet	0.87%		None	7.43%	
Other	3.56%		Other	0.62%	

Source: (Quantec, 2023)

Figure 4-6 illustrates that only 89,54% of the population has access to electricity and 7.30% of the population still use candles as a source of lighting. This highlights the poverty levels of the Local Municipality and the fact that not everyone has access to basic services. In terms of access to water, approximately 41,48% of the population has access to water inside the yards. 28,78% of the population don't have access to water in their yards, they have to use the community stand for their water supply. This imposes a huge safety risk especially for women and children. The rest of the population's water supply is accessed from water tankers, taps within their dwellings, boreholes and even other sources

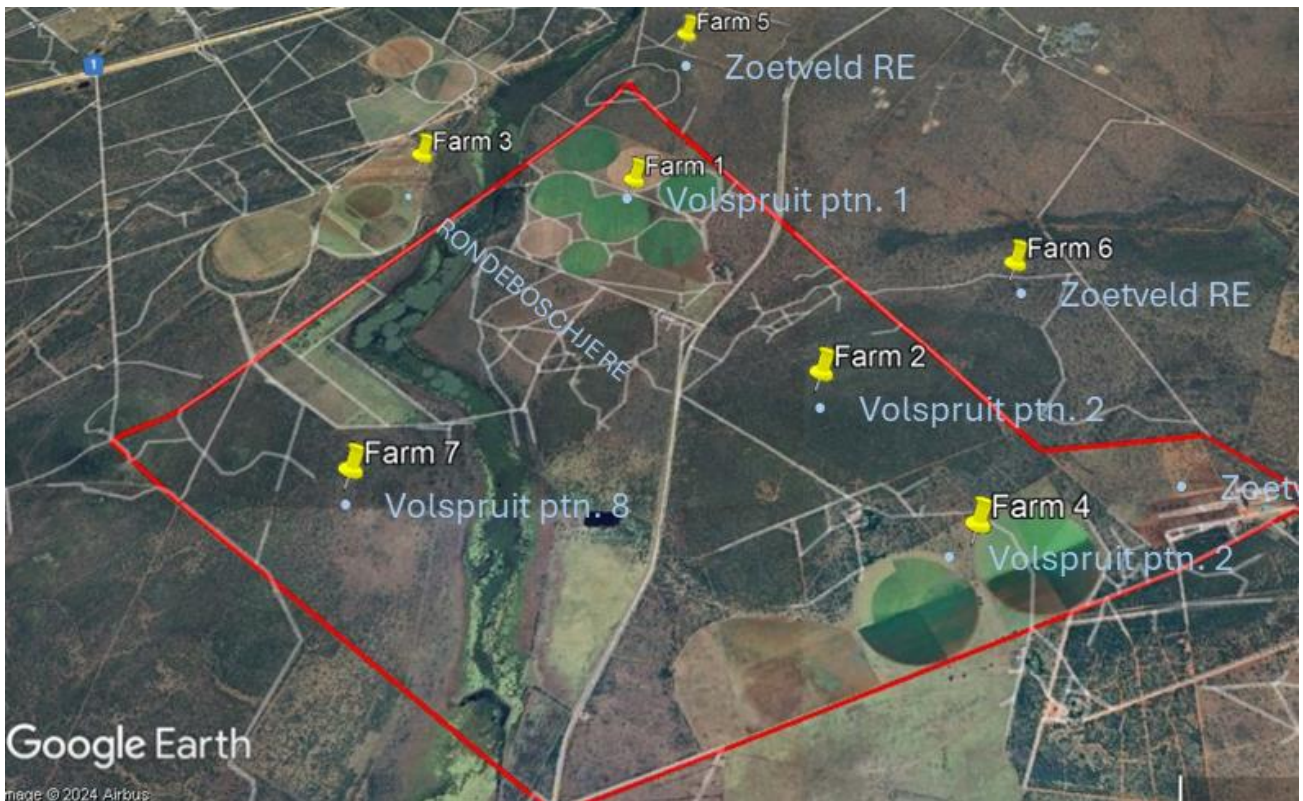
such as rivers/streams, rainwater tanks and water vendors, which could be due to limited access to centralised municipal water infrastructure in certain areas. In terms of sanitation, only 27,72% of the population have access to a flush toilet. Majority of the population (65,49%) have to be using pit toilets. This highlights how underdeveloped the communities are and are largely rural. In terms of refuse removal, 62,09% of the population take out their own refuse. There is a high possibility that most of these households depend on backyard dumping, burial and burning. This indicates a possibility of waste contamination and air pollution from smoke in the area. 25,87% of the population get their refuse removed by the Local Municipality weekly. This shows that there is lack of consistency and coordination from the municipality to improve waste management and delivery.

Mogalakwena Local Municipality has a residential development challenge. A substantial number of housing units are now required due to migration, resulting in a high demand for low-cost housing, while the demand for new high-income developments remains comparatively low. The Council should allow the private sector to assist in terms of housing development of the municipality (Mogalakwena Local Municipality, 2021). The proposed project may attract an influx of people seeking economic opportunities, potentially leading to the construction of informal settlements in the area. This could strain the municipality's resources, particularly in meeting the growing demand for housing units due to migration.

4.8. STAKEHOLDER ENGAGEMENTS

As part of the socio-economic impact assessment for the proposed Volspruit open pit mine, consultations were held with local farmers residing in close proximity to the mining site. The following map was used to determine the farms that will likely be impacted by the mine. Efforts were made to engage with six farms in the area, however, it is important to note that only four consultations were successfully conducted.

Map 4-2: Farms in Proximity to the proposed Volspruit open pit mine



Source: Google Earth (2024)

A questionnaire was employed as a key tool for engaging with farmers, aiming to extract comprehensive insights from their experiences and perspectives. These engagements were conducted individually with each farmer, adopting an interview format to ensure personalised interactions. The questionnaire itself was crafted with inputs from agricultural experts, aligning questions to gather multifaceted data on various aspects pertinent to the study. The key agricultural related findings are detailed within the Volspruit Soil and Agriculture Assessment conducted by Urban-Econ. Furthermore, for detailed reference, the specific questions utilised during these engagements are documented in Annexure C of this report. This method facilitated a thorough understanding of the farmers' circumstances, allowing for nuanced analysis and informed decision-making.

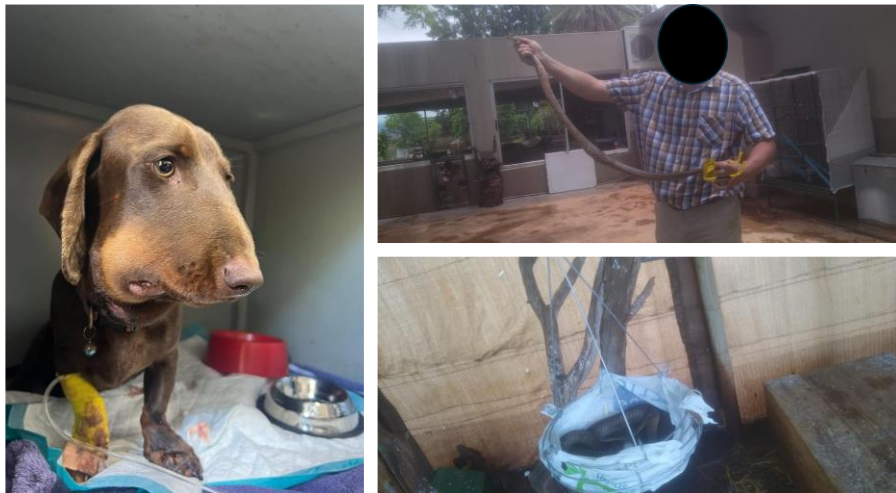
The engagements held provided valuable insights into the challenges and concerns faced by the farming community following the inception of other mining operations in the past. The challenges mentioned are as follows:

- Compliance Monitoring Costs:** Ensuring mines adheres to their Social and Labour Plan (SLP) commitments has become a priority for farmers. This entails regular monitoring and assessment, requiring the engagement of professionals to conduct thorough evaluations. The financial burden associated with these compliance monitoring activities adds to the operational costs borne by farmers, further straining their resources.

- **Dust Pollution:** Mining related activities in the past have significantly contributed to dust pollution, posing a considerable challenge for farmers. The elevated dust levels not only compromise air quality, impacting the health and well-being of farmers and their families, but also necessitate additional expenses due to the impact that the dust has on their farming operations. Farmers are forced to administer greater quantities of chemicals due to the dust layer hindering a plant's ability to absorb chemicals.
- **Increased Crime Rates:** Farmers have previously observed a surge in criminal activities coinciding with the onset of mining activities in the area. The influx of people into the area has heightened security concerns, leading to reports of livestock theft and other criminal incidents. These occurrences not only disrupt farm operations but also pose a threat to livelihoods, prompting farmers to adopt heightened security measures to safeguard their assets and families, which incurs additional cost, influencing their profitability.
- **Impact on Tourism and Recreational Activities:** Previously the presence of a mine in the area has deterred tourists from engaging in recreational activities such as hunting. This is primarily due to the blasting that startled the animals and the noise being unpleasant for tourists seeking to immerse themselves in a peaceful environment. This decline in tourism and recreational pursuits negatively affected the economic viability of farms reliant on these income streams, necessitating diversification efforts to mitigate financial losses.
- **Infrastructure Damage:** Vibrations generated by historical mining activities, particularly blasting, have resulted in structural damage to farm infrastructure. Concerns over safety have prompted farmers to invest in preventive measures, including repairs and reinforcement of buildings. These efforts aim to mitigate the risks posed by infrastructure damage and ensure the longevity of farm structures. The figure below, provided by the farmers, serves as visual evidence of this pressing concern, underscoring the need for effective mitigation strategies.



- Increased Snake Activity Due to Mining-Induced Vibrations:** The frequency of blasting associated with mining activities has raised concerns among farmers regarding a surge in snake sightings on their properties. While it is not definitively established whether blasting directly prompts snake migration, farmers have reported encountering snakes more frequently on their land following such activities. This uptick in snake presence poses a significant risk to both game farm and domestic animals, as snakes are known to pose a threat through biting incidents. Consequently, farmers are grappling with the challenge of safeguarding their livestock and ensuring the safety of their animals in the face of heightened snake activity on their properties. The figure below showcases some of the snake sightings on farms, along with instances of domestic animals falling victim to snake bites. Additionally, some farmers generate an income through renting their properties. Due to the heightened presence of snakes, those farmers are facing the threat of losing their tenants.



- Labour Market Competition:** Farmers are apprehensive about losing skilled workers to the mining industry, where higher wages and better employment benefits may entice employees away from agricultural roles. This labour market competition poses a threat to farm productivity and operational continuity, compelling farmers to explore strategies to retain their workforce and sustain agricultural activities.
- Littering and Environmental Impact:** Previously the increased human activity in the vicinity of a mine in the area has led to a surge in littering, posing environmental hazards and health risks for livestock. Farmers are grappling with the challenge of managing litter accumulation on their land, as well as implementing measures to safeguard their animals from potential harm caused by ingesting litter.
- Rise in Informal Settlements:** The influx of migrant workers attracted to employment opportunities in the mining sector has a probability of cause the proliferation of informal

settlements. This demographic shift raises concerns among farmers regarding security, sanitation, and social cohesion within their communities. Addressing these challenges necessitates collaborative efforts between stakeholders to ensure the well-being of all residents in the area.

- **Road Maintenance and Public Infrastructure:** The increased traffic associated with the current mining activities in the area has accelerated the deterioration of roads and public infrastructure in the area. Farmers now find themselves facing the additional responsibility of maintaining these essential facilities, exacerbating the financial strain on their operations. Moreover, oversight is required to ensure that the mine will fulfil its obligations regarding infrastructure maintenance as outlined in its SLP. The figure below, provided by the farmers, serves as visual evidence of this pressing concern, underscoring the need for effective mitigation strategies.



- **Water Quality Concerns:** Farmers harbour reservations regarding the accuracy and reliability of water reports provided by the mine. There are concerns about the potential impact of mining activities on borehole water quality, raising questions about water security for agricultural purposes. Independent assessments are deemed necessary to verify water quality and ensure the sustainability of farming practices in the area. It should be noted that the mine's impact on the water quality was every farmer's greatest concern.

The stakeholder consultations highlighted a variety of challenges faced by farmers in the vicinity of the proposed mine. Addressing these concerns will require collaborative efforts between the mining company, local authorities, and the farming community to mitigate adverse socio-economic impacts and foster sustainable coexistence. Additionally, a case study was conducted to ascertain the prevalence of these highlighted issues among farmers affected by mining operations. Further details are provided in the subsection below.

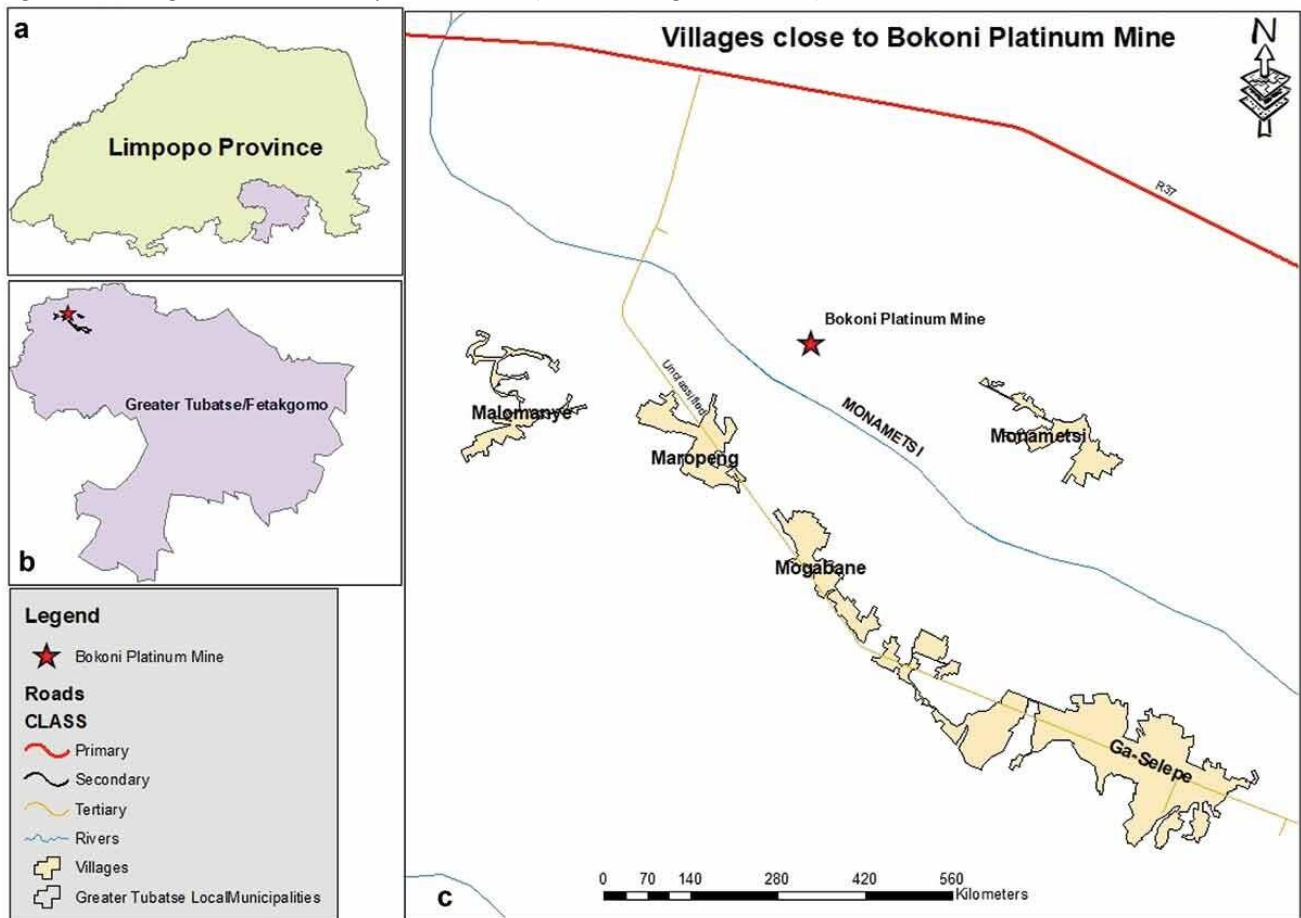
4.8.1. CASE STUDY: MINING IMPACTS ON AGRICULTURAL ACTIVITIES

Mining activities can have a profound impact on nearby farming communities in South Africa, influencing their livelihoods, environment, and social dynamics. This case study aims to investigate the various impacts of mining operations on farmers in South Africa, drawing insights from various sources to provide a comprehensive understanding of the challenges faced by local communities.



The coexistence of mining operations and indigenous populations necessitates a cordial relationship between mines and surrounding communities. In regions like Limpopo, mining activities have demonstrated significant environmental and social impacts on nearby communities and farmers. A study conducted in Limpopo focused on villages near the Bokoni Platinum mine revealed widespread concerns among participants as shown in the figure below (Selo & Ngole-Jeme, 2022).

Figure 4-3: Villages close to Bokoni platinum mine (Credit belongs to PL Selo).



Source: (Selo & Ngole-Jeme, 2022)

Participants of the study unanimously agreed that mining activities had led to a reduction in available land for farming and grazing, posing significant challenges to agriculture and livestock production. Environmental consequences such as land subsidence, soil erosion, and water contamination further exacerbate these challenges, compromising agricultural productivity and posing health risks to livestock and crops.

Socially, mining activities disrupt traditional farming practices and livelihoods, leading to displacement, loss of income, and food insecurity among affected communities. Conflicts over land rights and resource access deepen tensions between mining companies and local communities, negatively impacting community cohesion and well-being. Additionally, while mining may offer employment opportunities, it often fails to compensate for the loss of agricultural jobs and income, leading to economic instability and reliance on external food sources (Selo & Ngole-Jeme, 2022).

Another study focusing on coal mining in South Africa highlights similar environmental and social consequences, including land degradation, water pollution, and health issues among miners (Munnik, 2010).

It is noted that environmental impacts are influenced by several factors, such as location, activities planned and the characteristics of the baseline environment.

Addressing the impacts of proposed mining on nearby farmers at the Volspruit mine project will require a multi-faceted approach. Implementing stringent environmental regulations, monitoring and enforcing compliance with environmental standards, and promoting sustainable mining practices can help mitigate the negative impacts of mining on agriculture and the environment.

4.9. CONCLUDING REMARKS

This chapter provided the baseline for the socio-economic impact assessment that forms part of the scoping assessment for the proposed mining project. The assessment included details about the Mogalakwena Local Municipality's sense of place, history and cultural aspects, the demographics, health and crime levels of the local population, income and education levels of the local population as well as the labour and employment structure of the area and the economic profile. The baseline profile is essential as it provides a reference point against which the possible impacts of the proposed project can be measured. This step is important to determine the possible socio-economic costs and benefits associated with the proposed project.

The baseline assessment found that the proposed site for the Volspruit Mining project is located within a predominantly rural municipality. Noting the rural nature of the municipality, the proposed project

has a very favourable location as it is not in the direct vicinity of existing developments and still has very easy access to national roads as well as provincial roads. The demographic profile of the municipality depicts a very large population compared to other local municipalities within the district.

The baseline assessment also found that Mogalakwena Local Municipality has the highest population within its district. Majority of the population is part of the working-age group, but a significant percentage of the population is not economically active. Furthermore, the educational levels of the municipality indicated that majority of the population is low to semi-skilled. This correlates with the income levels of the municipality and suggests that the municipality is relatively poor and is in need for new employment opportunities and transfer of skills. The proposed project has the potential to generate employment opportunities within the area, consequently contributing to an increase in average household income through the engagement of low to medium-skilled personnel.

The analysis of the municipality's access to basic services shows that the municipality has service delivery challenges, noting the low provision of sanitation and refuse removal services. Low provision of sanitation and refuse removal services indicate possible health hazards in the area. Potential contamination of water sources by Volspruit mining activities will need to be thoroughly monitored and prevented by stringent terms.

With the mining industry's contribution to the district municipality on a decline, there is a pressing need for new opportunities to be fostered. Recognising the vital role of the mining sector in both the economy and the livelihoods of affected communities, it is clear that mining plays a pivotal role in driving the GDP of the region, standing as the primary contributor to the Limpopo economy. Given Limpopo's abundance of mineral resources, the proposed project presents a promising avenue to generate employment and unlock economic prospects for the local community. However, it is important to note that the presence of the mine is likely to pose challenges for nearby farmers, thereby impacting the agricultural sector. These impacts will be elaborated upon in Chapter 6 of this report.

5. NEEDS AND DESIRABILITY ASSESSMENT

Error! Reference source not found. 5-1 illustrates factors that support the needs and desirability for the development of the proposed Volspruit open pit mine and red flags that should be taken into consideration in the proposed area.

Table 5-1: Needs and Desirability Assessment for the Volspruit Mine

Aspect	Comment
The socio-economic context of the area based on the IDP	Based on the baseline assessment, the study area has a low level of economically active population and a high unemployment rate. A large portion

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

and other strategic documents	<p>of the population currently earns no income and majority of the population earns approximately between R9,601 to R19,600 per month per household. This indicates that the study area is not well economically.</p> <p>The strategic documents on a provincial and local level put emphasis on creating new employment opportunities through inclusive economic growth, improving infrastructure, improving business confidence in the area and creating a conducive environment for new mining developments. The proposed project is in alignment with these policies as it can create jobs for the population. However, there may be some alignment issues with certain national policies regarding potential pollution and blasting impacts.</p>
Spatial priorities and desired spatial patterns	<p>The proposed project site occupies a strategic position within a region boasting high potential for mining activities, aligning seamlessly with the Spatial Development Framework of the Waterberg District Municipality. However, it is important to note the presence of farms within the vicinity, highlighting the need to carefully balance spatial priorities to ensure harmonious coexistence between the two industries. By considering the spatial dynamics of the area, it becomes possible to facilitate mutually beneficial operations for both mining and agricultural sectors while minimising potential conflicts.</p>
Spatial characteristics	<p>The proposed project is surrounded by commercial farmland. The social facilities can be found within the settlements of Mokopane and Moletlane. Other economic activities within the direct vicinity of the proposed site include accommodation.</p>
Complementing the local socio-economic initiatives or skills development programmes	<p>Mining and agriculture serve as the primary economic pillars in the Mogalakwena Local Municipality. Mining, particularly, holds the promise of generating employment opportunities, thereby elevating income levels and combating poverty within the region. Moreover, the job offerings may encompass on-the-job training and access to various short courses, facilitating the upskilling of employees. While the proposed project holds the potential to ameliorate unemployment through its local recruitment policy, there remains a concern regarding the possible impact of mining activities on agricultural pursuits within the area.</p>
Equitable impacts in the short and long term, as well as social and economically sustainable considerations	<p>The Volspruit mine is envisaged to be operational for approximately 20 years, suggesting that the proposed project will benefit the current generation and improve their livelihoods as well as the future generation by creating sustainable employment opportunities. Furthermore, the economic linkages of the industry are likely to benefit other sectors such as manufacturing and, therefore, create sustainable jobs and diversify income as well as skills. However, there remains a concern regarding the possible impact of mining activities on agricultural pursuits within the area.</p>
Creation of residential and employment opportunities in close proximity to or integrated with each other	<p>Jobs created via the mining industry requires skilled unskilled and semi-skilled employees. Where possible workforce will be acquired from settlements within the immediate and general proximity of the proposed site and, thereby, offer job opportunities to people close to their place of residence. The settlements that are within the immediate and general proximity of the proposed site are Mokopane and Moletlane.</p>
Reduction of the need for transport of people and goods	<p>The proposed project site is located approximately 20 km from Mokopane and 40 km from Moletlane. These settlements are ideally located to be a provider of goods and employment. Although these settlements are directly connected</p>

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

	to the proposed project site via national roads, the need for transport will likely increase.
Complimenting other uses in the area	The proposed site is located within an area with a high mining potential, as observed in Map 3-3. Therefore, the proposed mining project intends to utilise the areas mining potential thus, complementing the larger economical and societal interest of the area. However, mining activities are commonly seen as incompatible with community well-being due to their associated negative impacts. The presence of mining operations can result in a decrease in property values within the vicinity, as people may perceive living near a mine as undesirable. Infrastructure in the area may also be affected by the mining operations.
Alignment with planning for the area	Mining is duly acknowledged by local authorities as one of the priority sectors essential for stimulating economic development and fostering job creation (Mogalakwena Local Municipality, 2020). However, agriculture equally holds significance as a priority sector. Given the proximity of the mine to farmlands utilised for agricultural activities, there arises a concern regarding the potential risks posed by the proposed mining venture to these vital agricultural operations.
Discouragement of "urban sprawl" and contribute to compaction/densification	The proposed project is likely to contribute to the creation of urban sprawl noting that the proposed mining activities will create job opportunities for the local communities as well as likely catalyse development within the region.
Encouragement of environmentally sustainable land development practices and processes	Mining is believed to be a contributor to air pollution as stated in the Mogalakwena LM IDP. Environmental specialists may advise on the measure to take in ensuring environmental sustainability.
Generation of the highest socio-economic returns	The proposed development may result in the closure or reduction of some of the commercial activities in the area, such as agriculture and accommodation.
Promotion or contribution to create a more integrated settlement	The mine's construction and operation will likely stimulate economic activities of directly and indirectly affected businesses, which subsequently leads to the creation of new businesses. Also, demand for goods and services by mine workers will lead to the creation of local businesses and therefore a more integrated settlement.
Limitations of current knowledge (the gaps, uncertainties, and assumptions)	The economic benefits to be derived from the development of the mine were based on the assumptions built from the information available in IDPs, LED plans as well as other strategic government policy documents. For this report, further interviews were conducted with the farmers in proximity to the mine as per the request of the EAP.
Linkages and dependencies between human wellbeing, livelihoods and ecosystem services	The mine's construction and operational phases may stimulate economic activities of directly and indirectly affected businesses, which translates into the creation of new employment opportunities and the creation of businesses. This results in increased household income and subsequently increased household expenditure, through this, an additional round of value-adding is created. The mine should seek to procure materials, goods, services, and other products required for the operation from local suppliers as far as feasible to increase the positive impact on the local economy.
Availability of labour relevant to take up the job opportunities from the development of the mine	Based on historical mining operations, one can expect that the majority of the required workforce will be unskilled and semi-skilled, which are in abundance within the Mogalakwena LM. Furthermore, the Mogalakwena LM has a high unemployment rate, thus, the availability of labour should not be a challenge.

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

The distance from where labourers will have to travel	The proposed project site is located approximately 20 km from Mokopane and 40 km from Moletlane, where it can be expected that the majority of the labour force can be sourced from. This is a fair distance for labourers to travel however, the settlements are directly connected to the proposed site location via national roads and therefore, reduce the strain of travel.
The location of job opportunities versus the location of impacts	Numerous positive socio-economic impacts will be created, some of which will be localised, and others will be spread all over the country resulting in the distribution of benefits to other communities. Negative impacts will be primarily localised within the site and local communities.
Socio-economic impacts of the development based on Socio-economic context	The expected socio-economic impacts of the proposed development will be both positive and negative. Positive impacts will include the stimulation of the economy as a result of investment into the establishment of the mine and its operations, creation of temporary (during construction) and sustainable employment that will last for up to 20 years, increase in household income and government revenue. The mine is also likely to contribute to skills development and local economic development through the implementation of its Social and Labour Plan. The negative impact will most likely be the effect of the new mining operation on the current commercial farming workforce, which may require the owners and workers to relocate.

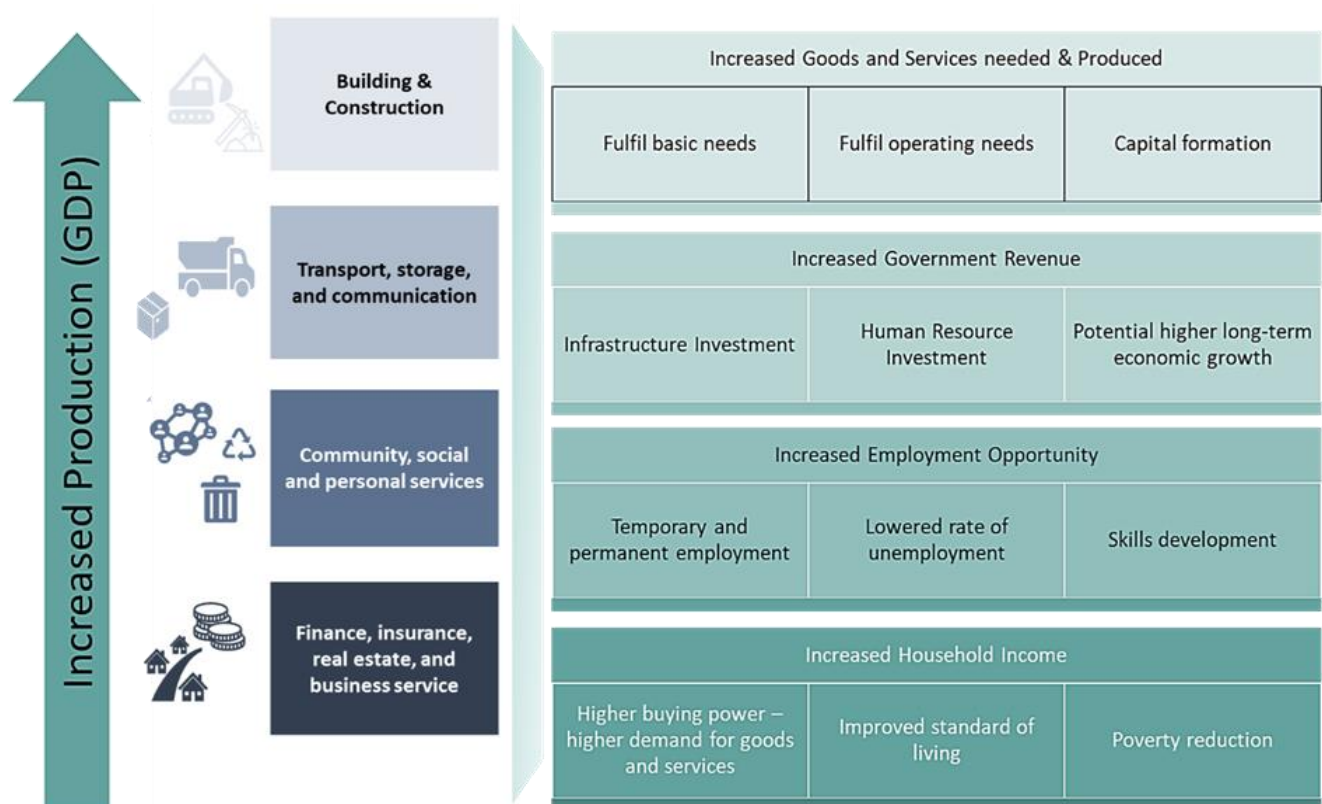
6. SOCIO-ECONOMIC IMPACT ANALYSIS

The socio-economic study's main purpose is to conduct an effective evaluation and promote socio-economic development. The most significant implications identified during the analysis of the project background and current socio-economic environment relating to the proposed Volspruit open pit mine are discussed in this chapter. The socio-economic impact analysis will determine the impacts caused during the building and operational phases of the proposed project.

The structure of the economy and the composition of its employment provides valuable insight into the dependency of an area on specific sectors and its sensitivity to fluctuations of global and regional markets. Knowledge of the structure and the size of each sector is also important for the interpretation of the economic impact results, its structure, and trends of specific sectors thereof.

An intricate relationship exists between all macro-economic sectors and various forms of investment. Figure 6-1 provides a graphical representation of the macro-economic sectors that will likely be most impacted by the proposed development.

Figure 6-1: Theoretical Impact between Increased Production and Macroeconomic Sectors



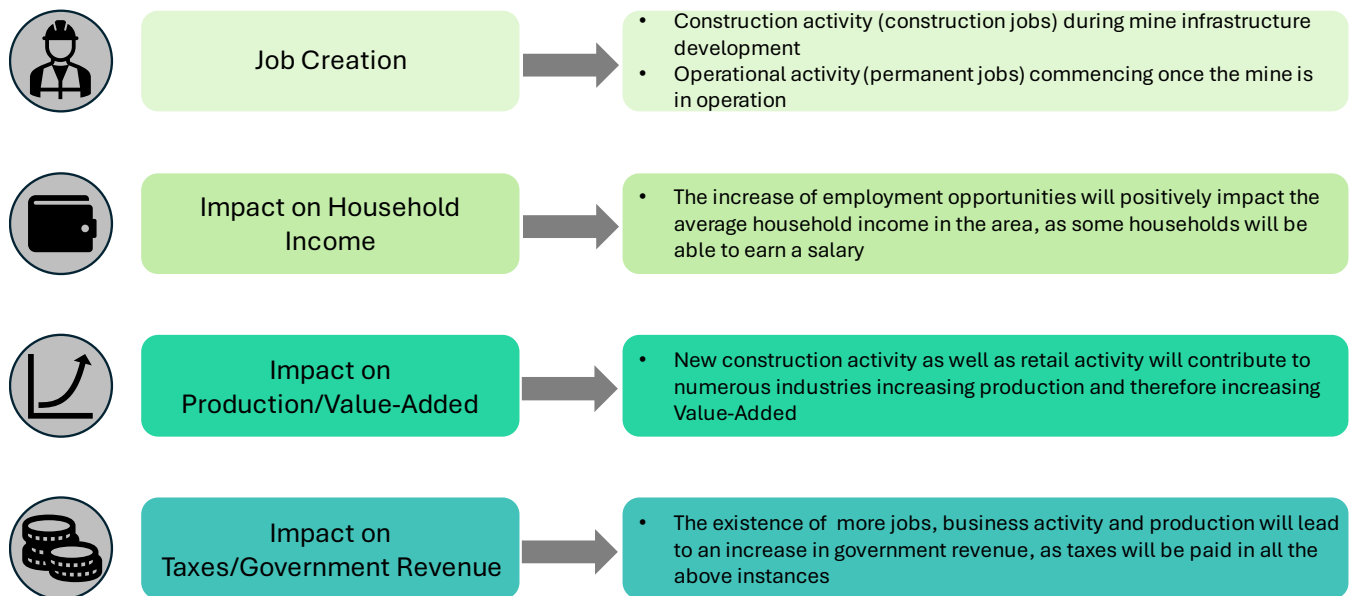
Source: Urban-Econ

The four sectors depicted above, all contribute most to the increased demand for goods and services, increased government revenue, increased employment opportunity and increased household income. Each will stimulate several positive economic impacts including an improved standard of living, reduction of poverty, the potential for higher long-term economic growth and skills development. Nevertheless, the proposed development could have several negative impacts. The potential consequences of the proposed mine, both positive and negative, are discussed in more detail in the subsections that follow.

ASSESSMENT APPROACH

The assessment will assist with determining the potential economic benefits of the proposed project throughout the local and national economies using an economic model developed based on the Social Accounting Matrix (SAM). The modelling exercise will provide the potential direct and indirect impacts for the proposed project. The SAM model will provide the following outputs in the form of impacts on:

Figure 6-2: Outputs provided by the SAM model



Source: Urban-Econ

The outputs generated from the SAM model will be assessed and discussed based on the extent of the impact generated through the CAPEX and OPEX provided by the applicant. It is assumed that all information provided by applicant is accurate and reliable, as it serves as the foundation all results derived from the SAM model.

Assumptions

The economic modelling undertaken for this project necessitated key assumptions to estimate CAPEX and OPEX related impacts. These assumptions serve as the foundation for projecting the financial implications of the proposed project.

For CAPEX the following has been done:

- Based on data received, the study conducted in 2014 indicates that a significant number of Full-Time-Equivalent (FTE) jobs, totalling 2,170, will be generated during the construction phase. These jobs are categorised as follows: 731 FTE positions for highly skilled and skilled individuals, while 1,439 positions will be allocated to semi-skilled and unskilled construction workers. Additionally, the capital expenditure (CAPEX) for the project is estimated at R 245 609 939 in total, with 78% of this investment expected to be allocated within South Africa

For OPEX the following has been done:

- Based on the provided assumption of R675 (ZAR/t milled) and estimated reserves of 28,000,000.00 tonnes, which were divided by 20 years to calculate an estimated annual production of 1,400,000.00 tonnes, the OPEX (operating expenditure) for the model was derived. Multiplying the estimated annual production by the cost per tonne milled, the OPEX was determined to be R945,000,000.00 per annum ($675 \times 1,400,000.00$).

These assumptions form a well-defined framework, allowing for the examination of the project's economic dynamics.

6.1. ASSESSMENT OF IMPACTS – CONSTRUCTION PHASE

This sub-section highlights the likely socio-economic impacts expected during the construction phase of the proposed project.

6.1.1. TEMPORARY STIMULATION OF THE LOCAL AND NATIONAL ECONOMY

The construction phase will be short-term concerning the operational phase of the proposed project. This capital expenditure is expected to be spent within South Africa and includes spending on building materials, general labour, and specialists such as engineers. The capital expenditure is likely to increase the production in the national economy by approximately R191,58 million. The initial investment will trigger a production effect where manufacturers and suppliers of goods and services will undergo production expansion and increasing employee numbers and operations. An indirect impact of R216,46 million is likely to be generated during the construction period.

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

The succeeding effect on employment creation due to the direct and indirect impacts is the consumption-induced effect of R39,41 million on the wider economy. Salaries paid to employees of directly and indirectly benefiting industries increase consumer spending, resulting in increased sales of household goods and services in the local and domestic economies.

Table 6-1: Impact on Production During Construction (R' million)

	Direct	Indirect	Induced	Total	Percentage (Total)
Agriculture	R -	R 2,05	R 2,97	R 5,02	1,1%
Mining	R -	R 52,83	R 1,83	R 54,67	12,2%
Manufacturing	R -	R 24,46	R 7,52	R 31,98	7,1%
Electricity	R -	R 1,50	R 1,37	R 2,87	0,6%
Water	R -	R 1,03	R 0,52	R 1,54	0,3%
Building and Construction	R 191,58	R 60,52	R 0,86	R 252,96	56,5%
Trade and accommodation	R -	R 23,38	R 5,95	R 29,33	6,6%
Transport and storage	R -	R 14,76	R 4,95	R 19,71	4,4%
Financing	R -	R 3,90	R 3,96	R 7,86	1,8%
Real estate and business services	R -	R 27,14	R 6,31	R 33,45	7,5%
Government services	R -	R 4,06	R 1,81	R 5,87	1,3%
Other	R -	R 0,84	R 1,35	R 2,20	0,5%
Total	R 191,58	R 216,46	R 39,41	R 447,45	100,0%

Source: Urban-Econ based on Data Supplied by Client

Building and construction employees will produce goods and services daily from the area during the construction period. For instance, a demand for local transport services, trade and personal services will be created. Apart from the building and construction sector, the mining sector will benefit the most from the construction activities. The total increase in new business sales for industries operating within the construction and mining sectors is anticipated to be valued at around R252,96 million and R54,67 million respectively.

An additional result is new employment through direct and indirect effects, which will, in turn, increase the income levels of the respective households. Various spillover effects spread throughout the economy further contribute to heightened production levels. Table 6-2 presents the total impact on GDP during the construction period.

Table 6-2: Impact Assessment on GDP during Construction (R' million)

	Direct	Indirect	Induced	Total	Percentage (Total)
Agriculture	R -	R 0,96	R 1,39	R 2,34	1,5%
Mining	R -	R 24,64	R 0,86	R 25,49	15,9%
Manufacturing	R -	R 11,41	R 3,50	R 14,91	9,3%
Electricity	R -	R 0,70	R 0,64	R 1,34	0,8%
Water	R -	R 0,48	R 0,24	R 0,72	0,4%
Building and Construction	R 40,74	R 28,22	R 0,40	R 69,36	43,3%
Trade and accommodation	R -	R 10,90	R 2,77	R 13,68	8,5%
Transport and storage	R -	R 6,88	R 2,31	R 9,19	5,7%
Financing	R -	R 1,82	R 1,85	R 3,66	2,3%

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

Real estate and business services	R -	R 12,65	R 2,94	R 15,60	9,7%
Government services	R -	R 1,89	R 0,85	R 2,74	1,7%
Other	R -	R 0,39	R 0,63	R 1,02	0,6%
Total	R 40,74	R 100,94	R 18,38	R 160,06	100,0%

Source: Urban-Econ based on Data Supplied by Client

Gross Domestic Product (GDP) entails the monetary value of all goods and services produced within a nation's geographic borders over a specified period. The primary method of expanding GDP levels is through investment into infrastructure and expertise that generate new and improved goods and services. Spending on the Volspruit mine is expected to increase GDP by R160,06 million during the construction phase, as shown in Table 6-2. Aside from the building and construction industry, the largest value-adds to be created due to the indirect effects of the initial capital expenditure are expected to be in the mining sector. Some of these positive effects will be realised in the local economies, stimulating further development in the regional economy.

The table below is used to represent the impacts as per the impact rating assessment matrix utilised by Urban-Econ.

Table 6-3: Impact of Local Economy during Construction

IMPACT ON ECONOMY		
PROJECT PHASE	<i>Construction</i>	
IMPACT	<ul style="list-style-type: none"> • <i>Temporary increase in production and GDP in the local economy</i> • <i>Improved household income and increased business sales in the local economy</i> 	
NATURE OF IMPACT (Negative or Positive Impact)	<i>Positive</i>	
Aspect	Rating	Score
PRE-MITIGATION/WOM		
Rating	<i>Moderate</i>	48
PROPOSED MITIGATION MEASURES		
<i>To optimise the stimulation of the local economy through direct, indirect and induced effects, the following should be applied where possible:</i> <ul style="list-style-type: none"> • <i>Procure construction materials, goods, and products from local and domestic suppliers if feasible</i> • <i>Employ local contractors where possible</i> 		
POST-MITIGATION (WM)		
Rating	<i>Moderate</i>	60

6.1.2. CREATION OF TEMPORARY EMPLOYMENT OPPORTUNITIES AT A LOCAL AND NATIONAL LEVEL

Employment impacts are calculated in terms of Full-Time Equivalent (FTE) employment positions, which is the same as an FTE job or one man-year of work. This does not directly translate into the headcount of people employed or in new job opportunities. Generally, one FTE man-year is equal to one person

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

working for 40 hours per week for about 50 weeks per year; however, it could vary depending on the industry.

An FTE man-year means that if one person worked only 20 hours per week for 50 weeks in a year, its FTE equivalent would be 0.5; if two people worked for 20 hours per week for 50 weeks in a year, the combined workload would be estimated as one FTE man-year or one FTE job. In the short term, an increase in FTE employment positions could be absorbed by the existing workforce, either by working overtime or if the labour resources are underutilised in the industry. As presented in the previous sections, unemployment is a key challenge and employment opportunities remain a key priority. Table 6-4 depicts the total impact on employment expected during the construction phase.

Table 6-4: Impact on Employment During Construction

	Direct	Indirect	Induced	Total	Percentage (Total)
Agriculture	-	15,12	21,92	37,04	1,4%
Mining	-	18,07	0,63	18,70	0,7%
Manufacturing	-	45,89	8,60	54,49	2,0%
Electricity	-	0,95	0,87	1,81	0,1%
Water	-	0,65	0,33	0,98	0,0%
Building and Construction	2 170,00	212,29	3,02	2 385,31	87,6%
Trade and accommodation	-	58,44	14,79	73,24	2,7%
Transport and storage	-	8,60	2,88	11,49	0,4%
Financing	-	11,87	12,05	23,92	0,9%
Real estate and business services	-	82,60	19,20	101,81	3,7%
Government services	-	7,62	3,41	11,02	0,4%
Other	-	1,58	2,54	4,12	0,2%
Total	2 170,00	463,68	90,25	2 723,93	100,0%

Source: Urban-Econ based on Data Supplied by Client

As presented in Table 6-4, overall, about 2 724 FTE jobs are likely to be created due to capital expenditure. Of these 2170 FTE jobs will be created as a direct impact of the capital expenditure by the mine. Although the employment will not be permanent, the benefits derived from the temporary employment will improve livelihoods because of increased income and skills development during this phase.

The table below is used to represent the impacts as per the impact rating assessment matrix utilised by Urban-Econ.

Table 6-5: Impact on Employment during Construction

IMPACT ON EMPLOYMENT	
PROJECT PHASE	<i>Construction</i>
IMPACT	<ul style="list-style-type: none"> • <i>Creation of temporary employment opportunities On-site</i> • <i>Improved income of households whose members are employed on the project</i>

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

NATURE OF IMPACT (Negative or Positive Impact)	Positive	
ASPECT	Magnitude	Score
PRE-MITIGATION/WOM		
Rating	Moderate	48
PROPOSED MITIGATION MEASURES		
<i>The following is recommended to increase the employment opportunities created in the local communities, where feasible:</i> <ul style="list-style-type: none"> • <i>Employ labour-intensive methods in construction, where feasible.</i> • <i>Employ local residents and communities, where possible.</i> • <i>Utilise local suppliers, where possible.</i> 		
POST-MITIGATION (WM)		
Rating	Moderate	60

6.1.3. TEMPORARY INCREASE IN HOUSEHOLD INCOME DURING CONSTRUCTION

The construction phase will likely create an increase in household income levels due to the increase in demand for employment in the region. The influence of the mine will likely have a direct and indirect effect on household income. Household earnings are related to employment trends, therefore the increase in the employment figure will have a positive impact on income. The temporary benefits envisaged to accrue are an elevated standard of living and the reduction of poverty. Furthermore, a boost in the local economy will likely prevail as the consumption level elevates.

Table 6-6: Impact on Income During Construction (R' million)

	Direct	Indirect	Induced	Total	Percentage (Total)
Agriculture	R -	R 0,51	R 0,36	R 0,88	1,3%
Mining	R -	R 10,31	R 0,38	R 10,69	15,6%
Manufacturing	R -	R 3,48	R 0,78	R 4,26	6,2%
Electricity	R -	R 0,31	R 0,28	R 0,59	0,9%
Water	R -	R 0,11	R 0,06	R 0,16	0,2%
Building and Construction	R 23,76	R 7,95	R 0,12	R 31,83	46,4%
Trade and accommodation	R -	R 5,57	R 1,38	R 6,95	10,1%
Transport and storage	R -	R 2,37	R 0,79	R 3,16	4,6%
Financing	R -	R 1,01	R 1,03	R 2,04	3,0%
Real estate and business services	R -	R 4,82	R 1,15	R 5,97	8,7%
Government services	R -	R 0,79	R 0,36	R 1,14	1,7%
Other	R -	R 0,39	R 0,59	R 0,99	1,4%
Total	R 23,76	R 37,64	R 7,28	R 68,67	100,0%

Source: Urban-Econ based on Data Supplied by Client

Table 6-6 indicates that R68,67 million in wages and salaries is likely to be paid to workers throughout the economy during the construction phase. The labour costs directly associated with the project are approximately R23,76 million. This will allow a temporary increase in the average household income levels in the area.

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

The table below is used to represent the impacts as per the impact rating assessment matrix utilised by Urban-Econ.

Table 6-7: Impact Assessment on Household Income

IMPACT ON HOUSEHOLD INCOME		
PROJECT PHASE	<i>Construction</i>	
IMPACT	<ul style="list-style-type: none"> • <i>Increased Household Income during the Construction Phase</i> • <i>Increased business sales in the local economy</i> 	
NATURE OF IMPACT (Negative or Positive Impact)	<i>Positive</i>	
ASPECT	Magnitude	Score
PRE-MITIGATION/WOM		
Rating	<i>Moderate</i>	48
PROPOSED MITIGATION MEASURES		
<i>The following is recommended to increase the employment opportunities created in the local communities, where feasible:</i> <ul style="list-style-type: none"> • <i>Employ labour-intensive methods in construction, where feasible.</i> • <i>Employ local residents and communities, where possible.</i> 		
POST-MITIGATION (WM)		
Rating	<i>Moderate</i>	60

6.1.4. SKILLS DEVELOPMENT DUE TO THE CREATION OF NEW EMPLOYMENT OPPORTUNITIES

The construction phase of the project is comprised of the establishment of mining and supporting infrastructure. The skill sets required during the construction phase are not solely construction skills but also include skills required in mining activities. The construction of the associated mining infrastructure for the proposed project will likely require a variety of skills levels, however, is subject to the availability and training of these individuals.

From the above, it can be suggested that the area is likely to be able to provide unskilled and low skilled labourers for the mine's construction activities, as well as some of the more experienced mine workers that are required during construction. Some training programmes might be required to ensure skills and knowledge transfer. Furthermore, those with specialist skills will gain further experience and improve their skills level. The sustainable impact of skills development will thus improve the skills profile for the local economy.

The table below is used to represent the impacts as per the impact rating assessment matrix utilised by Urban-Econ.

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

Table 6-8: Impact on Skills Development

IMPACT ON SKILLS DEVELOPMENT		
PROJECT PHASE	<i>Construction</i>	
IMPACT	<ul style="list-style-type: none"> • <i>Skills development in the local workforce</i> • <i>Skills transfer to construction workers. This can stimulate entrepreneurship and investment in R&D.</i> 	
NATURE OF IMPACT (Negative or Positive Impact)	<i>Positive</i>	
ASPECT	Magnitude	Score
PRE-MITIGATION/WOM		
Rating	<i>Low</i>	22
PROPOSED MITIGATION MEASURES		
<i>The following mitigations are advised to be instituted to maximise skills transfer</i> <ul style="list-style-type: none"> • <i>Employ local residents, where possible.</i> • <i>Combine experienced workers and non-experienced workers to work together to create opportunities for on-the-job training.</i> • <i>Grow employees by giving them responsibilities according to their skills, knowledge and eagerness.</i> • <i>Provide training to employees in business management and entrepreneurship.</i> 		
POST-MITIGATION (WM)		
Rating	<i>Moderate</i>	44

6.1.5. GOVERNMENT REVENUE INCREASE DUE TO CAPITAL EXPENDITURE

During the construction phase, goods and services will be required and purchased for the mining-related infrastructure required for the operations of the proposed mine. As a result of capital expenditure on the project, companies will be generating revenue and employing people. From this, companies are obliged to pay the government income taxes and payroll taxes. The implication of the abovementioned is that the spending in the construction phase is likely to generate various taxes (such as VAT) for which government will increase its revenue. The various taxes received by the government improves the government's ability to deliver services and an increase in national fiscus will prevail.

The table below is used to represent the impacts as per the impact rating assessment matrix utilised by Urban-Econ.

Table 6-9: Impact on Government Revenue

IMPACT ON GOVERNMENT REVENUE		
PROJECT PHASE	<i>Construction</i>	
IMPACT	<ul style="list-style-type: none"> • <i>Increased government revenue due to government income taxes and payroll taxes.</i> • <i>Improvement in service delivery and hence quality of life.</i> 	
NATURE OF IMPACT (Negative or Positive Impact)	<i>Positive</i>	
ASPECT	Magnitude	Score
PRE-MITIGATION/WOM		
Rating	<i>Negligible</i>	14
PROPOSED MITIGATION MEASURES		

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

<i>To further enhance the positive impact the mine can do the following:</i> <ul style="list-style-type: none"> Investing in community development projects to improve infrastructure and amenities. Implementing sustainable practices to minimise environmental impact and promote long-term resource conservation. 		
POST-MITIGATION (WM)		
Rating	<i>Low</i>	28

6.1.6. CHANGE IN SENSE OF PLACE

A community's sense of place is developed over time as it embraces the surrounding environment. A community becomes familiar with its physical properties and creates its history. The sense of place is created through the interaction of several different factors, such as the area's visual resources and aesthetics, climate, culture, heritage as well as the lifestyle of individuals that live in and visit the area. Most importantly, it is a highly subjective matter and depends on the demographics of the population that resides in the area and their perceptions regarding the trade-offs of the development.

It should be noted that the proposed project is likely to have a negative effect on the surrounding communities as well as on the environmental landscape. In the short run, the communities will experience a change of sense of place as the construction of the proposed mine might influence the appearance and potential noise from machinery. Moreover, road networks may experience increased traffic may disturb the current level of traffic and affect commuters who frequently use the roads where the development will take place as already shown in the changes currently affecting the nearby farmers in Chapter 4 of this report.

The table below is used to represent the impacts as per the impact rating assessment matrix utilised by Urban-Econ.

Table 6-10: Impact Assessment on Sense of Place

IMPACT ON SENSE OF PLACE		
PROJECT PHASE	<i>Construction</i>	
IMPACT	<ul style="list-style-type: none"> <i>Deterioration of quality of life due to dust, noise, visual, water supply and water pollution and other environmental impacts</i> <i>Temporary change to the overall sense of place</i> 	
NATURE OF IMPACT (Negative or Positive Impact)	<i>Negative</i>	
ASPECT	Magnitude	Score
PRE-MITIGATION/WOM		
Rating	<i>Moderate</i>	44
PROPOSED MITIGATION MEASURES		
<ul style="list-style-type: none"> <i>Recommendations and mitigation measures provided in the Visual Impact Assessments and Environmental Impact Assessment must be adhered to.</i> <i>Ensuring that air pollution and noise pollution is reduced and contained within the boundaries of the development.</i> <i>Any negative environmental impacts should be contained within the boundaries of the proposed site.</i> <i>Soil erosion control measures should be implemented to prevent land degradation as a result of the construction activities.</i> 		

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

POST-MITIGATION (WM)		
Rating	Low	22

6.1.7. PRESSURE ON SOCIAL AND ECONOMIC INFRASTRUCTURE

The proposed development is likely to place increased pressure on existing social infrastructure in the area during the construction phase. The need for services i.e., water, electricity and sewerage systems during the construction phase is likely to cause additional strain on natural resources and service infrastructure. The social infrastructure includes, but is not limited to, public roads as well infrastructure for basic services. The most affected infrastructure component is likely to be access to water, electricity as well as road networks to the proposed development.

The table below is used to represent the impacts as per the impact rating assessment matrix utilised by Urban-Econ.

Table 6-11: Impact Assessment on Existing Social and Economic Infrastructure

IMPACT ON SOCIAL AND ECONOMIC INFRASTRUCTURE		
PROJECT PHASE	<i>Construction</i>	
IMPACT	<ul style="list-style-type: none"> • <i>Degradation of the natural environment</i> • <i>Increased contamination levels and the removal of natural habitats through vegetation clearance and deforestation.</i> 	
NATURE OF IMPACT (Negative or Positive Impact)	<i>Negative</i>	
ASPECT	Magnitude	Score
PRE-MITIGATION/WOM		
Rating	<i>Moderate</i>	44
PROPOSED MITIGATION MEASURES		
<i>The following is recommended, where feasible:</i> <ul style="list-style-type: none"> • <i>Contribute to the local municipality by assisting with the upkeep of roads.</i> • <i>Use local roads only during off-peak times to reduce traffic congestion</i> • <i>Set up access agreements with directly affected landowners and legal occupiers</i> 		
POST-MITIGATION (WM)		
Rating	Low	22

6.1.8. TEMPORARY INCREASE IN CRIME AND SOCIAL CONFLICTS ASSOCIATED WITH AN INFLUX OF PEOPLE

The migration of people to the area could result in social conflicts between the residents and the migrants regarding the potential job opportunities that will be created during the construction phase. The influx of people into the area may lead to a temporary increase in the level of crime due to potential job seekers being unable to find work, especially the semi-skilled and unskilled construction workers. The impact, thereof, will negatively affect the local area. This will also affect the sense of place for other local residents. During the construction period, there is a cumulative effect since temporary job opportunities on offer will increase. Workers may, therefore, experience periods of unemployment,

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

which could temporarily increase crime and social conflicts. As indicated in chapter 4 of this report, this was already an issue faced by the community in proximity to mines in the area.

The table below is used to represent the impacts as per the impact rating assessment matrix utilised by Urban-Econ.

Table 6-12: Impact Assessment on Crime and Social Conflicts

IMPACT ON CRIME AND SOCIAL CONFLICTS		
PROJECT PHASE	<i>Construction</i>	
IMPACT	<ul style="list-style-type: none"> • <i>Temporary increase in crime associated with the influx of people.</i> • <i>Reduced level of security in and around the proposed facility.</i> • <i>Increased social conflict with the community due to their day-to-day lives being disrupted.</i> 	
NATURE OF IMPACT (Negative or Positive Impact)	<i>Negative</i>	
ASPECT	Magnitude	Score
PRE-MITIGATION/WOM		
Rating	<i>Moderate</i>	55
PROPOSED MITIGATION MEASURES		
<i>The following mitigations are advised to be instituted to minimise and possibly eliminate the impact altogether:</i> <ul style="list-style-type: none"> • <i>Ensure proper fencing and monitoring of the fencing is in place</i> • <i>Maximise job creation and allocation to locals as far as practically possible. Recruitment of workers should be planned in advance and should not take place on-site. This will reduce the probability of work seekers loitering in the area surrounding the project sites.</i> • <i>Hire additional security personnel during the construction period.</i> • <i>Conduct a thorough assessment of the community's needs and work to reduce the mine's impact on them</i> 		
POST-MITIGATION (WM)		
Rating	<i>Low</i>	28

6.1.9. IMPACT ON PROPERTY VALUES

The quality of life sought by residents in the area reflects the many desirable attributes including peace, solitude, and proximity to nature and will therefore affect the property values. Furthermore, the demand for residency will also affect the value of a property as fewer properties will be available. Farmers, in particular, prefer arable land, adequate access to water, and access to transport routes, among others. A mining development may alter this state of the environment. An open pit mine, similar to landfills, may reduce the market value properties. The distance from the mine is also a key factor, given that the closer a property is to the mine, the lower the property value may be. It is important to note that the negative attributes associated with the mine, such as noise and air pollution, create negative perceptions about the area and deter potential buyers.

The table below is used to represent the impacts as per the impact rating assessment matrix utilised by Urban-Econ.

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

Table 6-13: Impact Assessment on Property Values

IMPACT ON PROPERTY VALUES		
PROJECT PHASE	<i>Construction</i>	
IMPACT	<ul style="list-style-type: none"> • <i>Degradation of the property and infrastructure within the area.</i> • <i>Reduced property values due to mining activities.</i> 	
NATURE OF IMPACT (Negative or Positive Impact)	<i>Negative</i>	
ASPECT	Magnitude	Score
PRE-MITIGATION/WOM		
Rating	<i>Moderate</i>	44
PROPOSED MITIGATION MEASURES		
<i>The following is recommended, where feasible:</i> <ul style="list-style-type: none"> • <i>Contribute to the local municipality by assisting with the upkeep of roads.</i> • <i>Use local roads only during off-peak times to reduce traffic congestion</i> • <i>Set up access agreements with directly affected landowners and legal occupiers.</i> 		
POST-MITIGATION (WM)		
Rating	<i>Low</i>	22

6.1.10. IMPACT ON AGRICULTURAL ACTIVITIES

As documented in Chapter 4 of this report, farmer engagements were conducted using a questionnaire tailored to gather comprehensive insights into their experiences and perspectives. The Volspruit Soil and Agriculture Assessment by Urban-Econ outlines key agricultural findings, with detailed questionnaire questions provided in Annexure B.

These engagements revealed several challenges faced by farmers in the past following a mine's inception in the area, including concerns over compliance monitoring costs, dust pollution, increased crime rates, and impacts on tourism and recreational activities. Infrastructure damage, heightened snake activity due to mining-induced vibrations, and labour market competition were also identified as pressing issues. Additionally, challenges such as littering, rise in informal settlements, road maintenance, and water quality concerns were highlighted, necessitating collaborative efforts between stakeholders to mitigate adverse socio-economic impacts and foster sustainable coexistence. These challenges underscored the potential impact of the Volspruit mine development on their income, consequently affecting the contribution of these farms to the agricultural sector.

The table below is used to represent the impacts as per the impact rating assessment matrix utilised by Urban-Econ.

Table 6-14: Impact Assessment on Agricultural Activities

IMPACT ON AGRICULTURAL ACTIVITIES	
PROJECT PHASE	<i>Construction</i>
IMPACT	<ul style="list-style-type: none"> • <i>Decline in agricultural activities within the area.</i> • <i>Decreased household income, employment and overall agricultural contribution.</i>

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

NATURE OF IMPACT (Negative or Positive Impact)	Negative	
ASPECT	Magnitude	Score
PRE-MITIGATION/WOM		
Rating	Moderate	44
PROPOSED MITIGATION MEASURES		
<i>The following is recommended, where feasible:</i> <ul style="list-style-type: none"> • Create buffer zones between mine and farms. • Regularly monitor air, water, and soil quality. • Implement measures to reduce airborne dust. • Involve farmers in decision-making. • Provide support for affected farmers (either monetary or through business partnerships). • Invest in eco-friendly mining technologies. 		
POST-MITIGATION (WM)		
Rating	Low	22

6.2. ASSESSMENT OF IMPACTS – OPERATIONAL PHASE

This section highlights the socio-economic impacts during the operational phase of the proposed project.

6.2.1. SUSTAINABLE INCREASE IN PRODUCTION AND GDP-R IN THE NATIONAL AND LOCAL ECONOMIES

During the operational phase of the project, there is expected to be a slight economic boost to the local community due to increased economic activities associated with the mine. Table 6-15 presents the total potential impact on production expected during the operational phase of the development. About R945 million of revenue will be generated annually. Due to the multiplier effect, it will result in the creation of an indirect impact of R454,62 million and an induced impact of R267,021. Therefore, the total impact of the development on production will be R1 668,63 million annually.

Table 6-15: Impact on Production During Operations (R' millions)

	Direct	Indirect	Induced	Total	Percentage (Total)
Agriculture	R -	R 3,92	R 19,17	R 23,09	1,4%
Mining	R 945,00	R 60,23	R 12,28	R 1 017,51	61,0%
Manufacturing	R -	R 33,50	R 47,89	R 81,39	4,9%
Electricity	R -	R 50,20	R 9,79	R 59,99	3,6%
Water	R -	R 20,32	R 3,71	R 24,03	1,4%
Building and Construction	R -	R 31,17	R 5,97	R 37,14	2,2%
Trade and accommodation	R -	R 37,99	R 40,72	R 78,72	4,7%
Transport and storage	R -	R 73,66	R 32,32	R 105,98	6,4%
Financing	R -	R 7,09	R 30,98	R 38,07	2,3%
Real estate and business services	R -	R 50,70	R 44,82	R 95,52	5,7%
Government services	R -	R 83,58	R 11,47	R 95,05	5,7%
Other	R -	R 2,26	R 9,90	R 12,16	0,7%
Total	R 945,00	R 454,62	R 269,01	R 1 668,63	100,0%

Source: Urban-Econ based on Data Supplied by Client

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

Table 6-16 provides the total impact on GDP induced by the management costs of the mine. The revenue generated by the facility will result in the creation of R513,62 million annually in GDP, which is expected to grow the local economy. An additional R337,45 million of GDP is expected to be generated annually through the indirect and induced impact of the facility. Overall, the operations of the facility are projects to increase the national economy by R851,07 million annually when also considering direct and spillover effects during the period.

Table 6-16: Impact on GDP During Operations (R' millions)

	Direct	Indirect	Induced	Total	Percentage (Total)
Agriculture	R -	R 1,83	R 8,94	R 10,77	1,3%
Mining	R 513,62	R 28,09	R 5,73	R 547,43	64,3%
Manufacturing	R -	R 15,62	R 22,33	R 37,95	4,5%
Electricity	R -	R 23,41	R 4,56	R 27,97	3,3%
Water	R -	R 9,48	R 1,73	R 11,21	1,3%
Building and Construction	R -	R 14,54	R 2,78	R 17,32	2,0%
Trade and accommodation	R -	R 17,72	R 18,99	R 36,71	4,3%
Transport and storage	R -	R 34,35	R 15,07	R 49,42	5,8%
Financing	R -	R 3,30	R 14,45	R 17,75	2,1%
Real estate and business services	R -	R 23,64	R 20,90	R 44,54	5,2%
Government services	R -	R 38,97	R 5,35	R 44,32	5,2%
Other	R -	R 1,05	R 4,62	R 5,67	0,7%
Total	R 513,62	R 212,00	R 125,45	R 851,07	100,0%

Source: Urban-Econ based on Data Supplied by Client

The table below is used to represent the impacts as per the impact rating assessment matrix utilised by Urban-Econ.

Table 6-17: Impact assessment of National Economy during Operations

IMPACT ON ECONOMY		
PROJECT PHASE	<i>Operation</i>	
IMPACT	<ul style="list-style-type: none"> Long-term increase in production and GDP in the local economy Improved household income and increased business sales in the local economy 	
NATURE OF IMPACT (Negative or Positive Impact)	<i>Positive</i>	
ASPECT	Magnitude	Score
PRE-MITIGATION/WOM		
Rating	<i>Moderate</i>	52
PROPOSED MITIGATION MEASURES		
<i>Where feasible, procure goods and services required for the operation of the mine from the local economy</i>		
POST-MITIGATION (WM)		
Rating	<i>Moderate</i>	60

6.2.2. CREATION OF SUSTAINABLE EMPLOYMENT OPPORTUNITIES NATIONALLY AND LOCALLY

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

The operational phase of the proposed mine has the potential of creating sustainable jobs that require different skillsets, this will benefit the local communities. The creation of long-term jobs will improve the income levels in the area and the workers standard of living. Beyond these direct employment prospects, the operation of the mine can also have indirect employment effects on other sectors of the local economy.

As shown in the table below, the direct employment of 708 persons relating to the management of the mine will be sustained throughout the facility's operations. As the production impact filters through the economy, a further 1 355 FTE jobs could be generated.

Table 6-18: Impact on Employment During Operations

	Direct	Indirect	Induced	Total	Percentage (Total)
Agriculture	-	29	141	170	8,3%
Mining	708	21	4	733	35,5%
Manufacturing	-	49	55	104	5,0%
Electricity	-	32	6	38	1,8%
Water	-	13	2	15	0,7%
Building and Construction	-	109	21	130	6,3%
Trade and accommodation	-	95	101	196	9,5%
Transport and storage	-	51	18	69	3,3%
Financing	-	22	94	116	5,6%
Real estate and business services	-	154	136	291	14,1%
Government services	-	157	22	179	8,7%
Other	-	4	19	23	1,1%
Total	708	735	620	2 063	100,0%

Source: Urban-Econ based on Data Supplied by Client

According to the table above, the mining sector will account for the majority of the FTE generated by the facility, whether directly, indirectly, or induced. During the facility's operations, the real estate and business services, trade and accommodation, and government services all stand to considerable employment opportunities. The impact of job creation is positive, and it will help to reduce the Mogalakwena Local Municipality's high unemployment rate.

The table below is used to represent the impacts as per the impact rating assessment matrix utilised by Urban-Econ.

Table 6-19: Impact Assessment on Employment during Operations

IMPACT ON EMPLOYMENT		
PROJECT PHASE	<i>Operation</i>	
IMPACT	<ul style="list-style-type: none"> • <i>Creation of permanent employment opportunities in the local and regional economy</i> • <i>improved income of households whose members are employed on the project</i> 	
NATURE OF IMPACT (Negative or Positive Impact)	<i>Positive</i>	
ASPECT	Magnitude	Score

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

PRE-MITIGATION/WOM		
Rating	Moderate	52
PROPOSED MITIGATION MEASURES		
<ul style="list-style-type: none"> Where feasible, aim to fill positions by labour from the local community. Local small and medium enterprises should be approached to investigate the opportunities to supply maintenance services. Collaborate with local temporary employment agencies to streamline the recruitment process and connect with a pool of qualified local candidates. 		
POST-MITIGATION (WM)		
Rating	Moderate	60

6.2.3. IMPROVED LIVING STANDARDS OF POSITIVELY AFFECTED HOUSEHOLDS

Annual household income is expected to increase by R385,03 million annually throughout the country during the operational period of the mine. Direct beneficiaries are estimated to earn R253,39 million. Production-induced impacts will generate an additional increase in household income to the value of R50,56 million annually during the facility's operations.

Table 6-20: Total Impact on Household Income During Operations (R' millions)

	Direct	Indirect	Induced	Total	Percentage (Total)
Agriculture	R -	R 0,85	R 2,37	R 3,22	0,8%
Mining	R 253,39	R 10,84	R 2,52	R 266,75	69,3%
Manufacturing	R -	R 4,91	R 4,98	R 9,89	2,6%
Electricity	R -	R 10,31	R 2,01	R 12,31	3,2%
Water	R -	R 2,16	R 0,39	R 2,56	0,7%
Building and Construction	R -	R 4,02	R 0,81	R 4,84	1,3%
Trade and accommodation	R -	R 8,89	R 9,38	R 18,27	4,7%
Transport and storage	R -	R 12,45	R 5,15	R 17,59	4,6%
Financing	R -	R 1,84	R 8,06	R 9,90	2,6%
Real estate and business services	R -	R 7,52	R 8,18	R 15,70	4,1%
Government services	R -	R 16,25	R 2,25	R 18,50	4,8%
Other	R -	R 1,06	R 4,44	R 5,50	1,4%
Total	R 253,39	R 81,09	R 50,56	R 385,03	100,0%

Source: Urban-Econ based on Data Supplied by Client

The table below is used to represent the impacts as per the impact rating assessment matrix utilised by Urban-Econ.

Table 6-21: Impact Assessment on Household Income during Operations

IMPACT ON HOUSEHOLD INCOME		
PROJECT PHASE	Operation	
IMPACT	<ul style="list-style-type: none"> Increased Household Income during the Operational Phase Increased business sales in the local economy 	
NATURE OF IMPACT (Negative or Positive Impact)	Positive	
ASPECT	Magnitude	Score
PRE-MITIGATION/WOM		
Rating	Moderate	52
PROPOSED MITIGATION MEASURES		

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

<ul style="list-style-type: none"> Where feasible, aim to fill positions by labour from the local community. Local small and medium enterprises should be approached to investigate the opportunities to supply maintenance services. 		
POST-MITIGATION (WM)		
Rating	<i>Moderate</i>	60

6.2.4. SKILLS DEVELOPMENT OF PERMANENTLY EMPLOYED WORKERS

The proposed mine is expected to be operational for approximately 20 years. Compared to the construction phase, the operational phase is more complex and requires more diverse skills. The majority of direct labour during the operational phase is likely to be derived locally. As exhibited in the previous sections, there is a shortage of middle to highly skilled workers locally, thus migrant workers will potentially fill other positions. Skills development is, therefore, imperative for locals and the initiatives planned by the project owner may improve the current status of skills in the area.

The table below is used to represent the impacts as per the impact rating assessment matrix utilised by Urban-Econ.

Table 6-22: Impact Assessment for Skills Development of Permanently Employed Workers

IMPACT ON SKILLS DEVELOPMENT OF PERMANENTLY EMPLOYED WORKERS		
PROJECT PHASE	<i>Operation</i>	
IMPACT	<ul style="list-style-type: none"> Skills development in the local workforce Increased skills levels in municipality which can translate to further economic stimulation. 	
NATURE OF IMPACT (Negative or Positive Impact)	<i>Positive</i>	
ASPECT	Magnitude	Score
PRE-MITIGATION/WOM		
Rating	<i>Low</i>	24
PROPOSED MITIGATION MEASURES		
<i>The following mitigations are advised to be instituted to maximise skills transfer</i> <ul style="list-style-type: none"> Employ local residents, where possible. Combine experienced workers and non-experienced workers to work together to create opportunities for on-the-job training. Grow employees by giving them responsibilities according to their skills, knowledge and eagerness. Provide training to employees in business management and entrepreneurship. 		
POST-MITIGATION (WM)		
Rating	<i>Moderate</i>	48

6.2.5. SUSTAINABLE INCREASE IN GOVERNMENT REVENUE

During the operational phase, it is expected that the proposed mine will generate an income through mining activities. The taxes generated through the selling of output will increase not only the national

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

fiscus but also local government revenues. Additionally, increased spending power will translate into more purchases, which would increase the value-added tax base for the government.

The table below is used to represent the impacts as per the impact rating assessment matrix utilised by Urban-Econ.

Table 6-23: Impact Assessment on Government Revenue During Operations

IMPACT ON GOVERNMENT REVENUE		
PROJECT PHASE	<i>Operation</i>	
IMPACT	<ul style="list-style-type: none"> Increased government revenue due to government income taxes and payroll taxes. Improvement in service delivery and hence quality of life. 	
NATURE OF IMPACT (Negative or Positive Impact)	<i>Positive</i>	
ASPECT	Magnitude	Score
PRE-MITIGATION/WOM		
Rating	<i>Low</i>	24
PROPOSED MITIGATION MEASURES		
<i>To further enhance the positive impact the mine can do the following:</i> <ul style="list-style-type: none"> Investing in community development projects to improve infrastructure and amenities. Implementing sustainable practices to minimize environmental impact and promote long-term resource conservation. 		
POST-MITIGATION (WM)		
Rating	<i>Moderate</i>	48

6.2.6. CHANGE IN SENSE OF PLACE

The proposed development is expected to have a lower impact on the sense of place as opposed to the construction phase in terms of air quality, consistent noise, or visual elements to the area. During the operational phase, traffic volumes are expected to increase slightly as a larger number of employees will have to travel to the proposed site. However, this should not be a hindrance as the proposed site is accessible through national roads, which have a larger capacity to accommodate higher levels of traffic. The proposed mining activities are likely to present some negative impacts to the sense of place, noting that the mining industry contributes to pollution levels in the respective region and can have an impact on a wide range of sectors such as agriculture and heritage and tourism.

The table below is used to represent the impacts as per the impact rating assessment matrix utilised by Urban-Econ.

Table 6-24: Impact Assessment on Sense of Place during Operations

IMPACT ON SENSE OF PLACE	
PROJECT PHASE	<i>Operation</i>

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

IMPACT	<ul style="list-style-type: none"> Deterioration of quality of life due to dust, noise, visual, water supply and water pollution and other environmental impacts Permanent change to the overall sense of place 	
NATURE OF IMPACT (Negative or Positive Impact)	Negative	
ASPECT	Magnitude	Score
PRE-MITIGATION/WOM		
Rating	Moderate	60
PROPOSED MITIGATION MEASURES		
<ul style="list-style-type: none"> Implement stringent noise and dust control measures to minimise the impact on the community's sense of place. Engage in continuous community consultation and feedback to address concerns promptly. Promote community participation in landscaping and greening initiatives to restore the aesthetic appeal of the area. 		
POST-MITIGATION (WM)		
Rating	Moderate	52

6.2.7. PRESSURE ON SOCIAL AND ECONOMIC INFRASTRUCTURE

Mining operations have historically applied pressure on social and economic infrastructure as the operations are usually large. The infrastructure affected by mining operations is usually electricity, water supply, sanitary requirements, transport and communication. These factors are largely dependent on the nature and size of the operation. It can be expected that pressure will be applied to these infrastructures as an additional development will depend on them.

The table below is used to represent the impacts as per the impact rating assessment matrix utilised by Urban-Econ.

Table 6-25: Impact Assessment of Social and Economic Infrastructure during Operations

IMPACT ON SOCIAL AND ECONOMIC INFRASTRUCTURE		
PROJECT PHASE	Operation	
IMPACT	<ul style="list-style-type: none"> Deterioration of social and economic infrastructure in the proximity of the mining operations due to noise, dust, and air pollution from mining activities making the area less desirable for property buyers. Decreased quality of life due to faster deterioration of infrastructure. 	
NATURE OF IMPACT (Negative or Positive Impact)	Negative	
ASPECT	Magnitude	Score
PRE-MITIGATION/WOM		
Rating	Moderate	52
PROPOSED MITIGATION MEASURES		
<p>The following is recommended, where feasible:</p> <ul style="list-style-type: none"> Contribute to the local municipality by assisting with the upkeep of roads. Use local roads only during off-peak times to reduce traffic congestion Investigate provision of water for irrigation to surrounding farmers 		
POST-MITIGATION (WM)		
Rating	Low	26

6.2.8. INCREASED HEALTH AND SAFETY RISK

The study area may experience a deterioration of quality of life due to dust, noise, visual, water supply and water pollution. This does not only affect the quality of life for individuals residing and working in the area but also negatively impacts commercial and subsistence farmers. The operational phase of the mining activities may result in the following impacts affecting the quality of life:

- Airborne dust, which leads to reduced air quality
- Reduction in the quality of air due to gaseous emissions
- Dust from vehicular activity
- Infrastructure and mine area lighting.

The table below is used to represent the impacts as per the impact rating assessment matrix utilised by Urban-Econ.

Table 6-26: Impact Assessment on the Environment and Community Health during Operations

IMPACT ON HEALTH AND SAFETY RISK		
PROJECT PHASE	<i>Operation</i>	
IMPACT	<ul style="list-style-type: none"> • <i>Health risks to the community, potentially contaminating drinking water, and potential risk to respiratory diseases</i> • <i>Soil contamination and potential water contamination or loss could impact agriculture in the area.</i> 	
NATURE OF IMPACT (Negative or Positive Impact)	<i>Negative</i>	
ASPECT	Magnitude	Score
PRE-MITIGATION/WOM		
Rating	<i>Moderate</i>	52
PROPOSED MITIGATION MEASURES		
<ul style="list-style-type: none"> • <i>Recommendations as per Environmental Impact Assessment</i> • <i>Regularly monitor air and water quality, taking swift corrective action if contamination is detected.</i> • <i>Develop a comprehensive rehabilitation plan to restore natural resources, especially soil and water quality.</i> • <i>Ensure proper fencing and monitoring of the fencing is in place</i> • <i>Hire additional security personnel during the operational period</i> 		
POST-MITIGATION (WM)		
Rating	<i>Low</i>	26

6.2.9. IMPACT ON NEARBY AGRICULTURAL ACTIVITIES DURING OPERATIONS

The operational phase of the mine, while contributing to economic growth and job creation, poses significant challenges to nearby agricultural activities. These challenges are challenges already faced by farms in proximity to a mine and include various factors associated with mining operations:

- **Dust and Air Quality:** Mining operations generate dust and emissions that can settle on crops, reducing their quality and yield. Poor air quality can also affect the health of livestock and the productivity of farm workers.
- **Water Contamination and Usage:** Mining activities often involve the use of large quantities of water and can lead to the contamination of local water sources. This can affect irrigation, reduce water availability for crops and livestock, and degrade soil quality, ultimately harming agricultural productivity.
- **Soil Degradation:** Mining operations can lead to soil erosion and degradation. The heavy machinery used can compact the soil, making it less fertile and harder to cultivate, which impacts crop yields and overall farm productivity.
- **Displacement and Land Use Changes:** The Volspruit mine development will result in loss of arable land and could encroach on other arable areas, reducing the area available for farming. This displacement can force farmers to relocate, disrupting local agricultural practices and communities.
- **Economic Disruptions:** While the mine may provide alternative employment opportunities, it can also lead to an increase in local prices for goods and services, affecting the cost structures for farmers. Additionally, fluctuations in the labour market may result in labour shortages for farms.

To effectively gauge the impact the mine will have on the operational activities of nearby farms, the Volspruit Soil and Agriculture Assessment was reviewed. This report highlights that, although the mine is expected to increase employment in the area, it will reduce overall agricultural production, thus negatively impacting the sector. The report provides mitigation measures to limit these negative impacts. For a thorough review of the total impact, please refer to the Volspruit Soil and Agriculture Assessment.

6.3. ASSESSMENT OF IMPACTS – DECOMMISSIONING PHASE

The Volspruit Mine is planned to span 20 years, including construction and operations. Thereafter, the termination of the project will likely occur and the decommissioning process will begin. This expenditure on rehabilitation activities will generate positive impacts on production, GDP, employment, and household income, albeit relatively small and for a temporary period. Resultantly, the local economy will be stimulated for the duration of the decommissioning phase. Decommissioning expenditure such as the disassembly of buildings, machinery and rehabilitation of the land will increase the demand for construction services and services offered by other industries.

The decommissioning process will inform the land restoration process. Infrastructure such as roads and service-related facilities (building), water and stormwater systems may be utilised for future activities.

Socio-economic impacts projected to emerge during the closure phase are expected to be similar to those that take place during the construction phase. Impacts will occur for a shortened duration and will be associated with less expenditure than that was observed during the construction period. During the decommissioning phase, there may be a temporary deterioration of quality of life due to dust, noise, visual, water supply and water pollution and other environmental impacts. Potential negative impacts include:

- Reduction of air quality as a result of vehicle emissions
- Reduction of air quality as a result of dust emissions
- Noise from the machinery and vehicles
- Demolition and removal of infrastructure
- Rehabilitation of disturbed areas
- Shaping of and landscaping of backfilled pit and pit to remain open.

However, the overall increase in production, GDP, employment, and household income, will lead to an improved quality of life due to the rehabilitation phase and its associated activities. It can be assumed that the existence of the project in the community will create a significant stimulus, potentially leading to industry development in the area and the availability of opportunities even after decommissioning the mine. There will also be some residual impacts as a result of mining, i.e. flood diversion berm and rehabilitated pits and residue deposits.

6.4. NO-GO ALTERNATIVE

The no-go alternative assumes that the proposed project is not approved and does not go ahead, implying a continuation of the current situation or the *status quo*. Therefore, the no-go alternative would imply no new infrastructure development within the proposed project footprint. Under this scenario, the economic benefits derived from this activity (as identified in the previous section) would be forgone.

Table 6-27: Impact Assessment on the No-go Alternative

NO-GO-ALTERNATIVE	
PROJECT PHASE	<i>No-go alternative</i>
DIRECT IMPACT	<i>No impact (but positive impacts forgone i.e., No increase in production, GDP and employment in the local economy)</i>
INDIRECT IMPACT	<i>No impact (but positive impacts forgone i.e., No increase/improved energy generation in the regional and national economy)</i>
NATURE OF IMPACT (Negative or Positive Impact)	<i>No impact</i>
PRE-MITIGATION/WOM - not assessed because no impacts would be realised under the no-go alternative	

6.5. CONCLUDING REMARKS

In line with Appendix 6 of the EIA regulations, a summary of the key findings per facility can be found in Table 6-28 below.

Table 6-28: Impact Assessment Summary

<i>Impact</i>	<i>Significance before mitigation</i>	<i>Significance after mitigation</i>
Stimulation of the Economy during Construction	Moderate Positive	Moderate Positive
Creation of Employment during Construction	Moderate Positive	Moderate Positive
Increased Household Income during Construction	Moderate Positive	Moderate Positive
Temporary Change in Sense of place	Moderate Negative	Moderate Negative
Temporary increase in crime and social conflicts associated with influx (or removal) of people	Moderate Negative	Low Negative
Impact on Environment during Construction	Moderate Negative	Low Negative
Pressure on Social and Economic Infrastructure during Construction	Moderate Negative	Low Negative
Impact on Skills Development during Construction	Low Positive	Moderate Positive
Impact on Property Values during Construction	Low Negative	Negligible
Impact on Agriculture during Construction	Moderate Negative	Low Negative
Impact on Economy during Operation	Moderate Positive	Moderate Positive
Impact on Employment during Operations	Moderate Positive	Moderate Positive
Impact on Household Income during Operations	Moderate Positive	Moderate Positive
Impact on Skills Development during Operations	Low Positive	Moderate Positive
Change in Sense of Place during Operations	Moderate Negative	Moderate Negative
Impact on Environment during Operations	Moderate Negative	Moderate Negative
Impact on Health and Safety Risk during Operations	Moderate Negative	Low Negative
No-go alternative		

The chapter analysed the socio-economic impact of the proposed development for the construction, operational and decommissioning phases. The construction phase is likely to have a short-term effect where temporary employment is generated. The operational phase is expected to create longer-term sustainability through job creation and socio-economic responsibility. Ultimately both phases are expected to contribute to the local and national economies socio-economic conditions.

However, the analysis also highlights potential negative impacts on nearby farms. These impacts include possible disruptions to agricultural activities due to noise, dust, and water contamination from

construction and mining operations. Such disruptions could lead to reduced agricultural productivity and income for local farmers, thereby affecting their contribution to the agricultural sector. It is crucial to address these challenges through effective mitigation measures to balance development benefits with agricultural sustainability.

7. CONCLUSION

The proposed Volspruit Mining operation is to be located in Mogalakwena LM, approximately 20 km south of the town Mokopane, in the Limpopo province. The proposed project aims to extract PGMs from two open pits, located on the farm Volspruit together with most of the surface infrastructure. The waste rock and tailings residue stockpiles are proposed to be located on the farm Zoetveld.

The national and local government spheres acknowledge the need to develop the mining sector and promote private investment to stimulate growth in the area in their respective policies. Considering the impact of mining activities on the environment, the policies also underline the necessity to protect the ecosystem and, therefore, use water resources efficiently and sustainably as well as reduce pollution. Furthermore, mining should contribute to the socio-economic development of the communities in the area, especially through local enterprise development and local procurement.

The proposed mining activities should further promote the development of the area. The Mogalakwena LM makes up almost half of the larger Waterberg DM. The local municipality has experienced high unemployment rates and low levels of household income. The provision of basic services is relatively poor and crime levels are relatively high. The need for improvement is evident within the local municipality. The site-related information depicted that the proposed mining site is situated in a rural area not close to any social facilities. Furthermore, the proposed site location has a high potential for mining. Therefore, the proposed project has the potential to contribute to the development of the area.

The assessment of the needs and desirability and the profile of the zone of influence revealed that the proposed mining operation has the potential to create numerous positive impacts and will likely stimulate the local and national economy. The stimulation of the economy will occur as a result of employment as well as the sourcing and outsourcing of required goods and services. This has numerous benefits such as a potential rise in household income levels, a rise in consumption levels, new business sales, business expansion and a contribution to GDP.

The proposed project is expected to have some negative impacts on current activities on the farms and in proximity to the development. Existing agricultural and accommodation activities may reduce significantly during the operational phase (although contractors and visitors to the mine could make use of available accommodation), potentially leading to job losses in these industries. Additionally, the mining project may affect the sense of place.

After assessing relevant government policies, conducting a baseline study of the area, evaluating the sense of location, and considering the needs and desirability of the proposed project, along with the

assessment of potential socio-economic impacts, it is concluded that the proposed project can only be implemented with strict adherence to the mitigation measures outlined in this report and the Volspruit Soil and Agriculture Assessment. This adherence is essential to ensure a negligible impact on the area.

8. ANNEXURE A: IMPACT ASSESSMENT RATING METHODOLOGY

The objective of the assessment of potential impacts is to identify and assess all the significant, potential impacts that may arise as a result of the project. For each of the main project phases the existing and potential future impacts and benefits (associated only with the project) will be described using the criteria listed below. The assignment of ratings has been undertaken based on past experience of the team, as well as through research. Subsequently, mitigation measures will be identified and considered for each impact and the assessment repeated in order to determine the significance of the residual impacts (the impact remaining after the mitigation measure has been implemented).

Table 8-1: Impact Assessment Criteria

Probability: This describes the likelihood of the impact actually occurring.	
Improbable	The possibility of the impact occurring is very low, due to the circumstances, design, or experience.
Probable	There is a probability that the impact will occur to the extent that provision must be made therefore.
Highly Probable	It is most likely that the impact will occur at some stage of the development.
Definite	The impact will take place regardless of any prevention plans, and there can only be relied on mitigatory actions or contingency plans to contain the effect.
Duration: The lifetime of the impact	
Short term	The impact will either disappear with mitigation or will be mitigated through natural processes in a time span shorter than any of the phases.
Medium term	The impact will last up to the end of the phases, where after it will be negated.
Long term	The impact will last for the entire operational phase of the project but will be mitigated by direct human action or by natural processes thereafter.
Permanent	Impact that will be non-transitory. Mitigation either by man or natural processes will not occur in such a way or in such a time span that the impact can be considered transient.
Scale: The physical and spatial size of the impact	
Local	The impacted area extends only as far as the activity, e.g., footprint
Site	The impact could affect the whole, or a measurable portion of the above-mentioned properties.
Regional	The impact could affect the area including the neighbouring residential areas.
Magnitude/ Severity: Does the impact destroy the environment or alter its function.	
Low	The impact alters the affected environment in such a way that natural processes are not affected.
Medium	The affected environment is altered, but functions and processes continue in a modified way.

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

High	Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.
Significance: This is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required.	
Negligible	The impact is non-existent or unsubstantial and is of no or little importance to any stakeholder and can be ignored.
Low	The impact is limited in extent, has low to medium intensity; whatever its probability of occurrence is, the impact will not have a material effect on the decision and is likely to require management intervention with increased costs.
Moderate	The impact is of importance to one or more stakeholders, and its intensity will be medium or high; therefore, the impact may materially affect the decision, and management intervention will be required.
High	The impact could render development options controversial or the project unacceptable if it cannot be reduced to acceptable levels; and/or the cost of management intervention will be a significant factor in mitigation.

Mitigation Effect: Degree to which the impact can be managed following mitigation	
Can be reversed	Can be avoided, managed or mitigated in such a way that natural processes are not affected and returned to natural state
Can be avoided, managed or mitigated	Can be avoided, managed or mitigated to the degree that functions and processes continue in a modified way)
May cause irreplaceable loss of resources	Irreversible impact (may cause irreplaceable loss of resources). Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.

Table 8-2: Impact Assessment Criteria and Rating Scale

Aspect	Description	Weight
Probability	Improbable	1
	Probable	2
	Highly Probable	4
	Definite	5
Duration	Short term	1
	Medium term	3
	Long term	4
	Permanent	5
Scale	Local	1
	Site	2
	Regional	3
Magnitude	Low	2
	Medium	6
	High	8
Significance		
	Negligible	<=20
	Low	<=40
	Moderate	<=60
	High	>60

	P	D	S	M	Scoring
WOM	4	1	2	6	36
WM	4	1	2	2	20

9. ANNEXURE B: CHECKLIST

This report has been compiled in accordance with the EIA Regulations, 2014 (Government Notice (GN) R982). Note that there are no specific government protocols for the assessing of impacts of the proposed Benoni PFS project for use in socio-economic assessments.

Regulation GNR 326 of 4 December 2014, as amended 7 April 2017, Appendix 6	Section of Report (Page)
1. (1) A specialist report prepared in terms of these Regulations must contain- a) details of- i. the specialist who prepared the report; and ii. the expertise of that specialist to compile a specialist report, including a curriculum vitae;	3
b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	5
c) an indication of the scope of, and the purpose for which the report was prepared;	Error! Bookmark not defined.0
(cA) an indication of the quality and age of base data used for the specialist report;	15
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	42,53
d) the date and season of the site investigation and the relevance of the season to the outcome of the assessment;	15
e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	13
f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternative;	25
g) an identification of any areas to be avoided, including buffers;	25

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

Regulation GNR 326 of 4 December 2014, as amended 7 April 2017, Appendix 6	Section of Report (Page)
h) a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	25
i) a description of any assumptions made and any uncertainties or gaps in knowledge;	16
j) a description of the findings and potential implications of such findings on the impact of the proposed activity, (including identified alternatives on the environment) or activities;	53
k) any mitigation measures for inclusion in the EMPr;	53
l) any conditions for inclusion in the environmental authorisation;	53
m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;	53
n) a reasoned opinion- i. whether the proposed activity, activities or portions thereof should be authorised; (iA) regarding the acceptability of the proposed activity or activities; and ii. if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan;	78
o) a description of any consultation process that was undertaken during the course of preparing the specialist report;	42, 81
p) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	42
q) any other information requested by the competent authority.	NA
2) Where a government notice <i>gazetted</i> by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	NA

10.ANNEXURE C: SOCIO-ECONOMIC, SOIL AND AGRICULTURAL QUESTIONNAIRE

Section 1: General information

Section 2: Farm information

1. What is the total size of your farm in hectares?
2. What is the scale of your farm? (e.g., small, medium, commercial)
3. What type of agricultural production do you engage in? (e.g., crop farming, livestock farming, mixed farming)
4. What are the commodities of crop farming and their respective hectares? (e.g. maize, citrus, cattle)
5. Can you describe the infrastructure available on your farm? (e.g., barns, silos, fencing)
6. What is the grazing capacity of your farm? (e.g., number of livestock per hectare)
7. Do you have information on the soil types present on your farm?
8. Can you describe the boundaries of your farm and production areas?
9. What are the sources of water for your farm?
10. How would you describe the availability of water throughout the year?

Section 3: Operational Information

1. Can you describe the ownership structure of your farm? (e.g., sole proprietorship, partnership, corporation)
2. Can you describe the employment trends on your farm? (e.g., number of employees, gender and age distribution, seasonal vs permanent employment)
3. Number of employees on the farm.
4. Change in employment over the past five years. (Have they employed more or less people, have people resigned.
5. What is the maximum production capacity of your farm?
6. What are the primary input sources for your production? (e.g., seeds, fertilizers, machinery)
7. How would you describe your access to the services needed for your production? (e.g., veterinary services, machinery repair, transportation)
8. Can you provide a breakdown of your production costs? (e.g., percentages spent on labour, inputs, maintenance)
9. Average yield per hectare over the past 5 years (tons)

Section 4: Market Information

1. What are the main challenges you face in the production process? (e.g., pests, diseases, weather conditions, labour shortages)
2. What are the main challenges you face in accessing markets for your products? (e.g., transportation, price fluctuations, lack of buyers)
3. What percentage of household income does agriculture contribute?

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

4. How many income streams do you have outside agriculture? (i.e. grant, formal employment, pension etc)

Section 5- Additional Socioeconomic questions

1. How do you perceive the potential impacts of the project on the community/economy/environment?
2. How would the continuation of the proposed project impact your income?
3. How would the continuation of the proposed project impact those employed by your farm?
4. Are there any specific aspects of the proposed project that you are particularly concerned about?
5. Are there any specific aspects of the proposed project that you are excited about?
6. What measures do you think could help mitigate any negative impacts (or enhance positive impacts) of the proposed project?
7. What are the main strengths and weaknesses of the community in terms of socio-economic development that the proposed project can enhance?
8. Do you have any additional comments, questions, or suggestions regarding the socio-economic impact assessment?
9. How would you like to receive updates or feedback on the progress of the assessment?
10. Are there any specific areas or topics that you would like to see addressed in future stakeholder engagement sessions?

11. REFERENCES

- Constitution of the Republic of South Africa. (1996). *Constitution of the Republic of South Africa*. Retrieved from Government: <https://www.gov.za/sites/default/files/images/a108-96.pdf>
- Department of Economic Development. (2010). New Growth Path Framework (NGPF).
- Department of Mineral Resources. (2011). Beneficiation Strategy for the Mineral Industry South Africa.
- Department of Mineral Resources. (2012). *Department of Mineral Resources*. Retrieved from Government: https://www.gov.za/sites/default/files/gcis_document/201409/departmentofmineralresourceannualreport20112012.pdf
- Department of Trade and Industry. (2018). *Industrial Policy Action Plan IPAP 2018/19-2020/21*. Retrieved from South African Government: <https://www.gov.za/st/node/779706>
- Department of Trade and Industry. (2019). *Department of Trade and Industry*. Retrieved from Government: https://www.gov.za/sites/default/files/gcis_document/201911/thedti-ar2019.pdf
- Economic Development Department. (2011). *Annual Report*. Retrieved from Economic Development Department: https://www.gov.za/sites/default/files/gcis_document/201409/edd-annual-report-20102011.pdf
- Limpopo Provincial Government . (2015). *Limpopo Development Plan 2015-2019*.
- Limpopo Provincial Government. (2015). *Limpopo Provincial Spatial Development Framework*. Office of the Premier.
- Limpopo Provincial Government. (2015). *Limpopo Provincial Spatial Development Framework (PSDF) (2015)*.
- Limpopo Provincial Government. (2020). *Limpopo Strategic Plan 2020-2025*.
- MapAble®. (2021). Retrieved from MapAble®: <http://www.mapable.co.za/>
- Mogalakwena Local Municipality. (2019). *Intergrated Development Plan*. Retrieved from Mogalakwena Local Municipality: <http://www.mogalakwena.gov.za/mogalakwena-admin/pages/sites/mogalakwena/documents/idp/2018-2019%20Final%20IDP1.pdf>
- Mogalakwena Local Municipality. (2020). *Intergrated Development Plan*. Retrieved from Mogalakwena Local Municipality: <http://www.mogalakwena.gov.za/mogalakwena-admin/pages/sites/mogalakwena/documents/idp/2019-20%20IDP.pdf>
- Munnik, V. (2010). *The Social and Environmental Consequences of Coal Mining in South Africa*. Environmental Monitoring Group. Retrieved from https://www.bothends.org/uploaded_files/uploadlibraryitem/1case_study_South_Africa_uploaded.pdf
- National Planning Commission. (2011). *National Planning Commission*. Retrieved from Government: https://www.gov.za/sites/default/files/gcis_document/201409/npcdiagnosticoverview1.pdf
- National Planning Commission. (2011). *The National Development Plan, Vision for 2030*.
- National Planning Commission. (2012). *National Development Plan 2030*. Retrieved from South African Government: <https://www.gov.za/issues/national-development-plan-2030>
- Provincial Policy Agenda. (2015-2019). *Provincial Policy Agenda*. Retrieved from Limpopo government.
- Quantec. (2021). Retrieved from EasyData by Quantec: <https://www.easydata.co.za/>
- Republic of South Africa. (2015, June 03). Mineral and etroleum Resources Development Regulations (GN R466).
- Republic of South Africa. (2022). National Environemntal Management Act (no 107 of 1998) .

SOCIO-ECONOMIC IMPACT ASSESSMENT REPORT

- SA Yearbook. (2020). *SA Yearbook*. Retrieved from Government communications:
<https://www.gcis.gov.za/content/resourcecentre/sa-info/south-africa-yearbook-201920>
- Seloa, P., & Ngole-Jeme, V.-J. (2022). *Community Perceptions on Environmental and Social Impacts of Mining in Limpopo South Africa and the Implications on Corporate Social Responsibility*. Journal of Integrative Environmental Sciences. doi:<https://doi.org/10.1080/1943815X.2022.2131827>
- StatsSA. (2011).
- Sylvania Platinum Limited. (2011). Retrieved from Sylvania Platinum Limited:
<https://www.sylvaniaplatinum.com/>
- The Mining Charter. (2018). Broad-based Socio-economic Empowerment Charter for the Mining and Mineral Industry.
- Waterberg District Municipality. (2009). *Spatial Development Framework*. Retrieved from Waterberg Spatial Development Framework:
<http://www.waterberg.gov.za/docs/plans/Waterberg%20SDF%202.pdf>
- Waterberg District Municipality. (2014). *Local Economic Development*. Retrieved from Waterberg District Municipality:
[http://www.waterberg.gov.za/docs/sdbip/Waterberg%20LED%20Strategy%202014%20Final.p
df](http://www.waterberg.gov.za/docs/sdbip/Waterberg%20LED%20Strategy%202014%20Final.pdf)
- Waterberg District Municipality. (2019). *Annual Report*. Retrieved from Waterberg District Municipality.